

**THE EFFECT OF FINANCIAL RISK MANAGEMENT ON THE
FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN
KENYA**

BY

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DECLARATION

This research project is my original work and has not been presented for examination in any other university.

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DEDICATION

This project is dedicated to my dear family for their encouragement and moral support through this research project, May the Almighty God bless you abundantly

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LIST OF ABBREVIATIONS

BCBS	Basel Committee on Banking Supervision
BIS	Bank of International Settlements
CAMEL	Capital Adequacy, Asset Quality, Management Efficiency & Liquidity
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
CL	Classified Loans
EBIT	Earnings before Interest and Tax
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
LA	Loan Advance
LLP	Loan Loss Provision
NPL	Non-performing Loans
RMPs	Risk Management Programs
ROA	Return on Asset
ROE	Return on Equity
RWAs	Risk-weighted Assets
SPSS	Statistical Package for Social Sciences
TD	Total Deposit
TL	Total Loans
VAR	Value at Risk

ABSTRACT

Financial risk management is considered by researchers as a yard stick for determining failure or success of a financial institution. It has not been given much attention in recent times. This research work sought to bring to light the need for financial institutions to pay attention to the management of risk. It is obvious that the aim of every business is to maximize shareholders wealth and acquire substantial profit either for expansion or to undertake new product development. Across the banking industry, the most prominent area that erodes the mass of their profit is risk management (credit, market and operational).

The objective of this study was to analyse the effect of financial risk management on the financial performance of commercial banks in Kenya. The study analyzed the current financial risk management practices of the 44 commercial banks licensed in Kenya. The researcher adopted descriptive research design and ROA which represents financial performance was averaged for 6 years (2008-2013). The study was based mainly on secondary data which was collected from the annual reports of commercial banks. The researcher in her analysis used multiple regression analysis models which were presented in the form of tables and regression equation.

The findings of the study showed that there is a significant relationship between financial performance and financial risk management. The results of the analysis indicates that non performing loans ratio (NPLR) has a strong correlation with ROA and both cash to deposit ratio and current ratio have a weak correlation with ROA. Hence, the regression as whole is significant meaning that NPLR, Current Ratio and Cash to deposit ratio reliably predict ROA. The study recommends that banks should manage risks involved during their operations to minimize potential risks and losses involved and that dividends paid to shareholders should be well managed to maximize the profits. It also recommends that banks should develop strategies to manage risks involved during their operations.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The past decade has seen the world witnessing one of the most shocking financial meltdowns. The effects of the crisis were pervasive and hit almost every sector of global businesses; the most affected sector was the financial services industry, specially the banking sector. The banking sector did not only witness the dramatic disappearance of the most renowned institutions it also became a regular target for tougher regulations, public anger and academic criticism. There are numerous explanations on the causes of the current financial crisis. One factor that has received significant attention during this crisis is risk management discourse. It seems that risk management has become an important tool, from which banks try to achieve legitimacy in the eyes of the public and regulators, (Metzmakers, 2005).

Risks are uncertainties that are always evident in all business establishments that are in place with the sole aim of making profits. Financial institutions in their part are exposed to various kinds of risks among them credit risk, interest rate risk, liquidity risk, market risk, foreign exchange risk, currency risk, commodity risk and operational risk which are the most applicable risk to the banks (Cooperman et al, 2000). Credit risk, also called default risk, is the risk associated with a borrower going into default that is not making payments as promised. There is always the possibility for the borrower to default from his or her commitments for one or the other reason resulting in crystallization of credit risk to the bank. These losses could take the form of outright default or alternatively, losses from changes in portfolio value arising from actual or perceived deterioration in credit quality that is short of default.

Foreign exchange risk arises from rapid and extreme changes in value due to: smaller markets; differing accounting, reporting, or auditing standards; nationalization, expropriation or confiscatory taxation; economic conflict; or political or diplomatic changes. 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. There are two types of liquidity risk: Asset liquidity which arises when an asset cannot be sold due to lack of liquidity in the market and Funding liquidity risk which arises when liabilities: cannot be met when they fall due, can only be met at an uneconomic price and can be name-specific or systemic (Claudiu, 2009).

Market risk is the risk that the value of a portfolio, either an investment portfolio or a trading portfolio, will decrease due to the change in market risk factors. The four standard market risk factors are stock prices, interest rates, foreign exchange rates, and commodity prices: Equity risk is the risk that stock prices in general or the implied volatility will change. Interest rate risk is the risk that interest rates or the implied volatility will change. Currency risk is the risk that foreign exchange rates or the implied volatility will change, which affects, for example, the value of an asset held in that currency. Commodity risk is the risk that commodity prices or implied volatility will change. Operational risk is a risk arising from execution of a company's business functions. It focuses on the risks arising from the people, systems and processes through which a company operates. According to Basel II regulations operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events (Medhat, 2006).

In some instances, commercial banks and other financial institutions have approved decisions that are not vetted; there have been cases of loan defaults and nonperforming loans, massive extension of credit and directed lending. Policies to minimize on the negative effects have focused on mergers in banks and better banking practices but stringent lending, review of laws to be in line with the global standards, well capitalized banks which are expected to be profitable, liquid banks that are able to meet the demands of their depositors, and maintenance of required cash levels with the central bank which means less cash is available for lending (Uyemura et al, 1992).

Risk management is defined as the process that a bank puts in place to control its financial exposures. The process of risk management comprises the fundamental steps of risk identification, risk analysis and assessment, risk audit monitoring, and risk treatment or control (Bikker and Metzmakers, 2005; Buttimer, 2001).It is not only a defensive mechanism, but also an offensive weapon for commercial banks and this is heavily

dependent on the quality of leadership and governance. Risk is the fundamental element that drives financial behaviour. Without risk, the financial system would be vastly simplified. However, risk is omnipresent in the real world. Financial Institutions therefore, should manage the risk efficiently to survive in this highly uncertain world. The future of banking will undoubtedly rest on risk management dynamics. Only those banks that have efficient risk management system will survive in the market in the long run.

According to Diffu (2011) the crisis that affected global financial stability and the economy in 2007-2009 has reinforced the need to rethink some of the approaches adopted by the financial community in assessing bank performance. To this end, it is important to obtain a comprehensive view of the key factors that may influence banks' performance, including the adequacy of business models in relation to risk appetite, and the question of how this adequacy is handled inside and outside banks through governance processes.

1.1.1 Financial Risk Management

Over the last decades, risk analysis and corporate risk management activities have become very important elements for both financial as well as non-financial corporations. Firms are exposed to different sources of risk, which can be divided into operational risks and financial risks. Operational risks or alternatively business risks relate to the uncertainty regarding the firm's investments and investment opportunities, and are influenced by the product markets in which a firm operates. In addition to operational risks, unexpected changes in e.g. interest rates, exchange rates, and oil prices create financial risks for individual companies. As opposed to operational risks, which influence a specific firm or industry, financial risks are market-wide risks that can affect the financial performance of companies in the whole economy. Both kinds of risk exposure can have substantial impact on the value of a firm.

Financial risk management is the practice of economic value in a firm by using financial instruments to manage exposure to risk, particularly credit risk and market risk. Market risk can be classified into four broad classes, foreign currency, interest rate, commodity, and

equity risk. Similar to general risk management, financial risk management requires identifying its sources, measuring it, and plans to address them. Financial risk management can be qualitative and quantitative. As a specialization of risk management, financial risk management focuses on when and how to hedge using financial instruments to manage costly exposures to risk (Yakup and Asli, 2010). It is the practices and procedures that a company uses to optimize the amount of risk it handles with its financial interests.

In the banking sector worldwide, the Basel Accords are generally adopted by internationally active banks for tracking, reporting and exposing operational, credit and market risks. As a way of evaluating and managing current and possible financial risk at a firm financial risk managers must identify the risk, evaluate all possible remedies, and then implement the steps necessary to alleviate the risk. These risks are typically remedied by using certain financial instruments as a method of counteracting possible ramifications. Financial risk management cannot prevent a firm from all possible risks because some are unexpected and cannot be addressed quickly enough.

According to Tapiero (2004), financial risk management refers to the practice of creating economic value in a firm by using financial instruments to manage exposure to risk, particularly credit risk and market risk. Similar to general risk management, financial risk management requires identifying its sources, measuring it, and plans to address them (Conti and Mauri, 2008). Financial risk is often defined as the unexpected variability or volatility of returns and thus includes credit risks, liquidity risks and market risks (Holton, 2004). Therefore, financial risk management practices are those activities and procedures that are employed by managers in an effort of safeguarding an organization from credit risks, liquidity risks and market risks. Financial risk management practices fall into three major categories; credit risk practices, liquidity risk management practice as and market risks (Kithinji, 2010).

Implementation of financial risk management practices relates to the adequacy of the provision and reserves which are in accordance with Basel standards which require banks to have a capital adequacy ratio of 8%. The maintenance of capital adequacy is aiming at

a moving target as the composition of risk-weighted assets gets changed every minute on account of fluctuation in the risk profile of a bank. Capital adequacy is known as the core capital providing permanent and readily available support to the bank to meet the unexpected losses (Medhat, 2006). Capital is also used as cushion to protect depositors in case of loss. Capital adequacy ratio is measured in terms of total capital as a percentage of total risk weighted assets which show the amount of capital an institution holds relative to the risk profile of its assets. Capital adequacy is evaluated using the minimum core capital which is the absolute amount of capital that institutions are required to maintain at all times for banks and mortgage finance companies as a requirement by the central bank.

The ultimate objective of financial risk management implementation is to maintain financial performance in the banking sector as aspects of risk management promote early warning system of monitoring relevant indicators; as well as stimulating and making provisions for possible realistic strains on the system by conducting stress testing. This helps regulators to monitor the system and prepare for ways to avert potential or discovered stress on the system hence establishing financial performance (Bikker & Metzmakers, 2005).

1.1.2 Financial Performance

Financial performance is company's ability to generate new resources, from day-to-day operations, over a given period of time and performance is gauged by net income and cash from operations. According to Toutou and Xiaodong (2011), financial performance is a general measure of how well a bank generates revenues from its capital. It also shows a bank's overall financial health over a period of time, and it helps to compare different banks across the banking industry at the same time. The bank's financial performance generally can be recognized as its stability and profitability. The stability refers to its risk factors and profitability refers to its financial return.

The Return on Asset and the Return on Equity are used by various scholars to measure the financial returns of an organization. The return on Assets (ROA) is a ratio that measures company earnings before interest & taxes (EBIT) against its total net assets.

The ratio is considered an indicator of how efficient a company is using its assets to generate before contractual obligation must be paid. It is calculated as: $ROA = \frac{EBIT}{\text{Total Assets}}$. Return on assets gives an indication of the capital intensity of the banking industry, which will depend on the industry; banks that require large initial investment will generally have lower return on assets (Apps, 1996). According to Pandey (1996), Return on equity (ROE) is calculated to see the profitability of owners' investments. It is calculated as annual net income after tax divided by shareholders equity as a measure of performance.

1.1.3 Effect of Financial Risk Management on Financial Performance

The main aim of management of banks is to maximize expected profits taking into account its volatility (risk). This calls for an active management of the volatility (risk) in order to get the desired results. Financial risk management therefore attempts to reduce the volatility of profit which has the potential of lowering the value of shareholders' wealth. Various authors including Stulz (1984), Smith et al (1990) and Froot et al (1993) have offered reasons why managers should concern themselves with the active management of risks in their organizations.

Financial risk management also ensures the desire to shoulder lower tax burden to seek for reduced volatility of profits. With progressive tax schedules, the expected tax burden are reduced when income smoothens therefore activities which reduce the volatility of reported taxable income are pursued as they help enhance shareholders' value. Perhaps the most compelling reason for managers to engage in risk management with the aim of reducing the variability of profits is the cost of possible financial distress. Significant loss of earnings can lead to stakeholders losing confidence in the firm's operations, loss of strategic position in the industry, withdrawal of license or charter and even bankruptcy. The costs associated with these will cause managers to avoid them by embarking on activities that will help avoid low realizations. Finally, risk management helps firms to avoid low profits which force them to seek external investment opportunities. When this happens, it results in suboptimal investments and hence lower shareholders' value since the cost of such external finance is higher than the internal funds due to capital market imperfections.

Fatemi and Fooladi (2006) notes that effective financial risk management leads to more balanced trade-off between risk and reward, to realize a better position in the future. Shafiq and Nasr (2010) notes that the banking industry recognizes that an institution needs not do business in a manner that unnecessarily imposes risk upon it; nor should it absorb risk that can be efficiently transferred to other participants. Rather, it should only manage risks at the firm level that are more efficiently managed there than by the market itself or by their owners in their own portfolios. In short, it should accept only those risks that are uniquely a part of the bank's array of services.

1.1.4 Commercial Banks in Kenya

A commercial bank is an institution that provides financial services, including issuing money in various forms, receiving deposits of money, lending money and processing transactions and the creating of credit (Campbell, 2007). Commercial Banks in Kenya are licensed, supervised and regulated by the Central Bank of Kenya. Kenya has 44 banks; 31 are locally owned and 13 foreign owned. The locally owned financial institutions comprise three banks with significant shareholding by the Government of Kenya and State Corporation, 27 commercial banks and one mortgage finance institution, Housing Finance. Commercial banks in Kenya are categorized in three tier groups on the basis of the value of bank assets. Tier group one are banks with an asset base of more than Ksh40 billion, tier group two are commercial banks with asset base between Ksh40 billion and Ksh10 billion while tier group three are banks with asset base of less than Ksh10 billion. According to the 2009 Banking Survey, there are eleven commercial banks in tier group one, eleven commercial banks in tier group two and twenty two on commercial banks in tier group three comprising to a total of forty three commercial banks.

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. The CBK, which falls under the Minister for Finance docket, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system.

1.2 Research Problem

Risk management is considered by researchers as a yard stick for determining failure or success of a financial institution. It has not been given much attention in recent times. This research work seeks to bring to light the need for financial institutions to pay attention to the management of risk. It is obvious that the aim of every business is to maximize shareholders wealth and acquire substantial profit either for expansion or to undertake new product development. Across the banking industry, the most prominent area that erodes the mass of their profit is risk management (credit, market and operational). The problem of this study is to cram the causes of risk and how this can be anticipated and managed to improve performance of the bank.

Following the financial crisis of the 2007-2009, stringent regulatory measures, such as higher capital requirements have become more prominent as a move towards having stable and more competitive banking sector (Financial Service Authority, 2009). Banks play a critical role in the allocation of society's limited savings among the most productive investments, and they facilitate the efficient allocation of the risks of those investments (Diamond and Dybvig, 1983). However, the financial crisis showed that a breakdown in this process can disrupt economies around the world. The crises further revealed the importance of bank regulations to hedge against high risks attributed to imbalances in banks' balance sheet.

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

The recent global financial crisis revealed the importance of bank regulations to hedge against high risks attributed to imbalances in banks' balance. Stulz (2008) argued that there are five ways in which financial risk management systems can break down, all exemplified in the global crisis and other recent ones: failure to use appropriate risk metrics; miss-measurement of known risks; failure to take known risks into account; failure in communicating risks to top management; failure in monitoring and managing risks. Central Bank Supervision Report, 2008 indicates that many banks that collapsed in Kenya in the late 1990's were as a result of the poor management of credit risks which was portrayed in the high levels of nonperforming loans. It's important therefore to study how banks are managing the broader financial risk.

Related studies done in the past have focused on the various aspects of risk management in Kenyan commercial banks. For instance Rajan (1994) notes that expanding lending in the short-term boosts earnings, thus the banks have an incentive to ease their credit standards in times of rapid credit growth, and likewise to tighten standards when credit growth is slowing. Obiero (2002) researched on adequacy of the banking sector regulatory framework in reducing bank failures. The Basel committee (2000) and Hennie (2000) pointed out that the major cause of banking problems and failures are directly related to lax credit standards for borrowers and counterparts; Kabiru (2002) examined how banks assess credit risks in Kenya, while the Basel committee (2000) and Hennie (2000) pointed out that the major cause of banking problems and failures are directly related to lax credit standards for borrowers and counterparts. This study aims to analyse and research on the question: Does financial risk management have any effect on the financial performance of commercial banks in Kenya?

1.3 Objective of the study

To determine the effect of financial risk management on the financial performance of commercial banks in Kenya.

1.4 Value of the Study

The findings of the study will be important to financial institutions because they will be able to understand general risk management practices and how they influence the financial performance of the banks and how the same can be leveraged to achieve high financial performance.

The findings of the study will be important to the bank operational staff and management who will be able to understand the risk management practices that contribute to financial performance of commercial banks and ensure that they undertake acceptable banking practices and procedures and will also facilitate bank customers to understand and appreciate risk management practices instituted by banks so as to adhere to prudential banking practices.

The findings will provide insight in the most successful strategies banks use to handle credit risk will assist Central Bank of Kenya in formulating guidelines that will enhance Risk Management in the banking sector. Academicians will benefit from the information of the study as the study will contribute to existing body of knowledge. The study will further provide the background information to research organizations and scholars and identify gaps in the current research for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks at the literature on risk management by specifically looking at the theoretical review on the topic of study and the specific determinants of financial performance in financial institutions and also stating some studies that have previously been studied on the effect of risk management on the financial performance of commercial banks. In summary this gives a theoretical foundation to the topic of study.

2.2 Theoretical Review

This section explains some of the specific theories that can be related to the topic of study on risk management and the effect it has on the financial performance of organizations. The theories are Portfolio Theory, New Institutional Theory and Financial Economic Theory as discussed below:

2.2.1 Portfolio Theory

According to Markowitz (1952), investors focused on assessing the risks and rewards of individual securities in constructing their portfolios. Since the 1980s, companies have successfully applied modern portfolio theory to market risk. Many companies are now using value at risk models to manage their interest rate and market risk exposures. While each company's method varies, this approach involves periodically evaluating the quality of credit exposures, applying a credit risk rating, and aggregating the results of this analysis to identify a portfolio's expected losses. The foundation of the asset-by-asset approach is a sound credit review and internal credit risk rating system. This system enables management to identify changes in individual credits, or portfolio trends in a timely manner. Based on the changes identified, credit identification, credit review, and credit risk rating system management can make necessary modifications to portfolio strategies or increase the supervision of credits in a timely manner. While the asset-by-asset approach is a critical component to managing credit risk, it does not provide a

complete view of portfolio credit risk, where the term risk refers to the possibility that actual losses exceed expected losses. Therefore, to gain greater insight into credit risk, companies increasingly look to complement the asset-by-asset approach with a quantitative portfolio review using a credit model (Mason and Roger, 1998). Companies increasingly attempt to address the inability of the asset-by-asset approach to measure unexpected losses sufficiently by pursuing a portfolio approach. One weakness with the asset-by-asset approach is that it has difficulty identifying and measuring concentration. Concentration risk refers to additional portfolio risk resulting from increased exposure to credit extension, or to a group of correlated creditors (Richardson, 2002).

2.2.2 New Institutional Economics Theory

This theory according to Williamson (1998) predicts that risk management practices may be determined by institutions or accepted practice within a market or industry. Further, the theory links security with specific assets purchase, which implies that risk management can be important in contracts which bind two sides without allowing diversification, such as large financing contract or close cooperation within a supply chain.

Firms in regulated industries provide top management with few opportunities for discretion in corporate investment and financing decisions. Smith and Watts (1992) showed that regulation is a key determinant of a firm's corporate financial policy. Therefore, if regulated firms face tighter scrutiny and face lower contracting costs, then they are less likely to use derivatives to hedge firm risk. According to Froot and Stein (2003), if external sources of funds are more costly to a firm than internally generated funds, then the firm could benefit from using derivatives. In particular, firms can hedge cash flows to avoid a shortfall in funds that may require a costly visit to the capital markets and at the same time derivatives are positively related to measures of the firm's investment opportunity set proxies.

2.2.3 Financial Economic Theory

Carter et al. (2006) suggested that organizations risk management is apt to increase firm value in the presence of capital market imperfections such as bankruptcy costs, a convex tax schedule, or underinvestment problems. According to Carter et al. (2006) risk management can increase shareholder value by harmonizing financing and investment policies. When raising external capital, firms may under invest. Derivatives can be used to increase shareholder value by coordinating the need for and availability of internal funds. Conflicts of interest between the shareholders and debt holders can also lead to underinvestment. An underinvestment problem can occur when leverage is high and shareholders only have a small residual claim on a firm's assets, thus the benefits of safe but profitable investment projects accrue primarily to bondholders and may be rejected (Bessembinder,1991). A credible risk management can mitigate underinvestment costs by reducing the volatility of firm value. As the underinvestment problem is likely to be more severe for firms with significant growth and investment opportunities, various measures such as the market-to-book ratio, research and development to sales ratio, capital expenditure to sales, net assets from acquisitions to size are used for testing the underinvestment hypothesis.

2.3 Determinants of Financial Performance

The determinants of bank financial performances can be classified into bank specific (internal) and macroeconomic (external) factors (Al-Tamimi, 2010; Aburime, 2005). Internal factors are individual bank characteristics which affect the performance of banks and are influenced by internal decisions of management and the board. The external factors are sector-wide or country-wide factors which are beyond the control of the company and affect the bank's profitability. So far the overall financial performance of banks in Kenya in the last two decade has been improving but not a reason to believe that all banks are profitable because there are banks declaring losses (Oloo, 2010). Studies have shown that bank specific and macroeconomic factors affect the performance of commercial banks (Flamini et al. 2009).

2.3.1 Capital Adequacy

Capital is one of the bank specific factors that influence the level of bank profitability. It is the amount of funds available to support the bank's business and act as a buffer in case of adverse situations (Athanasoglou et al. 2005). Banks capital creates liquidity for the bank due to the fact that deposits are most fragile and prone to bank runs and it reduces the chance of financial distress (Diamond, 2000). However, its drawbacks is that it induces weak demand for liability as the cheapest sources of fund Capital adequacy is the level of capital required by the banks to enable them withstand the risks such as credit, market and operational risks they are exposed to in order to absorb the potential losses and protect the bank's debtors. According to Dang (2011), the adequacy of capital is judged on the basis of capital adequacy ratio (CAR). Capital adequacy ratio shows the internal strength of the bank to withstand losses during crisis. Capital adequacy ratio is directly proportional to the resilience of the bank to crisis situations. It has also a direct effect on the profitability of banks by determining its expansion to risky but profitable ventures or areas (Sangmi and Nazir, 2010).

2.3.2 Asset Quality

The bank's asset is another bank specific variable that affects the profitability of a bank. The bank asset includes among others current asset, credit portfolio, fixed asset, and other investments (Athanasoglou et al., 2005). In most cases the loan of a bank is the major asset that generates the major share of the banks income and it is the major asset of commercial banks from which they generate income. The quality of loan portfolio determines the profitability of banks. The loan portfolio quality has a direct bearing on bank profitability. The highest risk facing a bank is the losses derived from negligent loans (Dang, 2011). Thus, nonperforming loan ratios are the best proxies for asset quality. Different types of financial ratios used to study the performances of banks by different scholars. It is the major concern of all commercial banks to keep the amount of nonperforming loans to low level. This is so because high nonperforming loan affects the profitability of the bank. Thus, low nonperforming loans to total loans shows that the

good health of the portfolio a bank. The lower the ratio the better the bank performing (Sangmi and Nazir, 2010).

2.3.3 Management Efficiency

Management Efficiency is represented by different financial ratios like total asset growth, loan growth rate and earnings growth rate. The performance of management is often expressed qualitatively through subjective evaluation of management systems, organizational discipline, control systems, quality of staff, and others. The capability of the management to deploy its resources efficiently, income maximization, reducing operating costs can be measured by financial ratios. One of this ratios used to measure management quality is operating profit to income ratio (Sangmi and Nazir, 2010). The higher the operating profits to total income (revenue) the more the efficient management is in terms of operational efficiency and income generation. The other important ratio is that proxy management quality is expense to asset ratio. The ratio of operating expenses to total asset is expected to be negatively associated with profitability. Management quality in this regard, determines the level of operating expenses and in turn affects profitability (Athanasoglou et al. 2005).

2.3.4 Liquidity Management

Liquidity refers to the ability of the bank to fulfill its obligations, mainly of depositors. According to Dang (2011) adequate level of liquidity is positively related with bank profitability. The most common financial ratios that reflect the liquidity position of a bank according to the above author are customer deposit to total asset and total loan to customer deposits. Other scholars use different financial ratio to measure liquidity. For instance Ilhomovich (2009) used cash to deposit ratio to measure the liquidity level of banks in Malaysia. However, the study conducted in China and Malaysia found that liquidity level of banks has no relationship with the performances of banks (Said and Tumin, 2011).

2.3.5 Macroeconomic Factors

The macroeconomic policy stability, Gross Domestic Product, Inflation, Interest Rate and Political instability are some of the macroeconomic variables that affect the performances of banks. For example, the trend of GDP affects the demand for banks asset. During the declining GDP growth the demand for credit falls which in turn negatively affect the profitability of banks. On the contrary, in a growing economy as expressed by positive GDP growth, the demand for credit is high due to the nature of business cycle. During boom the demand for credit is high compared to recession (Athanasoglou et al., 2005). He also states in relation to the Greek situation that the relationship between inflation level and banks profitability is remained to be debatable. The direction of the relationship is not clear (Vong and Chan, 2009).

2.4 Empirical Review

There have been debate and controversies on the impact of risk management and bank's financial performance. Scholars have carried out extensive studies on this topic and produced mixed results; while some found that risk management impact positively on banks financial performance, some found negative relationship and others suggest that other factors apart from risk management impacts on bank's performance.

Li yuqi (2007) examined the determinants of banks profitability and its implications on risk management practices in the United Kingdom. The study employed regression analysis on a time series data between 1999 and 2006. Six measures of determinants of bank's profitability were employed. They indicated Liquidity, credit and capital as internal determinants of bank's performance. GDP growth rate, interest rate and inflation rate were used as external determinants of banks profitability. The six variables were combined into one overall composite index of bank's profitability. Return on Asset (ROA) was used as an indicator of bank's performance. It was found that liquidity and credit risk have negative impact on bank's profitability.

Githinji (2010), did a study on Credit Risk Management and Profitability of Commercial Banks in Kenya to assess the degree to which the credit risk management in practice had

significantly contribute to high profits in commercial banks of Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The results of the study showed that, there was no relationship between profits, amount of credit and the level of nonperforming loans. The findings reveal that the bulk of the profits of commercial banks were not influenced by the amount of credit and nonperforming loans suggesting that other variables other than credit and nonperforming loans impact on profits. Commercial banks that are keen on making high profits should concentrate on other factors other than focusing more on amount of credit and nonperforming loans. A regression model was used to elaborate the results which showed that there was no significance relationship between the banks profit and credit risk management proxy by level of Non-performing Loans and Loans and Advances/Total assets.

Al-Khouri (2011) studied the Risk Performance of the GCC Banking and assessed the impact of bank's specific risk characteristics, and the overall banking environment on the performance of 43 commercial banks operating in 6 of the Gulf Cooperation Council (GCC) countries over the period 1998-2008. Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk.

Boahene et al., (2012) used regression analysis to determine whether there is a significant relationship between credit risk and profitability of Ghanaian banks. They followed the line of Hosna et al.,(2009) by using Return of Equity as a measure of bank's performance and a ratio of non-performing loans to total asset as proxy for credit risk management. They found empirically that there is an effect of credit risk management on profitability level of Ghanaian banks. The study also suggests that higher capital requirement contributes positively to bank's profitability.

Kolapo (2012) on his study on Credit Risk and Commercial Banks' Performance In Nigeria carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000 - 2010). Five Commercial banking firms were selected on a cross sectional basis for eleven

years. The traditional profit theory was employed to 24 formulate profit, measured by Return on Asset (ROA), as a function of the ratio of Non - performing loan to loan & Advances (NPL/LA), ratio of Total loan & Advances to Total deposit (LA/TD) and the ratio of loan loss provision to classified loans (LLP/CL) as measures of credit risk.

William (2012) studied the influence of financial risk management on the financial performance of commercial banks in Kenya. A descriptive survey of the credit and management staff of the forty two commercial banks and one mortgage company formed the target population with a sample size of one hundred and seven staff randomly chosen for the study. Primary data for the period 2008-2012 through close ended questions was collected in this study on the financial risk management practices employed and their influence on the financial performance of the commercial banks. Data was analyzed using correlation analysis and regression models with the strength of the model being tested using Cronbach's Co-efficient Alpha. The study found that most commercial banks had highly adopted financial risk management practices to manage financial and credit risk and as a result the financial risk management practices mentioned herein have a positive correlation to the financial performance of commercial banks of Kenya. The study recommends that commercial banks should seek and obtain information consistently so as to permit them to detect potential problems at an early stage and identify trends not only for particular institutions, but also for the banking system as a whole, while also ensuring transparency of banking activities and the risks inherent in those activities, including credit risk.

Ogilo (2012) provided a comparative study of Credit Risk Management on Financial Performance of Commercial Banks in Kenya. A causal research design was undertaken in this study and this was facilitated by the use of secondary data which was obtained from the Central Bank of Kenya publications on banking sector survey. The study used multiple regression analysis in the analysis of data and the findings were presented in the form of tables and regression equations. The study found out that there was a strong impact between the CAMEL components on the financial performance of commercial banks. The study also established that capital adequacy, asset quality, management efficiency and liquidity (CAMEL) had weak relationship with financial performance

(ROE) whereas earnings had a strong relationship with financial performance. The study concluded that CAMEL model can be used as a proxy for credit risk management.

Grace (2012), on her study assessed the effect of credit risk management on the financial performance of commercial banks in Kenya through secondary data collected from the commercial banks annual reports for the period 2007-2011 and out of the 43 banks she concentrated on full data collected from 26 banks. The data was analyzed using multiple regression analysis by using the Statistical Package for Social Sciences (SPSS). The study showed that there is a significant relationship between performance in terms of profitability and credit risk management in terms of loan performance and capital adequacy.

Ongore and Kusa (2013) on their study on Determinants of Financial Performance of Commercial Banks in Kenya they assessed on the moderating effect of ownership structure on bank performance. To fill this glaring gap in this vital area of study, the authors used linear multiple regression model and Generalized Least Square on panel data to estimate the parameters. The findings showed that bank specific factors significantly affect the performance of commercial banks in Kenya, except for liquidity variable. But the overall effect of macroeconomic variables was inconclusive at 5% significance level. The moderating role of ownership identity on the financial performance of commercial banks was insignificant. Thus, they concluded that the financial performance of commercial banks in Kenya was driven mainly by board and management decisions, while macroeconomic factors have insignificant contribution.

Wanjohi (2013) assessed the effect of financial risk management on the financial performance of commercial banks in Kenya. In achieving this objective, the study assessed the current risk management practices of the commercial banks and linked them with the banks' financial performance. Return on Assets (ROA) was averaged for five years (2008-2012) to proxy the banks' financial performance. To assess the financial risk management practices, a self-administered survey questionnaire was used across the banks. The study used multiple regression analysis in the analysis of data and the findings were presented in the form of tables and regression equations. The study found out that majority of the Kenyan banks were practicing good financial risk management and as a

result the financial risk management practices mentioned herein have a positive correlation to the financial performance of commercial banks in Kenya. Although there was a general understanding about risk and its management among the banks, the study recommends that banks should devise modern risk measurement techniques such as value at risk, simulation techniques and risk-adjusted return on capital. The study also recommends use of derivatives to mitigate financial risk as well as develop training courses tailored to the needs of banking personnel in risk management.

2.5 Summary of Literature Review

Determining how much capital must be held against contingencies that could arise from such risks is very important for the soundness and financial performance of the banking sector. The 1988 Basle Capital Accord targets a bank's capital holdings as a proportion of the risk of their on-balance-sheet and off-balance-sheet business. Supervisory reporting systems provide for early detection before problems become more serious. To complement the information available in public and supervisory reporting, supervisors often collect additional information to assist in clarifying a bank's financial risk profile, as well as to better understand important financial risk management issues. Thus the issue of risk management is very important in any financial institution as it is because of this the financial crises that have hit financial institutions before would have been avoided if they had taken it into consideration thus risk management is considered a key factor for all companies that are in any business operation.

Most of the studies done by previous researchers have concentrated so much on credit risk how it affects financial performance not taking into consideration that there are other kinds of risks which could possibly have an effect on the same. Also the previous local researchers have learned heavily towards the various tools and techniques of financial risk management, practices and strategies used by financial institutions. The studies did not clearly establish a relationship between financial risk management and according to the researchers knowledge no specific research as used other variables other than the processes of risk management as independent variables. Thus there exists a gap necessitating the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a description of the methodology that was used by the researcher to carry out the study. It gives a description of the research design, population of the study, data collection method that was used and the data analysis technique that was used to analyze the data collected during the study.

3.2 Research Design

The researcher adopted descriptive research design in the study to collect the data for the period 2008 to 2013 for all the commercial banks in Kenya. According to Mugenda and Mugenda (1999), descriptive research describes various phenomenon of interest from various perspectives. Data in this case is presented in a meaningful way that enables the researcher undertake characteristics in a given scenario and make proper decisions. Descriptive research entails the collection of data to enable the researcher to collect data on the topic of study. This is aimed to establish how capital is used in risk management and how it affects the financial performance of commercial banks. The time periods were taken because it is during that time that the Basel II was implemented as well as the end of the guidelines to give way to Basel III from the year 2013.

3.3 Population

Mugenda and Mugenda (1999), describes a population as a complete set of individuals or objects with some common observable characteristics. A particular population has some characteristics that differentiate it from other populations. A target population on the other hand is that population to which the researcher wants to generalize the results of the study. The population of the study was the 44 Commercial Banks in Kenya which are currently registered with the Central Bank of Kenya and licensed to operate as at December 2013 in the period 2008-2013 (Appendix)

3.4 Data Collection

The study relayed mainly on secondary data. This was obtained from the annual reports of Commercial banks in the form of financial statements which include statement of comprehensive income and the statement of financial position. The secondary data was collected from the various CBK Bank Supervision Annual Reports to calculate the ROA for the period 2008-2013 to represent financial performance. The measures for financial risk management were total capital to risk weighted assets, current ratio, cash to deposit ratio and non performing loans.

3.5 Data Analysis

This refers to the way in which the data was collected and interpreted. Secondary data was used to analyse the data most specifically Statistical Package for Social Science (SPSS) was used for the study data analysis.

The data that has been collected was analyzed using Multiple Regression Analysis Model. The aim of the regression analysis was to analyse data as well as to quantify relationships among variables expressed via an equation for predicting typical values of one's variable given the values of other variables. The regression model was used for the financial reports of the banks that have been in operation since 2008 and annual reports available.

3.5.1 Analytical Model

In this model financial performance which is the dependent variable will be measured using ROA (EBIT/Total Assets). The study will have four independent variables that is capital risks as measured by total capital to risk weighted assets, liquidity risk as measured by liquidity ratio (current ratio and cash to deposit ratio) and non-performing loans ratio (non-performing loans/total loans) which are the indicators of financial risk management which affect profitability of banks. These were moderated by the bank size as measured by the logs of total assets. Thus, the multiple linear regression will be of the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_2 M + \varepsilon$$

Where:

Y = Financial Performance as measured by ROA

β_0 = Constant term

$\beta_1 - \beta_4$ = Regression Coefficient of the Independent variables to be determined

X_1, X_2, X_3, X_4 are measures of financial risk management where;

X_1 is capital risk as measured by total capital to risk weighted assets,

X_2 is Liquidity as measured by current ratio,

X_3 is cash to deposit ratio,

X_4 is NPLs as measured by non-performing loans/total loans and

M is the bank size as measured by natural logarithm of banks total assets

ε = Error term

3.5.2 Test of Significance

The significance of the Risk Management in financial performance will be analyzed using the regression analysis SPSS output and the Test of Significance will include coefficient of correlation (R) which measures the strength and direction of a linear relationship between variables, coefficient of determination (R-squared) which gives the proportion of the variance of one variable that is predictable from the other variables, t-test which is the statistical examination of two population means that is whether the samples are different and ANOVA which is a model to analyse the differences between group means and their associated procedures.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents data collected on the financial risk management and how it affects the financial performance of commercial banks in Kenya. The sample of the study consists of the several commercial banks listed on Central Bank of Kenya that were in operation since 2008. Annual Time series data for independent- dependent variables were extracted from banks' annual audited financial statements from the period 2008-2013, while other key relevant data were obtained from the Guide of listed Central Bank of Kenya.

4.2 Finding of the study

This section is a representation of the findings of the study which are subdivided into descriptive statistics and inferential statistics as explained below.

4.2.1 Descriptive Statistics

To assess the financial performance of the commercial banks, one model was developed; that consists of one dependent variable and four identical independent variables. In designing the models with the help of SPSS 17, ROA was used as an internal financial performance indicator.

This ratios used to measure management quality is operating profit to income ratio The higher the operating profits to total income (revenue) the more the efficient management is in terms of operational efficiency and income generation. The other important ratio is that proxy management quality is expense to asset ratio. The ratio of operating expenses to total asset is expected to be negatively associated with profitability. Management quality in this regard, determines the level of operating expenses and in turn affects profitability.

Table 4.1. Key figures in Million shillings revealed by Commercial Banks in Kenya between years 2008 to 2013

End of Year	Total assets	Total liabilities	Credit facilities	Total deposits
2008	823,467	713,810	550,065	267,234
2009	867,388	740,654	651,765	276,245
2010	870,214	813,245	568,775	314,345
2011	890,675	868,910	585,875	334,380
2012	943,657	872,341	719,345	367,800
2013	977,860	890,234	759,675	390,245

Source: Research Findings

The total assets of commercial banks in Kenya grew by 23.3 percent in 2012/2013, marginally higher than 22.7 percent in the previous year. The growth of banks' assets was largely due to growth in loans which accelerated from 25.2 percent in 2010/2011 to 43.6 percent in 2012/2013.

During the period 2008-2011, the Kenyan banking system showed resilience, which was attributed in part to the low financial integration in the global financial market and the intensive supervision and sound regulatory reforms (Bank Supervision Annual Report 2009, 2010; IMF, 2009). The financial sector performance indicators improved substantially and the sector remained profitable with return on asset indicator rising from 2.6 percent in 2007 to 4.4 percent in 2011 while the ratio of gross non-performing loans to gross loans improving from 9.2 percent to 4.15 percent over the same period

However, these amounts and ratios varied substantially among the large, medium and small banks. In 2008, the total capital to total risk weighted assets ratio stood at 20.34% above the statutory minimum requirement of 12%. The values increased in 20-2013 as the banks geared up for new requirements to be achieved by 2014.

Table 4.2: Indicators of Measuring Risks on Financial Performance of Commercial Banks

Var/Year	2008	2009	2010	2011	2012	2013
ROA	2.30	2.17	1.95	2.20	2.35	2.40
Total Capital/Total Risk Weighted Asset	20.34	20.80	22.38	21.52	21.76	22.34
Gross Net Non-Performing Loans/Gross loans	9.20	8.0	6.30	4.40	5.25	4.15
Current Ratio	72%	77%	88%	86%	76%	80%
Cash to Deposit Ratio	10.14%	11.45%	14.75%	12.25%	13.35%	14%
LOG (Assets)	8.52	8.17	9.11	9.02	8.40	7.96

Source: Research Findings

Banks' asset quality improved. The level of non-performing loans (NPLs) in the banking sector reduced by 45.5 percent between 2009 and June 2013, resulting in the NPL ratio (*calculated as the ratio of NPLs to total gross loans*) dropping to 4.15. percent in 2013 from 8.0. percent in 2009 (Table 4.3)

As a consequence of the overall improvement in loan quality, banks were able to reduce their loan-loss reserves in the year 2011. The NPL coverage ratio (calculated as the ratio of loan loss reserves to total NPLs) rose from 65.5 percent to 73.8 percent (Chart 18).Although higher provisioning expenses reduce banks' profits; it reflects a prudent approach to credit risk management.

4.2.2: Inferential Statistics

Table 4.3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.825(a)	0.757	.567	.69750%

a Predictors: (Constant), M, X4, X3, X2, X1

Source: Research Findings

Referring to table 4.4 the study establishes the adjusted R-square to be 57%, so we can conclude that 57% of the variation in the dependent variable (ROA) is explained by the independent variables. This implies somehow strong explanatory power for the whole regression.

Table 4.4: Correlations

	X1	M	X2	X4	X3	ROA
X1	1	.144	.694	-.798	.979(**)	-.168
		.785	.126	.057	.001	.750
	6	6	6	6	6	6
M	.144	1	.658	-.045	.198	-.725
	.785		.155	.932	.706	.103
	6	6	6	6	6	6
X2	.694	.658	1	-.571	.687	-.660
	.126	.155		.237	.132	.154
	6	6	6	6	6	6
X4	-.798	-.045	-.571	1	-.664	-.203
	.057	.932	.237		.151	.699
	6	6	6	6	6	6
X3	.979(**)	.198	.687	-.664	1	-.300
	.001	.706	.132	.151		.563
	6	6	6	6	6	6
ROA	-.168	-.725	-.660	-.203	-.300	1
	.750	.103	.154	.699	.563	
	6	6	6	6	6	6

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

Source: Research Findings

A positive correlation revealed between current ratio and cash deposit ratio which was not significant as noted, 0.132 at 1% significant level. The cash deposit ratio had a strong positive relationship with total capital to risk weighted asset which was significant at the 0.01 level. On the other hand there seem to have a negative relationship which was strong between total capital to risk weighted asset and non performing ration, Pearson correlation was -0.798

Table 4.5: Analysis of Variance, ANOVA^b

Model	Sum of Squares		Df	Mean Square	F	Sig.
1	Regression	37.131	5	10.542	13.50	0.000(a)
	Residual	15.521	25	0.78		
	Total	52.652	29			

a Predictors: (Constant), M, X4, X3, X2, X1

b Dependent Variable: ROA

Source: Research Findings

As long as the F-stat (table 4.6) equals 13.5 and is significant (less than 5%), we accept the null Hypothesis claiming that there exist significant impact of Capital Risks, Liquidity Risks Asset management on internal financial performance of commercial banks measured by ROA.

Table 4.6: Correlation matrix

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std Error	Beta		
1	(Constant)	-17.534	4.481		-3.42	0.002
	X1	1.253	0.322	6.365	3.098	0.005
	X4	.055	0.015	.695	3.551	0.002
	X2	-3.083	0.087	-1.170	-2.956	0.006
	X3	-0.459	0.045	-5.309	-4.522	0.000
	M	.075	0.011	.213	1.570	0.125

a Dependent Variable: ROA

Source: Research Findings

Referring to the correlation matrix (see table4.7), we find a strong positive correlation between the dependent variable ROA and the independent variable banks' size measured by the Logarithm of total assets of about (+ **0.075**). A negative correlation was found between ROA and Current ratio (**-3.083**). Cash to deposit ratio found to be negatively-weak correlated with ROA of about (- 0.494) and a positive correlation with Non performing loans ratio of (+ **0.055**).

Thus, we can predict the average ROA with about 57% explanatory power by the following model: **ROA = - 17 + 1.253X1+3.083X2+-0.494X3+0.055X4+0.075M+e.**

To assess the significance of each independent variable on the dependent variable ROA, we consulted table 6 which contains the t-test with the significance factors. Asset size, operational efficiency and asset management found to be significant and affect ROA as their t-sig are less than 5%.

4.3 Interpretation of the Findings

The study found that there was a significant relationship between the financial risk management practices on the financial performance of commercial banks. In general, The R-Square in table 4.3 indicates that 75.7% of the ROA are explained by the financial risk management practices. The adjusted R-Square of 56.7% also confirms the same. This means that there is a strong effect between the financial performance (ROA) and the financial risk management practice.

Table 4.4 shows the result of regression analysis between ROA and all the measures of financial risk management which showed an existence of strong positive impact where ROA is the dependent variable. The table shows that non-performing loan, capital to risk weighted asset, current ratio and cash to deposit ratio affects ROA negatively. Capital to risk weighted asset β coefficient is -0.168 meaning one unit increase leads to decrease in ROA by 0.168 others held constant. Current ratio β coefficient is -0.660 meaning one unit increase decreases ROA by 0.660. Cash to deposit ratio β coefficient is -0.300 which also decreases ROA by 0.300 and NPLR β coefficient is -0.203 which means that one unit increase in NPLR decreases ROA by 0.203 units while other factors held constant. The statistical significance of capital to risk weighted asset on ROA is 0.75 meaning it predicts effect on ROA with 25% probability. Current ratio on ROA is 0.154 meaning it predicts ROA with 84.6 % probability. Cash to deposit ratio on ROA is 0.563 which predicts ROA by 43.7% probability and NPLR on ROA is 0.699 which predicts ROA by 30.1% probability. Thus, the results of the analysis states that all the variables have negative and relatively significant effect on ROA, with current ratio having higher significant effect on ROA in comparison to the others.

In table 4.5 the sum of squares due to regression is 37.131 with five degrees of freedom while the sum of squares residual due to 25 degrees of freedom is 15.521. The means

square gives a more accurate level of relationship and influence with the three variables having better results than the remaining 23 due to residual effect. As can be observed in table 4.6 on ANOVA, the sum of squares due to regression explained by three variables is greater than the sum of the squares due to the residues. This means that the degree of freedom of the variables is more accurate to explain the relationship and the influence of the financial risk management in regard to the financial performance.

Analysis from table 4.6 shows the regression coefficients and it was established that the intercept value was a negative value of 0.17534. Table 4.7 also reveals that a unit increase capital to risk weighted asset will cause a 1.253 increase in Return on Asset (ROA), current ratio will cause a -3.083 decrease in ROA, cash to deposit ratio cause a -0.459 decrease and a unit increase in NPLR will lead to a 0.055 increase in ROA.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the results of the study and the main conclusions drawn from the analysis of the data in Chapter Four. It entails discussion of the findings, conclusions made, policy implications and recommendations for further research as per the findings which was to study the effect of the financial performance of commercial banks in Kenya.

5.2 Summary

The main objective of the study was to determine the effect of financial risk management on the financial performance of commercial banks in Kenya. The sample of the study consisted of all the commercial banks listed on Central Bank of Kenya that were in operation since 2008-2013. Annual Time series data for independent- dependent variables were extracted from banks' annual audited financial statements from the period 2008-2013, while other key relevant data were obtained from the Guide of listed Central Bank of Kenya.

To assess the financial performance of the commercial banks, one model was developed; that consists of one dependent variable and four identical independent variables. In designing the models with the help of SPSS 17, ROA was used as an internal financial performance indicator.

To measure management quality, operating profit to income ratio was used. The higher the operating profits to total income (revenue) the more the efficient management is in terms of operational efficiency and income generation. The other important ratio is that proxy management quality is expense to asset ratio. The ratio of operating expenses to total asset is expected to be negatively associated with profitability. Management quality in this regard, determines the level of operating expenses and in turn affects profitability.

From the study findings the total assets of commercial banks in Kenya grew by 23.3 percent in 2012/2013, marginally higher than 22.7 percent in the previous year. The growth of banks' assets was largely due to growth in loans which accelerated from 25.2 percent in 2010/2011 to 43.6 percent in 2012/2013.

During the period 2008-2011, the Kenyan banking system showed resilience, which was attributed in part to the low financial integration in the global financial market and the intensive supervision and sound regulatory reforms (Bank Supervision Annual Report 2009, 2010; IMF, 2009). The financial sector performance indicators improved substantially and the sector remained profitable with return on asset indicator rising from 2.6 percent in 2007 to 4.4 percent in 2011 while the ratio of gross non-performing loans to gross loans improving from 9.2 percent to 4.15 percent over the same period

However, these amounts and ratios varied substantially among the large, medium and small banks. In 2008, the total capital to total risk weighted assets ratio stood at 20.34% above the statutory minimum requirement of 12%. The values increased in 20-2013 as the banks geared up for new requirements to be achieved by 2014.

Banks' asset quality improved. The level of non-performing loans (NPLs) in the banking sector reduced by 45.5 percent between 2009 and June 2013, resulting in the NPL ratio (calculated as the ratio of NPLs to total gross loans) dropping to 4.15 Percent in 2013 from 8.0 percent in 2009.

5.3 Conclusion

Referring to the study findings, the study established that the adjusted R-square is 57%, so it can be concluded that 57% of the variation in the dependent variable (ROA) is explained by the independent variables. This implies somehow strong explanatory power for the whole regression.

A positive correlation was revealed between current ratio and cash deposit ratio which was not significant at 1% significant level. The cash deposit ratio had a strong positive relationship with total capital to risk weighted asset which was significant at the 0.01 level. On the other hand there seem to have a negative relationship which was strong

between total capital to risk weighted asset and non performing ration. The study therefore accepted the null Hypothesis claiming that there exists significant impact of Capital Risks, Liquidity Risks Asset management on internal financial performance of commercial banks measured by ROA.

5.4 Policy Recommendations

As far as capital adequacy is concerned the study recommends that banks should manage risks involved during their operation to minimize potential risks and losses involved during the operation. From the findings the study also recommends that dividends paid to shareholders should be well managed to maximize the profits.

As far as asset quality is concerned, the findings the study further recommends that banks should maximize lending to customers and also scrutinize their financial ability to repay before advancing loans to them to avoid default loans in order for them to maximize their profits. The study further recommends that banks should diversify loans to customers to minimize the risk of default.

The study further recommends that banks should develop strategies to manage risks involved during the operation e.g. collaterals and the ability of customers to repay the borrowed amount. The study further recommends that banks should offer advisory services to their customers on how to invest the borrowed amount.

Concerning earnings ability, the study recommends that banks should plough back in to the business much of their profits at the expense of shareholders for efficient and continued business operation. The study further recommends that shareholders should be given second priority after all banks operation expenses have been taken care of.

Concerning liquidity, the study recommends that banks should continue lending to their potential customers to increase their profitability through interest rates. Banks should also raise liquid holdings in order to reduce liquidity risk. Further the study recommends that banks should develop strategies to meet their short term obligation through enhanced disbursement of loans to their customers.

5.5 Limitations of the Study

The findings of this study may not be generalized to all banks but can be used as a reference to commercial banks in developing countries since they face almost the same challenges due to the same prevailing economic situations as opposed to commercial banks in developed countries. The results thus cannot be generalized to all banks. This is because different banks may have different strategies for managing risks.

Commercial banks financial risk management keeps on changing from period to period depending on prevailing economic situations and demand by central bank. The findings therefore may not reflect the true effect of financial risk management across the banks for a period of 5 years.

5.6 Recommendations for Further Studies

This study considered only the effect of some financial risk management factors on the financial performance of commercial banks in Kenya. Further studies should incorporate other economic, political and social factors that affect financial performance of commercial banks. Other studies should also be carried out on the same to determine the extent to which the considered factors influence the financial performance of micro finance institutions in Kenya.

This study focused on the effect of financial risk management on financial performance of commercial banks in Kenya. Similar studies should also be done on other kinds of financial institutions so that it can be established whether there is consistency on the effect of financial risk management on financial performance. It is suggested that a study be conducted on the same but this time in Microfinance Institutions (MFI) and Development Financial Institutions (DFI) by use of a questionnaire to determine if indeed financial risk management has indeed an effect on financial performance.

As a result of the limiting factors mentioned previously it was not possible to carry out a comprehensive research on each of the variables and determine in detail how much each of the variables contributes to financial risk management. Thus further research can be done on these variables.

REFERENCES

- Abreu, M. & Mendes, V. (2000). Commercial Bank Interest Margins and Profitability: Evidence for Some EU Countries, presented on the 50th International Atlantic Economic Conference
- Aburime, U. (2005). Determinants of Bank Profitability: Company-Level Evidence from Nigeria. Nigeria: University of Nigeria, Enugu Campus.
- Akhavain, J., Berger, A. & Humphrey, D. (1997). The effects of megamergers on Efficiency and prices: Evidence from a bank profit function. Finance and Economic Discussion Series No. 9, Board of Governors of the Federal Reserve System, Washington.
- Alchian, A.A & Demsetz, H. (1972). Production, information costs, and economic Organization. *American Economic Review*, 62: 777–795.
- Al-Hashimi, A. (2007). Determinants of Bank Spreads in Sub-Saharan Africa.
- Al-Khouri, R. (2011). Assessing the Risk and Performance of the GCC Banking Sector. *International Journal of Finance and Economics*, ISSN 1450-2887, Iss. 65, 72-8.
- Allen, F. & Santomero, A. “The Theory of Financial Intermediation,” *Journal of Banking and Finance*, 1997, forthcoming.
- Altman, E. “Valuation, Loss Reserves and the Pricing of Corporate Bank Loans,” *Journal Of Commercial Bank Lending*, August 1993, 8-25.
- Al-Tamimi, H. & Hassan, A. (2010). Factors Influencing Performance of the UAE Islamic and Conventional National Banks. Department of Accounting, Finance And Economics, College of Business Administration, University of Sharjah.
- Angbazo, L. (1997). Commercial Bank Interest Margins, Default Risk, Interest-rate Risk, and Off-balance Sheet Banking. *Journal of Banking and Finance*, 21, 55-87.
- Apps, R., 1996. The Monetary and Financial System. London, Bonkers Books Ltd, 3rd Edition.

- Athanasoglou P., Delis M. & Staikouras, C. (2005).Determinants of Banking Profitability in the South Eastern European Region, Bank of Greece Working Paper 06/47
- Athanasoglou, P., Brissimis, S. & Delis, M., 2008.Bank-specific, industry-specific and Macroeconomic determinants of bank profitability, *Journal of International Financial Markets, Institutions and Money* 18 (2), 121-136.
- Babbel, D. & Santomero, A. “Financial Risk Management by Insurers: An Analysis of the Process,” *Journal of Risk and Insurance*, June 1997 forthcoming.
- Banking Survey, (2009). The Unending Saga of Bank Failures in Kenya Market.14, 1-46.
- Berger, A. & Udell, G. “Relationship Lending and Lines of Credit in Small Firm Finance,”*Journal of Business*,July 1995.
- Berger, A. and Udell, G. “Securitization, Risk, and the Liquidity Problem in Banking,” *Structural Change in Banking*, M. Klausner and L. White, editors, Irwin Publishers, Illinois, 1993.
- Basel Committee on Banking Supervision, (2000).Principles for the Management of Credit Risk
- Bashir, A. M. & M. K. Hassan (2003).Determinants of Islamic Banking Profitability, Presented on the ERF 10th Annual Conference.
- Bhattacharya, S. & A. Thakor, “Contemporary Banking Theory,” *Journal of Financial Intermediation* , 1993.
- Berger, A. (1995a). The Relationship between Capital and Earnings in Banking, *Journal of Money, Credit and Banking* 27, 432-456.
- Berger, A. (1995b). The Profit-Structure Relationship in Banking: Test of Market-Power And Efficient-Structure Hypotheses, *Journal of Money, Credit and Banking* 27, 404-431.
- Berger, A., Hanweck, G. & Humphrey, D. (1987).Competitive Viability in Banking: Scale, Scope and Product Mix Economies, *Journal of Monetary Economics* 20,

501-520.

- Bessis, J. (2010). Risk Management in Banking, Wiley. Third edition
- Bessembinder, M. (1991). Forecasting value-at-risk with a parsimonious portfolio Spillover GARCH model, *Journal of Forecasting*, 27, 1-19.
- Bikker, J.A & Metzmakers P.A.J (2005). Bank Provisioning Behaviour and Procyclicality, *Journal of International Financial Markets, Institutions and Money*, Elsevier, 15,141-157.
- Bikker, J.A. & Bos, J.W.B (2005). Trends in competition and profitability in the Banking industry: A basic framework. SUERF - The European Money and Finance Forum.
- Boahene, S. H. Dasah, J & Agyei S. K. (2012). Credit risk and profitability of selected Banks in Ghana, *Research Journal of finance and accounting*, 14, 142-150.
- Bourke, P. (1989). Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia, *Journal of Banking and Finance*, 13, 65-79.
- Boyd, J.H. & Runkle, D.E (1993). Size and Performance of Banking Firms. Testing the Predictions of Theory, *Journal of Monetary Economics* 31, 47-67.
- Buttimer, R. (2008). Risk, Return and Risk Management, the *Journal of Real Estate Finance and Economics*, 16, 55-110.
- Carter, J.A., McAleer, M. & Pe´rez-Amaral, T. (2006). The Ten Commandments for Managing value-at-risk under the Basel II Accord, *Journal of Economic Surveys*, 23, 850-855.
- Central Bank of Kenya, (2008-2012). Bank Supervision Annual Reports. The Central Bank of Kenya.
- Conford, A. (2000). The Basel Committee’s Proposals for Revised Capital Standards: Rationale, Design and Possible Incidence, G-24 Discussion Paper Series, United Nations, No.3, May.

- Cooperman, E., Mills D. & Gardner, J. (2000). *Managing Financial Institutions: An Asset/Liability Approach*. The Dryden Press, Harcourt College Publishers, Orlando. 2000.
- Cuthbertson, K. & Nitzsche, D., 2003. Long Rates, Risk Premier and the Over-Reaction / Hypothesis. *Economic Modeling*, 20, 417-435, (2003).
- Dang, U. (2011). *The CAMEL Rating System in Banking Supervision: a Case Study of Arcada University of Applied Sciences, International Business*.
- Demirguc-Kunt, A. & H. Huizinga (1999). Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence, *World Bank Economic Review*, 13, 379-408.
- Diamond, D.W. & Raghuram, A. (2000). A Theory of Bank Capital. *The Journal of Finance* 52(6), 12-23.
- Dietrich, A. & Wanzenried, G. (2010). *Determinants of Bank Profitability Before and During the Crisis: Evidence from Switzerland.*”
- Diffu, I. (2011). *The Relationship between Foreign Exchange Risk and Financial Performance of Airlines in Kenya: A Case Study of Kenya Airways*. MBA Unpublished Research Project, University of Nairobi.
- Economist, “A Survey of International Banking,” April 10, 1993.
- Eisenhardt, K. (1989). Agency theory: An assessment and review. *Academy of Management Review*, 14: 57–74.
- Financial Service Authority (2009). *A regulatory response to the global banking crisis DP 09/2*.
- Fatemi A. & Fooladi I. (2006). Credit Risk Management: A Survey of Practices. *Managerial Finance*, 32, 227 - 233.
- Fatemi, A. & Glaum, M. (2000). Risk management practices in German firms, *Managerial Finance*, 26, 1–17.
- Flamini, V., McDonald C. & Schumacher, L., 2009. *The Determinants of Commercial*

- Bank Profitability in Sub-Saharan Africa, Working Paper, WP/09/15, International Monetary Fund.
- Froot, K. A., Scharfstein, D. S., & Stein, J. C. (1993). A Framework for Risk Management, *Harvard Business Review*, 76(6), 91-102.
- Froot, K.A & Stein, J.C. (2003). Risk Management, Capital Budgeting and Capital Structure Policy for Financial Institutions: An Integrated Approach, *Journal of Financial Economics*, 47, 55-82.
- Genay, H. (1999). Assessing the Conditions of Japanese Banks: How Information is Accounting Earning? Economics Perspectives, Federal Reserve Bank of Chicago, 15, 12-34.
- Githinji A.M. (2010).Credit Risk Management and Profitability of Commercial. Banks in Kenya. School of Business, University Of Nairobi.
- Goddard, J., Molyneux, P. & Wilson, J.O.S (2004).Dynamics of Growth and Profitability in Banking, *Journal of Money, Credit and Banking*, 36, 1069-1090.
- Grace, N.M (2012). The effect of credit risk management on the financial performance of Commercial banks in Kenya; unpublished MBA project, School of Business, University of Nairobi.
- Guru B., Staunton, J. & Balashanmugam, B. (2002).Determinants of Commercial Bank Profitability in Malaysia, University Multimedia Working Papers.
- Hosna, A. Manzura, B & Juanjuan S. (2009).Credit risk management and profitability In commercial banks in Sweden, School of Business Economics and Law.
- Ilhomovich, S.E. (2009). Factors affecting the performance of foreign banks in Malaysia. Malaysia: A thesis submitted to the fulfillment of the requirements for The degree Master of Science (Banking) College of Business (Finance and Banking.)
- Jeon, Yongil, miller & Stephen M. (2002).Bank Concentration and Performance, Economic Working Papers. Paper 200225.

- Jiang, G., Tang, N., Law, E. & Sze, A., (2003).Determinants of Bank Profitability in Hong Kong. Hong Kong Monetary Authority Research Memorandum, September.
- Judge, D.A (2006).Market Discipline, Capital Adequacy and Bank Behaviour: Theory And Indian Evidence, *Economic and Political Weekly*, 40, 1210-1215.
- Kolapo T.F. (2012).Credit Risk and Commercial Banks' Performance in Nigeria: A Panel Model Approach. *Australian Journal of Business and Management Research* 2, 31-38.
- Klimczak, D., (2005). The use of asset management companies in the Resolution of Banking crises: Cross-country experiences Mimeo. World Bank.
- Kosmidou, K., (2008).The determinants of banks' profits in Greece during the period Of EU financial integration. *Managerial Finance*, 34, 146-159.
- Kosmidou, M. & Pasiouras, F. (2007).Factors influencing the Profitability of Domestic and foreign Commercial Banks in European Union, *Research in International Business and Finance*, 21, 222-237.
- Liyuqi (2007).Determinants of Banks profitability and its implication on Risk Management practices: Panel Evidence from the Uk. University of Nottingham.
- Mamatzakis, E. & Remoundos, P., (2003).Determinants of Greek Commercial Banks Profitability. *Spoudai*, 53, 84-94.
- Markowitz, H., (1952). Portfolio Selection, *journal of finance*, 7(1), 77-91.
- Mason G & Roger B, (1998).A capital adequacy framework for Islamic banks: the Need to reconcile depositors' risk aversion with managers' risk taking, *applied Financial Economics*, 14, 429-41.
- Miller, S. & Noulas, A. (1997).Portfolio Mix and Large-bank Profitability in the USA, *Applied Economics*, 29, 505-12.
- Molyneux, P. & J. Thornton (1992). Determinants of European Bank Profitability: A Note, *Journal of Banking and Finance*, 16, 1173-8.

- Mugenda M. O., & Mugenda A. (1999). *Research Methods: Qualitative and Quantitative Approaches*. African Centre for Technology Studies, Nairobi, Kenya.
- Naceur, S. B. (2003). *The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence*, Universite Libre de Tunis Working Papers.
- Neely, M. & Wheelock, D. (1997). *Why does bank performance vary across states?* Federal Reserve Bank of St. Louis Review, 27-38.
- Ngugi R. W. 2001. *An Empirical Analysis of Interest Rate Spread in Kenya*. African Economic Research Consortium (AERC) Research Paper No. 106.
- Ogilo, F. (2012). *The Impact of Credit Risk Management on Financial Performance of Commercial Banks in Kenya*. *DBA Africa Management Review* 2012, 22-37.
- Oloo, O. (2010). *Banking Survey Report, The best banks this decade 2000-2009*, Think Business Limited, Kenya.
- Ongore V.O & Kusa G.B (2013). *Determinants of Financial Performance of Commercial Banks in Kenya*. *International Journal of Economics and Financial*, 3, 237-252.
- Pandey , I. M (1996). *Financial Management*, 7th Edition Vikas Publishers House New Delhi
- Rajan, R. G. (1994). *The Entry of Commercial Banks into the Securities Business, A Rating Systems, relationships*, Columbia University. Research Working Paper, 1171, 345-567.
- Richardson, D.C. (2002) *PEARLS monitoring system*, World Council Information Center, Madison, WI, World council of Credit Unions Toolkit Series No. 4.
- Said, R.M. & Mohd, H.T. (2011). *Performance and Financial Ratios of Commercial Banks in Malaysia and China*
- Sangmi, M. & Tabassum, N. (2010). *Analyzing Financial Performance of Commercial Banks in India: Application of CAMEL Model*. *Pakistan Journal Commercial Social Sciences*.

- Santomero, A.M. (1995). Financial Risk Management: The Whys and How's, *Financial Markets, Institutions and Instruments* 4(5):1-14.
- Santomero, A. "Modeling the Banking Firm: A Survey *Journal of Money, Credit and Banking* , November, 1984.
- Santomero, A. and D. Babbel *Financial Markets, Instruments, and Institutions* , Irwin Publishers, Illinois, 1996.
- Santomero, A. and J. Trester, "Structuring Deposit Insurance for a United Europe," *European Financial Management*, 1997 forthcoming.
- Schmit, J. T. & Roth K. (1990). Cost Effectiveness of Risk Management Practices," *Journal of Risk and Insurance*, 57, 455-470
- Shafiq A. & Nasr M. (2010). Risk Management Practices Followed By the Commercial Banks in Pakistan. *International Review of Business Research Papers*, 6, 308 – 325.
- Smith, C. & Watts, R. (1992). The investment opportunity set and corporate financing, Dividend and compensation policies. *Journal of Financial Economics* 7:117-61.
- Smirlock, M. (1985). Evidence on the Relationship between Concentration and Profitability in Banking, *Journal of Money, Credit and Banking*, 17, 69-83.
- Staikouras, C. & Wood, G., 2004. The determinants of European bank profitability. *International Business and Economics Research Journal* 3 (6), 57-68.
- Stulz R. (2008). Risk Management Failures: What Are They and When Do They Happen? *Journal of Applied Corporate Finance*, 4, 58-67
- Stulz, R. M. (1984). Optimal Hedging Policies, *the Journal of Financial and Quantitative Analysis*, 19, 127-140.
- Sufian, F. & Chong, R., (2008). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from the Philippines. *Asian Academy of Management Journal of Accounting and Finance*, 4, 91-112.
- Toutou J. (2011). The Relationship between Liquidity Risk and Performance, An

- Empirical Study of Banks in Europe, 2005-2010; Umea School of Business.
- Vong P.I. & Chan H.S., (2009).Determinants of Bank Profitability in Macao, The 30th Anniversary of *Journal of Banking and Finance* Conference, Beijing.
- Wanjohi, G.J., (2013). The effect of financial risk management on the financial Performance; a survey of commercial banks in Kenya, unpublished MBA project, School of Business, University of Nairobi.
- William, A. (2012). The influence of financial risk management on the financial Performance; A survey of commercial banks in Kenya, unpublished MBA project, School of Business, University of Nairobi.

APPENDICES

APPENDIX I: List of commercial banks in Kenya as at 31st December 2013

1. African Banking Corporation (ABC Bank)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank (Kenya)
6. CFC Stanbic Bank
7. Charter house bank ltd
8. Chase Bank (Kenya)
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. Ecobank
18. Equatorial Commercial Bank
19. Equity Bank
20. Family Bank
21. Fidelity Commercial Bank Limited
22. First Community Bank
23. Giro Commercial Bank
24. Guaranty Trust Bank
25. Guardian Bank
26. Gulf African Bank
27. Habib Bank
28. Habib Bank AG Zurich
29. Housing Finance Company Ltd
30. I&M Bank
31. Imperial Bank Kenya
32. Jamii Bora Bank
33. Kenya Commercial Bank
34. K-Rep Bank
35. Middle East Bank Kenya
36. National Bank of Kenya
37. NIC Bank

38. Oriental Commercial Bank
39. Paramount Universal Bank
40. Prime Bank (Kenya)
41. Standard Chartered Kenya
42. Trans National Bank Kenya
43. United Bank for Africa
44. Victoria Commercial Bank

Source: CBK Website (www.centralbank.go.ke)

**APPENDIXII: A five years (2008-2013) average raw data for regression models
for forty four commercial banks in Kenya as at 31st December 2013**

Bank	ROA	CapRi	LOG (Assets)	CuR	C/D	CR
African Banking Corporation (ABC Bank)	3.95%	-8.4	8.85	72%	8.32%	1%
Bank of Africa	6.14%	8.2	166%		9.92%	20%
Bank of Baroda	2.84%	7.6	8.36	30%	11.95%	2%
Bank of India	3.76%	7.8	7.93	126%	8.82%	38%
Barclays Bank (Kenya)	5.64%	7.9	7.80	107%	6.08%	1%
CFC Stanbic Bank	1.38%	9.6	8.78	67%	9.77%	2%
Charter house bank ltd	2.94%	9.4	8.17	219%	10.41%	28%
Chase Bank (Kenya)	3.39%	8.7	8.32	34%	11.70%	3%
Citibank	2.79%	8.6	7.90	122%	15.03%	46%
Commercial Bank of Africa	3.37%	9.3	7.63	125%	10.12%	0%
Consolidated Bank of Kenya	3.51%	5.8	8.93	77%	9.86%	3%
Cooperative Bank of Kenya	3.16%	7.9	8.40	113%	7.43%	22%
Credit Bank	1.87%	7.9	8.40	26%	9.19%	3%
Development Bank of Kenya	4.31%	7.6	7.95	130%	8.61%	58%
Diamond Trust Bank	0.47%	6.5	7.96	90%	11.04%	0%

Dubai Bank Kenya	1.33%	7.0	9.02	79%	9.39%	2%
Ecobank	1.74%	7.5	8.33	219%	9.19%	7%
Equatorial Commercial Bank	1.94%	7.7	8.41	64%	10.14%	1%
Equity Bank	3.49%	8.0	8.02	159%	13.13%	7%
Family Bank	4.62%	8.7	8.00	103%	12.85%	1%
Fidelity Commercial Bank Limited	0.95%	8.4	9.11	79%	8.81%	2%
First Community Bank	1.50%	8.6	8.39	463%	14.58%	7%
Giro Commercial Bank	1.65%	8.4	8.52	75%	10.26%	1%
Guaranty Trust Bank	-1.03%	9.7	8.12	117%	9.95%	5%
Guardian Bank	3.32%	10.3	8.21	93%	14.24%	1%
Gulf African Bank	5.03%	8.9	9.19	89%	13.60%	1%
Habib Bank	0.77%	9.1	8.42	503%	13.31%	1%
Habib Bank AG Zurich	3.31%	9.3	8.63	108%	10.20%	3%
Housing Finance Company Ltd	1.96%	10.8	8.23	113%	13.61%	2%
I&M Bank	0.94%	10.1	8.20	126%	10.45%	2%
Imperial Bank Kenya	0.66%	8.6	8.39	463%	14.58%	7%
Jamii Bora Bank	-1.53%	8.4	8.52	75%	10.26%	1%

Kenya Commercial Bank	3.46%	9.7	8.12	117%	9.95%	5%
K-Rep Bank	2.75%	10.3	8.21	93%	14.24%	1%
Middle East Bank Kenya	2.99%	8.9	9.19	89%	13.60%	1%
National Bank of Kenya	3.42%	9.1	8.42	503%	13.31%	1%
NIC Bank	0.75%	9.3	8.63	108%	10.20%	3%
Oriental Commercial Bank	5.71%	10.8	8.23	113%	13.61%	2%
Paramount Universal Bank	3.51%	10.1	8.20	126%	10.45%	2%
Prime Bank (Kenya)	-4.51%	8.9	9.19	89%	13.60%	1%
Standard Chartered Kenya	0.10%	9.1	8.29	166%	9.92%	20%
NIC Bank	-4.88%	9.3	8.36	30%	11.95%	2%
Trans National Bank Kenya	3.95%	10.8	7.93	126%	8.82%	38%
United Bank for Africa	6.14%	10.1	7.80	107%	6.08%	1%
Victoria Commercial Bank	2.84%	10.8	8.78	67%	9.77%	2%

Source: Research Findings