ANTECEDENTS OF INTEREST RATE SPREAD ON LOAN PORTFOLIO PERFORMANCE OF LISTED COMMERCIAL BANKS IN KENYA

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

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This thesis has been submitted for examination with our approval as University Supervisors.

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DEDICATION

I cheerfully dedicate this thesis first to the almighty God for showering me with his boundless love and gratitude through my research process. Secondly to my lovely wife Seyyida, daughters Adlyne, Diana and Noreen and to my dear parents for their great support and encouragement. May the God almighty in his infinite mercy bless them abundantly.!

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LIST OF ABBREVIATION AND ACRONYMS

ANOVA	Analysis of Variance
CBK	Central Bank of Kenya
CBR	Central Bank Rate
CMA	Capital Market Authority
CPI	Consumer Price Index
CRB	Credit Reference Bureau
EBIT	Earnings Before Interest and Tax
ECM	Error Correction Model
FDI	Foreign Direct Investment
FSR	Financial Stability Review
GCF	Gross Capital Formation
GDP	Gross Domestic Product
IFS	International Financial Statistics
IRS	Interest Rate Spread
KBA	Kenya Bankers' Association
KIPPRA	Kenya Institute for Public Policy Research and Analysis.
KMO	Kaiser-Meyer-Olkin
KNBS	Kenya National Bureau of Statistics
KS	Kolmogorov Smirnov
KRA	Kenya Revenue Authority
LPP	Loan Portfolio Performance

MPT	Modern Portfolio Theory
MSA	Measure of Sampling Adequacy
MST	Market Segmentation Theory
NPA	Non-Performing Assets
NPL	Non- Performing Loans
NSE	Nairobi Securities Exchange
PCFA	Principal Component Factor Analysis
ROA	Return on assets
ROI	Return on Investments
SD	Standard Deviation
SE	Standard Error
SME	Small and Medium-size Enterprises
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
VIF	Variance Inflation Factor

DEFINITIONS OF KEY TERMS

Bank Liquidity: The ability to meet financial obligations as they come due. (Amengor, 2010).

Central Bank Rate: The rate of interest that the CBK charges on loans to commercial banks (Central Bank of Kenya, 2014).

Conditionality: The set of conditions that, in line with the Bank's operational policy, must be satisfied for the bank to make disbursements in a development policy operation. (World Bank, 2005)

Corporate Lending Products: Loans to institutions rather than individuals (Central Bank of Kenya, 2010).

Credit Reference Bureaus: Information brokers providing creditors with reliable, relevant and comprehensive data on the repayment habits and current debt of their credit applicants (Sinare, 2008).

Credit Risk: Risk of loss due to a debtor's non-payment of a loan (Central Bank of Kenya, 2011).

Inflation Rate: Price index used is normally the consumer price index (Central Bank of Kenya, 2013).

Interest Rate Risk: Risk borne by an interest-bearing asset (Central Bank of Kenya, 2012).

Interest Rate Spread: The difference between what a bank earns on its assets and what it pays on its liabilities (Maina, 2015).

Liquidity ratio: Realizable cash on the balance sheet to short term Liabilities (Morris & Shin, 2010).

Liquidity Risk: Risk that a given security or asset cannot be traded quickly enough in the market to prevent a loss (Central Bank of Kenya, 2013).

Loan Portfolio Performance: Refers to the rate of profitability or rate of return of an investment in various loan products (Katerega, 2013).

Non-performing Loans: Money lent to an anticipated, principal or interest is90days or more delinquent, or the maturity date has passed and payment in full has not been made (Boudriga *et al.*, 2009).

Ownership Structure: Distribution of equity with regard to capital but also by the identity of the equity owners (Hamid, 2011).

Reserve Requirements: Amounts that banks are required to keep on deposit at the Central Bank based on the cash ratio requirements (CBK, 2014).

ABSTRACT

The study focused on the influence of antecedents of interest rate spread on loan portfolio performance among listed commercial banks in Kenya. The major antecedents of interest rate spread examined in this study were; liquidity, inflation, bank market niche, bank conditionality and operating costs. The dependent variable was loan portfolio performance. The main objective was to establish the influence of the antecedents of interest rate spread on loan portfolio performance among listed commercial banks in Kenya. The study was guided by the following specific objectives: to determine the influence of liquidity on loan portfolio performance of listed commercial banks, to analyze the influence of inflation on loan portfolio performance of listed commercial banks, to establish the influence of bank market niche on loan portfolio performance of listed commercial banks, to determine the influence of bank conditionality on loan portfolio performance of listed commercial banks and to establish the influence of operating costs on loan portfolio performance of listed commercial banks in Kenya. The study was anchored on the Keynes preference theory, the expectations theory, the segmented market theory and modern portfolio theory. Descriptive research design was used for the study. The target population was the listed commercial banks in Kenya licensed by the Central Bank of Kenya and were in operation as on 31st December 2016. The total population was 176 respondents selected purposely from the list of 11 commercial banks grouped according to management level. This study also used stratified random sampling and simple random sampling. The strata were comprised of management and supervisory cadre. Questionnaires were used to collect primary data while secondary and quantitative data was collected from the statistical abstracts and bulletins of both the Central Bank of Kenya and the Kenya National Bureau of statistics. Cronbach's Alpha reliability test and factor analysis was carried out in order to test the goodness of the research instrument. F-test was used to test the significance of the overall model. Multiple linear regressions were used to analyze data and test the five hypotheses using statistical package for the social sciences (SPSS) version 24. All the hypotheses were tested at 95 percent confidence level (α=0.05). The results indicated that all the five variables namely bank liquidity, inflation, bank market niche, bank conditionality and operating costs had a positive and significant influence on loan portfolio performance of listed commercial banks in Kenya. The study recommends that bankers should make investment in cost-saving and efficient forms of technology to reduce operating costs. The government and policy makers should create sustainable political and macroeconomic environment to boost investors' confidence in the banking sector which would go a long way in improving the loan portfolio performance amongst listed commercial banks in Kenya. The study also recommends commercial banks to have an effective loan portfolio management strategy which begins with oversight of the risk in individual loans. Listed commercial banks in Kenya should assess their clients and charge interest rates accordingly, as ineffective interest rate policy can increase the level of interest rates and consequently non- performing assets.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Over the past few years, interest rate spread of commercial banking system has caught researchers 'attention throughout the world. Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Crowley, 2007). For a bank, interest rate spread (IRS) can be defined as the difference between the average yield a financial institution receives from loans and other interest-accruing activities and the average rate it pays on deposits and borrowings. IRS is an important indicator of efficiency level of a bank or banking system. It reflects profit maximizing ability of the financial intermediaries (Bandaranayake, 2014). The unusually high cost of financial intermediation in Kenya, as measured by the interest rate spread, is a major source of policy concern and has been haunting policy makers and analysts. This has generated a raging debate within the media; the general public and the banking sector regulator on why interest rate spreads (IRS) are high in Kenya, its effects on the economy and the kind of policies that can be implemented in order to reduce it.

Commercial banks in Kenya have continuously maintained wide interest rate spreads despite efforts by both the government and the regulator to ensure the interest rate spreads narrow down. This has led to a lot of debates both in public and private panels which makes it clear that it is important for the involved parties to understand the antecedents of interest rate spread and their effect on loan portfolio performance among commercial banks in Kenya in order to effect valuable changes. The causes of this persistently increasing interest rate spread despite the many reforms are not known as indicated in the Vision 2030. Among the reviewed studies on interest rate spread there has been conflicting results on the determinants of interest rate spread globally. Such

studies have looked at the macro-economic factors while others have explored the bank-specific factors and equally others have examined the bank-industry factors.

Loan portfolio refers to the total amount of money given out in different loan products to different types of borrowers. This may be comprised of salary loans, group guaranteed loans, individual loans and corporate loans. Loan portfolio looks at the number of clients with loans and the total amount in loans (Wester, 2010). Loan portfolios are the major asset of banks, thrifts, and other lending institutions. Business Loan portfolios are the major asset of banks, thrifts, and other lending institutions. The value of a loan portfolio depends not only on the interest rates earned on the loans, but also on the quality or like hood that interest and principal will be paid.

The loan portfolio is typically the largest asset and the predominant source of revenue by commercial banks in Kenya. As such, it is one of the greatest sources of risk to a bank's safety and soundness. The level of interest risk attributed to the bank's lending activities depends on the composition of its loan portfolio and the degree to which the terms of its loans for instance, maturity, rate structure, and embedded options that expose the bank's revenue stream to changes in rates (Katerega,2013).Therefore, loan portfolio performance refers to the rate of profitability or rate of return of an investment in various loan products thus broadly, it looks at the number of clients applying for loans, how much they are borrowing, timely payment of installments, security pledged against the borrowed funds, rate of arrears recovery and the number of loan products on the chain.

Globally and in Kenya in particular, most studies on interest rate spread examine the effect of the antecedents or determinants on financial performance and few studies exist that examine the influence of determinants of interest rate spread on loan portfolio performance. Ngugi (2000) for instance incorporates excess liquidity and non-performing loans ratio as explanatory variables and finds that a rise in non-performing loans ratio leads to a rise in spreads while excess liquidity is negatively related with spreads. Nonetheless, the study ignored macroeconomic indicators such as GDP and inflation. The current study goes beyond these factors by considering not only

macroeconomic variables but also bank-specific variables using panel data for the commercial banks. Nyambok (2010) studied the relationship between inflation rates and liquidity of companies quoted at the Nairobi Stock Exchange (NSE). The study noted that increases in inflation had mixed effects on the liquidity of firms quoted at the NSE. The effects varied across different segments at the stock exchange.

Katerega (2013) did a study on the interest rate spread and loan portfolio performance in Ugandan commercial banks. This study examined the role of lending interest rates on the loan portfolio performance in commercial banks in Uganda. The study specifically looked at how Centenary Bank has ensured that the bank loan portfolio is maintained within acceptable limits; examined how the bank ensures compliance with regulatory requirements and how the bank has worked out problem loans including rescheduling and restructuring for better performance. Katerega, (2013) maintained that the loan products may comprise of salary loans, group guaranteed loans, individual loans and corporate loan.

Greenidge and Grosvenor (2010) observed that bank loan portfolio performance is affected by non-performing loans which may be defined as loans that have been unpaid for ninety days or more. Khemraj and Pasha (2010) stated that for effective loan portfolio performance banks should pay attention to several factors when providing loans in order to curtail the level of impaired loans. Consequently, commercial banks need to consider the international competitiveness of the domestic economy since this may impair the ability of borrowers from the key export-oriented sectors to repay their loans which in turn would result in higher nonperforming loans and should also take the performance of the real economy into account when extending loans given the reality that loan delinquencies are likely to be higher during periods of economic downturn. Therefore, banks should constantly review the interest rates on loans since loan delinquencies are higher for banks which increase their real interest rates.

Perez (2011) classified the determinants of interest rate spread into three categories, namely, bank-specific, bank-industry or market, and macroeconomic determinants. The study also observed that excess liquidity tended to widen the interest rate spread. In relation to bank specific determinants several studies have found that variables such as non-performing loans (NPLs), overhead costs, excess liquidity, market share, and ownership of bank are significant determinants of interest rate spread. Commercial banks are custodians of depositor's funds and operate by receiving cash deposits from the general public and loaning them out to the needy at statutorily allowed interest rates. Loans are based on the credit policy of the bank that is tightly coupled with the central bank interest rate policy. These in effect determine the level of financial risk in a particular bank (CBK, 2010). From the perspective of the banks, interest rate spread (IRS) shows the additional cost of borrowing that the banks take on to perform intermediation activities between borrowers and fund lenders. The IRS is also a premium for the risk that the banks undertake; it compensates for loan defaults and for risk related to cost of funding. As such, IRS as a measure of bank efficiency and determinant of intermediation cost and profitability of the banks has drawn increasing attention of researchers and policymakers in recent years in Kenya.

Schreiner (2001) indicates that financial institutions are facing an enormous risk of non-performing loans (NPLs) noting that larger loans have greater risk exposure, so the variable costs per-dollar is higher. To overcome the challenge of NPLs, an institution is required to monitor the behavior of borrowers. Thus, the idea of establishing Credit Reference Bureau (CRB) was conceived in order to enable banks to determine credit worthiness of their borrowers such as individuals, groups and enterprises; and therefore, reduce the loan default risk. In this respect CRB assists in first, sharing information on default among banks; secondly, eliminating corrupt borrowers – those with the aim of borrowing from different financial institutions with the aim of defaulting; thirdly, to provide commercial professional credit reference to say prospective foreign investors; and also, to identify honest/credible borrowers based on known history and character.

Demirgüc-Kunt and Huizinga (1999) found that in developing countries, foreign owned banks tend to have wider interest rate spreads compared to domestically owned banks. However, foreign ownership of a bank was found to be insignificant by Gelos (2006) in 14 Latin American Countries. Perez (2011) found that market share and NPLs are the major determinants of interest rate spread in Belize. Chirwa and Mlachila (2002) found that high monopoly power (or market power) contributed to high interest rate spreads in Malawi. Hossain (2010) and Grenade (2007) found that overhead costs, operating costs and NPLs were positively correlated with high interest rate spreads in Bangladesh and in the Eastern Caribbean Currency Union.

Brock and Suarez (2000) showed that high operating costs raise spreads as do high levels of non-performing loans, although the size of these effects differs across the countries. In addition, reserve requirements in a number of countries still act as a tax on banks that gets translated into a higher spread. Saunders and Schumacher (2000) decompose bank margins into a regulatory component, a market structure component and a risk premium component. The regulatory components in the form of interest-rate restrictions on deposits, reserve requirements and capital-to-asset ratios have a significant impact on banks interest margin. The study also attributes high spread to monopoly power of existing banks. Hesse (2007) analyzed the individual bank spreads from 2000–2005 in Nigeria. They observed that larger banks enjoyed lower overhead costs than smaller banks and also charged lower spreads. The study shows that both liquidity and equity holdings are negatively related to spreads.

The role of macroeconomic variables has been emphasized in several studies. A study by Afanasieff, Lhacer and Nakane (2002) suggest that macroeconomic variables are the most relevant factors explaining the behavior of bank interest rate spreads in Brazil. Crowley (2007) found that higher spreads are associated with lower inflation. Similarly, a study by Brock and Suarez (2000) shows that beyond bank specific variables, uncertainty in the Macroeconomic environment facing banks appears to increase interest spreads. Hesse (2007) finds that low inflation and Treasury bill rates as well as a stable exchange rate can be conducive to lower spreads and therefore cause a more efficient

channeling of savings to productive investments. The study by Folawewo and Tennant, (2008) shows that the extent of government crowding out in the banking sector, public sector deficits, discount rate, inflationary level and the level of money supply are important determinants of interest rate spreads in Sub-Saharan African countries.

Commercial banks in Kenya are either privately-owned or public-owned institutions that accept monetary deposits, process loans, and provide other financial services, such as international banking, documentary collection and trade financing. Commercial banks are licensed and regulated by the Central Banks of the jurisdictions (countries) in which they operate. In Kenya, the Central Bank of Kenya (CBK) licenses, supervises and regulates commercial banks, as mandated under the Banking Act (Cap 488). Kenya currently has 44 licensed commercial banks and one mortgage finance company. Of these 44 institutions, 11 are listed in the Nairobi securities exchange. The Government of Kenya has a substantial stake in three of Kenya's commercial banks. The remaining local commercial banks are largely family owned. Commercial banks in Kenya accept deposits from individuals and turn a profit by using the deposits to offer loans to businesses with a high interest rate.

Many commercial banks offer a wide variety of services. Commercial banks are responsible for adding customer deposits in a safe and liquid form and lending the proceeds to worthy commercial, industrial, governmental and nonprofit institutions, (KBA, 2014). Commercial banks also provide market-making activities in municipal, government and corporate bonds. Banks provide consulting and advisory services to customers as well as safekeeping and trust. Kenya's commercial banks play a crucial role in ensuring Kenya's economic progress. Kenya's commercial banks like any other organization are open systems operating in a turbulent environment. Their continued survival depends on the ability to secure a “fit” with the environment (Central Bank of Kenya, 2011). In Kenya’s Vision 2030, for example, the sector is expected to drive high levels of savings and financing of Kenya’s investment needs, (KIPPRA, 2013).

1.2 Statement of the Problem

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 bank's safety and soundness. Whether due to lax credit standards, poor portfolio risk management, or weakness in the economy, loan portfolio problems have historically been the major cause of bank losses and failures (Katerega, 2013). To manage their portfolios, bankers must understand not only the risk posed by each credit but also how the risks of individual loans and portfolios are interrelated.

Among the reviewed studies on interest rate spread there has been conflicting results on the antecedents of interest rate spread globally. Such studies have looked at the macro-economic factors while others have explored the bank-specific factors and equally others have examined the bank-industry factors. This study sought to look at the antecedents of interest rate spread and their influence on loan portfolio performance among listed commercial banks in Kenya. Maina (2015) did a study on the determinants of interest rate spread on financial performance of commercial banks. Based on her suggestions on areas for further study, there was dire need to study the influence of the antecedents of interest rate spread and their influence on loan portfolio performance specifically. Her study showed that an increase in interest rate can affect business in two ways: customers with debts have less income to spend because they are paying more interest to lenders and firms with overdrafts including banks will have higher costs because they must now pay more interest.

Another major reason for undertaking this study was that the spread between lending and deposit interest rates is a key variable in the financial system. When it is too large, it is generally regarded as a considerable impediment to the expansion and development of financial intermediation, as it discourages potential savers with low returns on deposits and limits financing for potential borrowers, thus reducing feasible investment opportunities and therefore the growth potential of the economy. Most of the studies

done on this area have been looking at the relationship between these determinants of interest rate spread on loan portfolio performance.

High interest rate spread has far reaching effects on the socio-economic growth of a country as it works against the development of financial intermediation by discouraging savers. Rising interest spread discourages savings and investments, on the one hand, and raises concerns about the effectiveness of the bank-lending channels of monetary policy, on the other (Khawaja & Din, 2007). Output and employment are also affected adversely by high interest rate spread. This is because large spread diminishes savings, which in turn narrows levels of borrowing and, thus, narrows investment in the economy. A more efficient banking system benefits the real economy by allowing higher returns for savers and lower borrowing costs for investors. Hence, a higher spread limits financing for potential borrowers (Ndung'u & Ngugi, 2000). This study therefore sought to determine the influence of the antecedents of the interest rate spread on loan portfolio performance of listed commercial banks in Kenya so that correct measures can be put in place.

The relevant literature reviewed indicates the existence of several studies in developed and emerging economies while there was a handful of them in Africa like Folawewol and Tennant (2008), Beck and Hesse (2006), and, Ikhide (2009). Using dynamic panel data model, Folawewol and Tennant (2008) studied the determinants of interest rate spread in 33 Sub-Saharan African (SSA) countries focusing on macroeconomic variables. Their results show that interest rate spread is influenced by the extent of the crowding out effect of government borrowing, public sector deficits, discount rate, inflation, level of money supply, reserve requirement, level of economic development and population size. A more recent study on determinants of bank interest margins in SSA is by Ahokpossi (2013) using a sample of 456 banks in 41 SSA countries. The results show that bank-specific factors such as credit risk, liquidity risk and bank equity are important, determinants of interest margins, but such spreads are not sensitive to economic growth. This study will look at the influence of bank specific factors on loan portfolio performance in a Kenyan perspective.

Nampewo (2013) studied the determinants of the interest rate spread of the banking sector in Uganda using time series data for the period 1995 – 2010.Results show that the interest rate spread in Uganda is positively affected by the bank rate, the Treasury bill rate and non-performing loans. However, the analysis was undertaken at macro level hence concealing micro and bank-specific characteristics. Nakeba (2010) conducted a study on the role of credit management in the performance of indigenous commercial banks in Uganda. The findings of his study indicated that loan committees needed to take full responsibility of overseeing the loan acquisition process and report on the portfolio progress as a measure of careful monitoring of the loan portfolio performance in the bank. Nakeba's study mostly focused on credit management but didn't test the impact of interest rates on the loan portfolio performance in commercial banks and this study sought to close this research gap.

Wambua (2013) applied panel data analysis on disaggregated banking sector data to study interest rate spread. They found that bank-specific factors play a significant role in the determination of interest rate spreads. Industry specific factors and macroeconomic factors are insignificant. The study however uses a simple measure of spread i.e. difference between lending rate and deposit rate. This measure is adversely affected by the composition of lending of individual banks. Despite the studies that have been done in developed countries, influence of antecedents of interest rate spread on loan portfolio performance have not been documented satisfactorily. To fill this gap and add to the body of knowledge, this study sought to examine the influence of the following antecedents of interest rate spread; liquidity, inflation, bank market niche, bank conditionality and operating costs on loan portfolio performance of listed commercial banks in Kenya.

1.3 Research Objectives

To carry out this study the objectives were categorized into two. These are the general objective and specific objectives.

1.3.1 General Objective

The general objective of the study was to analyze the influence of antecedents of interest rate spread on loan Portfolio Performance amongst listed commercial banks in Kenya.

1.3.2 Specific Objectives

In order to achieve the overall objective, the specific objectives of the study were;

i. To determine the influence of bank liquidity risk on loan portfolio performance amongst listed commercial banks in Kenya.
ii. To determine the influence of inflation on loan portfolio performance amongst listed commercial banks in Kenya.
iii. To determine the influence of the bank market niche on loan portfolio performance amongst listed commercial banks in Kenya.
iv. To determine the extent to which bank conditionality influence loan portfolio performance amongst listed commercial banks in Kenya.
v. To determine the influence of operational costs on loan portfolio performance amongst listed commercial banks in Kenya.

1.4 Research Hypotheses

The following null research hypotheses were tested:

$H0_1$: There is no significant influence of bank liquidity on loan portfolio performance amongst listed commercial banks in Kenya.

$H0_2$: There is no significant influence of inflation on loan portfolio performance amongst listed commercial banks in Kenya.

$H0_3$: There is no significant influence of bank market niche on loan portfolio performance amongst listed commercial banks in Kenya.

$H0_4$: There is no significant influence of the bank conditionality on loan portfolio performance amongst listed commercial banks in Kenya.

$H0_5$: There is no significant influence of operating costs on loan portfolio performance amongst listed commercial banks in Kenya.

1.5 Significance of the Study

Kenyan commercial banks have been always accused of increasing interest rate upon announcement by the central bank of Kenya and relaxing in adjusting downwards upon a similar announcement of a reduction. The banks have constantly tried to give various reasons in a bid to support the large interest rate spread and all reasons given are subjective with no empirical backing. This study seeks to obtain empirical findings and give a solid objective finding on the actual influence of interest rate spread on loan portfolio performance. The findings will put to rest the constant ranging debates that have clouded Kenya's financial sector by providing a solid and objective measure of the actual reasons that affect the interest rate spread and to what extent they affect loan repayment. The research will employ both qualitative and quantitative analysis and such

analysis would facilitate policy interventions to regulate interest rate spread or provide a basis of further research.

The study will aid the Kenyan policy makers to carefully plan and forecast the impact of the policies with a view to ensure banks thrive to serve its purpose and at the same time customers are not exploited. The study will help the law makers to make policy with full understanding of the influence of the interest rate spread on loan portfolio performance. The academic community will also benefit from the study by providing a body of knowledge on the interest rate spread and its influence on loan portfolio performance. It is hoped that the study will stimulate further study on optimal interest rate spread.

1.6 Scope of the Study

The study comprised of top-level managers, middle level managers and operational managers of the 11 listed commercial banks licensed by the Central Bank of Kenya and were in operation as on 31st December 2015 and still in existence by the time of collecting data in the year 2016. (Appendix111). The banks were classified into three main peer groups: Large, Medium and Small. CBK uses a weighted composite index comprising assets, deposits, capital size, and number of deposit accounts and loan accounts to classify banks into the three peer groups. Based on the weighted composite index, a large bank has a market share of 5 percent and above; medium bank between 1 and 5 percent and a small bank has less than 1 percent of the market share (CBK, 2011).

1.7 Limitations of the Study

There are a number of limitations that were encountered in the process of carrying out the study. The first limitation of the study was in relation to scope. The study was only done in Kenya and therefore the results are limited to Kenya and may not be applicable to other countries with a different operating environment. The uniqueness of the operating environment may hinder application of these results in other countries where the environment is different. Secondary data was analyzed for the period between 2012 and 2016 on only the listed commercial banks; this period may not be enough to draw

conclusions as major economic fluctuations may influence the loan portfolio performance of listed commercial banks and therefore wrong conclusions may have been arrived at during this study

The second limitation was the number of commercial banks listed at the Nairobi Securities Exchange is relatively small. This numbered to 11 banks at the time of the study.

The third major limitation was lack of knowledge in this area of finance by some respondents. Some questions were so technical such that it required persons who have done a course in finance to be able respond fully to the questionnaires. To mitigate this problem the researcher used research assistants who are specialists in finance and could take time and explain those questions that seemed technical to the respondents.

The fourth limitation of the study was the tight schedule of managers hence delayed response to the questionnaires. The researcher encountered difficulties of accessing them since most of the time the bank managers were busy and unavailable. To mitigate this situation, the researcher booked for appointments at their own convenient time. Additionally, the information provided in the financial statements was not in a standard format and additional time was required to put the information in a standardized presentable format for consistency of the information.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literature on interest rate spread and loan portfolio performance amongst listed commercial banks in Kenya. Key theories have also been reviewed under the section of theoretical framework. Based on the study objectives and background theories, a conceptual model is developed to diagrammatically demonstrate the study framework. The chapter presents the linkages between theoretical and empirical literature to establish the existing relationships among the variables. The chapter concludes with a critique of the literature and gaps which form the basis of the current study.

2.2 Theoretical Framework

This section reviewed theories that are relevant to the area of study. The following are the relevant theories that have been reviewed; the Keynes preference theory, the expectation theory, the market segmentation theory, and modern portfolio theory.

2.2.1 The Keynes' Liquidity Preference Theory

The concept was first developed by Keynes (1936) where he stated that the demand for money is expressed as a function of level of income and interest rate. According to Keynes (1936) money is demanded mainly for the following motives; transaction, precautionary and speculative motive. He further stated that investors will always prefer short term securities to long term securities. To encourage them hold long term bonds, long term securities should yield higher interests than short term bonds. Therefore, the yield curve will always be upward sloping. It is based on the observation that, all else being equal, people prefer to hold on to cash (liquidity) and that they will demand a premium for investing in non-liquid assets such as bonds, stocks, and real estate. The

theory suggests that the premium demanded for parting with cash increases as the term for getting the cash back increases.

Auerbach (2004) postulates that the rate in the increase of this premium, however, slows down with the increase in the period for getting the cash back. In financial terms, this theory is expressed as "forward rates should exceed the future spot rates". According to Reilly and Norton (2006), the theory of liquidity preference holds that long-term securities should provide higher returns than short term obligations because investors are willing to sacrifice some yields to invest in short maturity obligations to avoid the higher price volatility of long maturity bonds. According to Howels and Bain (2007), an increased preference for liquidity in the model is equivalent to increased demand for money and therefore demand for money increases wherever more people think interest rates are likely to rise than believes they are likely to fall.

If a bondholder plans to sell a bond prior to maturity, changes in the interest rate generate capital gains or losses. The longer the term of the bond, the greater the price changes for a given change in interest rates and the larger the potential for capital losses. As in case of inflation, the risk increases with the term to maturity, so the compensation must increase as with it. The buyer of long-term bonds would require compensation for the risks they are taking buying long-term bonds. The liquidity premium theory views bonds of different maturities as substitutes, but not perfect substitutes. Investors prefer short rather than long-term bonds because they are free of inflation and interest rate risks. Therefore, they must be paid positive liquidity (term) premium, to hold long-term bonds. Their yield, therefore, has two parts, one that is risk free (given by the formula according to the expectations theory) and another that is a premium for holding a longer-term bond.

Like the expectations theory, the liquidity premium theory predicts that interest rates of different maturities will move together because the long-term rates are essentially tied to the short-term rates. Long rates will also be less volatile because part of the long rate, which is just an average of the short rates, will smoothen out the volatility in the short rates. Finally, since the risk premium increases with time to maturity, the liquidity premium theory tells us that the yield curve will normally slope upwards, only rarely will it lie flat or slope downwards.

2.2.2 Expectations Theory

Lutz (1940) developed expectations theory as confirmed by Irungu (2013) who stated that the theory is built on the premise of expectations that people will have in regard to future conditions. If investors expect future interest rates to be high, they will prefer to hold long term securities and if the vice versa is true, they will prefer short term securities (Russel, 1992). Other expectations that will influence securities demand will include expectations on political conditions, expected inflation levels, among others. Investors expecting higher short-term interest rates are more likely to buy bonds maturing in the short term. If they were to invest money into a long-term debt they might not be able to make as much interest according to Auerbach (1988).

The theory is based on the assumptions that investors have perfect knowledge about the future short-term interest rates, there are no taxes or other costs involved in holding or trading and investors are assumed to be profit maximizers. With these assumptions the theory concludes that a long-term interest rate is an average of the expected future rates on short term bonds. Ignoring the compound interest factor this average will be a simple average. If the long-term rate of interest is an average of the short-term rates of interest, if the short-term interest rates rise, the average will also rise and the long-term interest will also rise. Thus, the long-term rate always moves in the same direction in which short term rates move (Bekaert, 1998). The theory is relevant in that if people expect inflation to increase in future, they would tend to fail to deposit money in commercial banks and hence expensive loans as a result of low supply of funds.

2.2.3 The Market Segmentation Theory

The theory was first developed by Culbertson (1957) as observed by Maina (2015). This theory assumes that markets for different-maturity bonds are completely segmented. The interest rate for each bond with a different maturity is then determined by the supply of and demand for the bond with no effects from the expected returns on other bonds with other maturities. In other words, longer bonds that have associated with the inflation and interest rate risks are completely different assets than the shorter bonds. Thus, the bonds of different maturities are not substitutes at all, so the expected returns from a bond of one maturity has no effect on the demand for a bond of another maturity.

Because bonds of shorter holding periods have lower inflation and interest rate risks, segmented market theory predicts that yield on longer bonds will generally be higher, which explains why the yield curve is usually upward sloping. However, since markets for different-maturity bonds are completely segmented, there is no reason why the short and long yields should move together. For the same reason, the segmented market theory also cannot explain why the short-term yields should be more volatile than the longer-term yields.

Market Segmentation Theory (MST) posits that investors and borrowers have strong maturity preferences that they try to attain when they invest in or issue fixed income securities. As a result of these preferences, the financial markets, according to MST, are segmented into a number of smaller markets, with supply and demand forces unique to each segment determining the equilibrium yields for each segment. Thus, according to MST, the major factors that determine the interest rate for a maturity segment are supply and demand conditions unique to the maturity segment. For example, the yield curve for high quality corporate bonds could be segmented into three markets: short-term, intermediate-term, and long-term. The supply of short-term corporate bonds, such as commercial paper, would depend on business demand for short-term assets such as inventories, accounts receivables, and the like, while the demand for short-term

corporate bonds would emanate from investors looking to invest their excess cash for short periods.

The demand for short-term bonds by investors and the supply of such bonds by corporations would ultimately determine the rate on short-term corporate bonds. Similarly, the supplies of intermediate and long-term bonds would come from corporations trying to finance their intermediate and long-term assets (plant expansion, equipment purchases, acquisitions), while the demand for such bonds would come from investors, either directly or indirectly through institutions including pension funds, mutual funds, insurance companies, who have long-term liabilities. The supply and demand for intermediate funds would, in turn, determine the equilibrium rates on such bonds, while the supply and demand for long-term bonds would determine the equilibrium rates on long-term debt securities.

Important to MST is the idea of unique or independent markets. According to MST, the short-term bond market is unaffected by rates determined in the intermediate or long-term markets, and vice versa. This independence assumption is based on the premise that investors and borrowers have a strong need to match the maturities of their assets and liabilities. Moreover, according to MST, the desire by investors and borrowers to avoid market risk leads to hedging practices that tend to segment the markets for bonds of different maturities. Kinyura (2011) found out that market segmentation theory is based on institutional practices being followed by commercial banks, microfinance institutions, insurance companies, and investment trusts. The market segmentation theory according to him overlooks the fact that there is an overlap between the markets. Lasher (2008) states that each market segment has its own supply and demand picture with independent set of forces pushing the curves back and forth, meaning that market interest rate in each segment is independently determined and not related to the market rate in other segments.

2.2.4 Modern Portfolio Theory

The basic portfolio model was developed by Harry Markowitz in the 1950s and early 1960s. Markowitz is considered the father of modern portfolio theory since he originated the portfolio model that underlies modern portfolio theory. He derived the expected rate of return for a portfolio of assets and the expected risk measure. Markowitz established that under reasonable assumptions, the variance (or standard deviation) of the expected rate of return was a meaningful measure of portfolio risk. From his model, the expected rate of return of a portfolio is the weighted average of the expected return for the individual assets in the portfolio. The traditional portfolio theory, Modern Portfolio Theory (MPT), is a theory which attempts to maximize investors' expected return for a given amount of risk, or minimize investors' risk for a given level of expected return. MPT therefore includes two factors when choosing assets to form a portfolio, the mean and the variance and goes therefore also by the name of mean-variance theory.

Portfolio theory deals with the selection of portfolios that maximize expected returns consistent with the individual acceptable levels of risk. The theory provides a framework for specifying and measuring investment risk and to develop relationships between risk and expected returns. Its main basic assumption is that investors often want to maximize returns from their investments for a given level of risk. The full spectrum of investments must be considered because the returns from all these investments interact hence the relationship between the returns for assets in the portfolio is important (Reilly & Brown, 2011). The legitimacy of the modern portfolio theory has been challenged by financial analysts who often cite Warren Buffett as a rule breaker. Warren Buffett, a major financial market referral with successful financial takeovers in his resume, is not a typical investor. Unlike the average mutual fund manager, Buffet often buys companies and then manages them.

He provides them with economies of scale, lower cost of capital and the benefits of his managerial wisdom. And when he takes large portions in companies, he often gets a board seat. So perhaps his great returns are more a result of his managerial skills than his investment skills, or some combination of both. This, obviously, is not congruent with the line of thought of MPT proponents (Sabbadini, 2010).

Traditionally, organizations have taken an asset-by-asset approach to credit risk management. While each company's method varies, in general 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. This theory addresses the investments policies variable. The modern portfolio theory demonstrates that organizations manage their businesses on a portfolio basis. With assumptions that investors are homogenous and risk averse, they have to be motivated to invest, they need a rate of return that will compensate them for taking on the risk at the end of period of holding given assets. It is therefore important for banks to deploy prudent financial management practices in order to instill control within the various portfolios with a target of maximizing returns on each portfolio.

2.3 Conceptual Framework

A conceptual framework is defined as a hypothesized model identifying the model under study and the relationship between the dependent and independent variables (Kothari, 2014). Uzel (2015) emphasized out that the conceptualization of variables in academic study is important because a conceptual framework forms the basis for testing hypothesis and coming up with generalizations in the findings of the study. Zikmund (2010) suggested that the goal of a conceptual framework is to categorize and describe

concepts relevant to the study and map relationships among them. In this study, liquidity, inflation, bank market niche, bank conditionality and bank operating costs as the determinants of interest rate spread are classified as the independent variables, while loan portfolio performance of listed commercial banks in Kenya is classified as the dependent variable and the conceptual frame work is diagrammatically represented in figure 2.1.

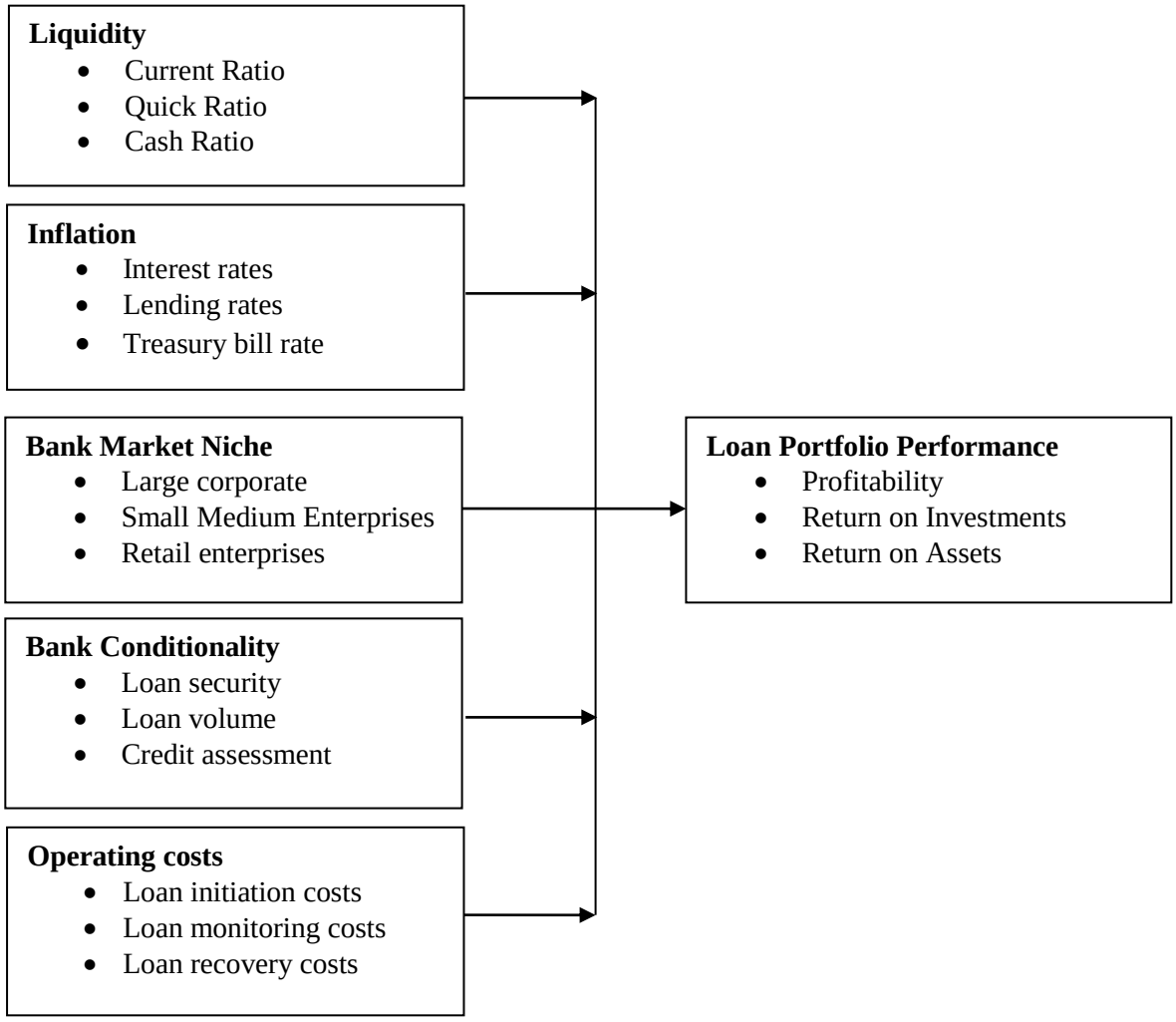

Figure2.1: Conceptual Framework

2.4 Review of Literature Variables

This section examines the influence of interest rate spread on the loan performance of corporate clients of commercial banks. The attributes of interest rate spread analyzed include liquidity, inflation, market niche, bank conditionality and operating costs.

2.4.1 Liquidity and Loan Portfolio Performance

Liquidity position of commercial banks is normally monitored and measured by liquidity ratio (Rychtarik, 2009). The term liquidity is defined as the ability of a company to meet its financial obligations as they come due. It is computed as the ratio of bank's liquid assets to total assets. Liquid assets refer to cash and deposit balances in other banks which include reserve requirements at the CBK). The degree to which banks are exposed to liquidity risk varies across banks. A bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due to a lower liquidity premium charged on loans (Were & Wambua, 2013). Banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads (Ahokpossi, 2013).

The main principal activity of a commercial bank is to grant loans to borrowers. Loans are among the highest yielding assets a bank can add to its balance sheet, and they provide the largest portion of operating revenue. In this respect, the banks are faced with liquidity risk since loans are advanced from funds deposited by customers. However, the higher the volume of loans extended the higher the interest income and hence the profit potentials for the commercial banks. Devinaga (2010) noted that banks with a high volume of loans will also be faced with higher liquidity risk. Thus, the commercial banks need to strike a balance between liquidity and profitability. He further emphasized that a high volume of loans alone is not a guarantee for high interest income. If the borrowers default then the interest income will not be earned and this will certainly affect the profitability of the bank adversely.

Liquidity ratios compare the current assets of a business to the current liabilities (Akhtar, 2011). Liquidity risk is usually measured as liquidity ratio which is practically calculated in two different forms. In first type, liquidity is adjusted by size which includes the ratio of cash asset to total asset (Barth *et al.*, 2003; Demirguc-Kunt *et al.*, 1998), the ratio of cash asset to deposits (Chen et al., 2010). Second type includes the adjusted loan by the size which includes the ratio of total asset and/or the ratio of net loan to total asset (Kosmidou *et al.*, 2005). In first type, the higher is the liquidity ratio, the higher is the liquidity level, and therefore, it is less vulnerability against bankruptcy. In contrast, in second type, the higher are the values of ratios, it will represent that banks will undergo higher liquidity risk.

The liquidity ratio is a computation that is used to measure a company's ability to pay its short-term debts. There are three common calculations that fall under the category of liquidity ratios. The current ratio is the most liberal of the three. It is followed by the acid ratio, and the cash ratio. These three ratios are often grouped together by financial analysts when attempting to accurately measure the liquidity of a company. The current ratio indicates a company's ability to pay its current liabilities from its current assets. This ratio is one used to quickly measure the liquidity of a company. The formula for the current ratio is: Current Ratio= Current Assets ÷ Current Liabilities. This formula considers all current assets and current liabilities. Current assets are those assets that are expected to turn into cash within one year. Examples of current assets are cash, accounts receivable, and prepaid expenses. Also included in this category are marketable securities such as government bonds and certificates of deposit. Current liabilities are those debts that are expected to be paid or come due within a year.

The purpose of the acid test ratio is to measure how well a company can meet its short-term obligations with its most liquid assets. Remember, liquid assets are those that can be quickly turned into cash. Most of the current assets are highly liquid with the exception of inventory, which often takes a longer amount of time to turn into cash. The formula for calculating the acid ratio is: Acid Ratio= (Cash & Cash Equivalents + Short-Term Investments + Accounts Receivable) ÷ Current Liabilities. Cash and cash

equivalents refer to such things as cash on hand, checking accounts, savings accounts and money market accounts. Interest Coverage Ratio is used to determine how easily a company can pay interest on outstanding debt. The lower the ratio, the more the company is burdened by debt expense. When a company's interest coverage ratio is 1.5 or lower, its ability to meet interest expenses may be questionable. An interest coverage ratio below 1 indicates the company is not generating sufficient revenues to satisfy interest expenses. The interest coverage ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) of one period by the company's interest expenses of the same period.

Ngugi (2000) incorporates excess liquidity and non-performing loans ratio as explanatory variables and finds that a rise in non-performing loans ratio leads to a rise in spreads while excess liquidity is negatively related with spreads. Both studies are undertaken at the macro level, mainly focusing on the macro industry level variables. Nonetheless, they both ignore macroeconomic indicators such as GDP and inflation. The current study goes beyond these factors by considering the influence of bank specific factors on loan portfolio performance amongst listed commercial banks in Kenya. Ngugi (2001) in Kenya and Perez (2011) in Belize found that excess liquidity tended to widen the interest rate spread. Liquidity has a greater impact on the tradable securities and portfolios. Broadly, it refers to the loss emerging from liquidating a given position. It is essential for a bank to be aware of its liquidity position from a marketing perspective. It helps to expand its customer loans in case of attractive market opportunities (Falconer, 2001). A bank with liquidity problems loses a number of business opportunities. This places a bank at a competitive disadvantage, as a contrast to those of the competitors (Chaplin *et al.*, 2000).

Gambacorta (2004) studied factors explaining cross-sectional differences in bank interest rates of Italian. Results showed that interest rates on short term lending of liquid and well capitalized banks react less to monetary policy shocks because of their exposure to risks. Diamond and Rajan (2001) Stated that a bank may refuse the lending, even to a potential entrepreneur, if it feels that the liquidity need of the bank is quite

high. This is an opportunity loss for the bank. If a bank is unable to meet the requirements of demand deposits, there can be a bank run. No bank invests all of its resources in the long-term projects. Many of the funding resources are invested in the short-term liquid assets. This provides a buffer against the liquidity shocks (Holmstrom &Tirole, 2000). The extent to which liquidity compares to other bank specific factors that affect interest rate spread is unclear and this study hopes to find out the extent to which liquidity affects loan portfolio performance.

2.4.2 Inflation and Loan Portfolio Performance

Inflation is the rising price of goods and services overtime (Voznyuk, 2010). Inflation is often measured using the consumer price index (CPI) indicators, which calculate a currency's purchasing power relative to a diverse basket of consumer goods. Inflation is perhaps most pronounced in bond prices. These prices tend to have an inverse correlation with inflation, since higher inflation leads to higher expected yields, and higher yields lead to lower bond prices. Moreover, ongoing inflation depletes the value of the maturity (principal) payment, since that currency's value is becoming increasingly diluted.

Kenya as a region is facing very high inflation originating primarily from high food and fuel prices but also from demand pressures. The commercial banks in Kenya are susceptible to many forms of risk which have triggered occasional systemic crises (KBA, 2014). These include liquidity risk (where many depositors may request withdrawals in excess of available funds), credit risk (the chance that those who owe money to the bank will not repay it), and interest rate risk (the possibility that the bank will become unprofitable, if rising interest rates force it to pay relatively more on its deposits than it receives on its loans), (Ndung'u, 2014). Given these challenges, the government has agreed to coordinate such actions as tightening monetary policy, stemming volatility in the foreign exchange markets and curbing currency speculation activities (KBA, 2014).

Chenn (2011) argued due to the globalization, Kenyans economy has been experiencing inflation and other internal pressure. This has resulted to constant interest rate change hence influencing the banking business in the economy. Interest rate change shifts the spread given by the financial institution to their clients. This means that the banks have been revising the rates given to their customers hence making lending process unstable. Out of the competition, financial institutions have been introducing different spreads based on their policy strategy to meet their goals and objectives. Folawewo and Tennant (2008) in a paper prepared for the 13th Annual African Econometrics Society Conference in Pretoria, Republic of South Africa analyzed the determinants of spreads between banks' deposit and lending rates in Sub Saharan Africa countries (SSA). They found that macroeconomic policy variables such as inflation play significant role in explaining variations in interest rate spread in the region.

Mishkin (2000) explained that with inflation lenders or depositors who pay a fixed rate of interest on loans or deposits will lose purchasing power from their interest earnings while their borrowers benefit. A positive effect of inflation is derived from debt relief where debtors who have debts with a fixed nominal rate of interest will see a reduction in the real interest rate as the inflation rate rises. The "real" interest on a loan is the nominal rate minus the inflation rate. Therefore, if one takes a loan, with an interest rate of 15% and the inflation rate is at 5% the real interest rate that one will pay for the loan is 10%. Banks and other lenders adjust for this inflation risk either by including an inflation premium in the costs of lending the money by creating a higher initial stated interest rate or by selling the interest at a variable rate. Variable rate loans are often used to compensate for changes in inflation. When a lender issues a loan, the lender is making a bet about the rate of inflation over the life of the loan. If inflation does not react in the way the lender expects, then the lender may not make enough profit. Lenders wary of this possibility will use variable rate loans to protect themselves against loss.

Variable rate loans will see higher interest rates when inflation is higher. Unfortunately, interest rates rarely drop when inflation goes back down. For corporate to protect themselves against high adjustable rates, a limit is set on how high the rate can climb.

When a Commercial Bank offers a fixed rate loan, the loan becomes more competitive if the value of the currency decreases/high inflation. The scenario that results from this is that the corporate is cushioned from the inflation effects and the commercial bank stands to make losses during the loan duration but this is hardly the case since most commercial banks prefer a variable rate loan. Where the market conditions are such that the economy is experiencing low inflation and a fixed rate loan was advanced, the commercial banks would stand to make more returns. When a Commercial Bank offers a fixed rate loan, the loan becomes more attractive to the corporate since it can schedule payments with precision and the bank can make better margins where the economy is experiencing a low inflation rate. Ndung'u and Ngugi (2000) and Ngugi (2001) theoretically derived factors likely to explain the interest rate spread and empirically estimated an interest rate spread equation using monthly time series data for the period April 1993 to June 1999, while Ngugi (2001) extends the monthly time series data to December 1999. The factors considered by the former are deposits, loans, Treasury bill rate and interbank rate. They find that the spread is positively related with deposits but negatively related to loans.

The Kenyan banking industry experienced unprecedented instability (Pasha & Khemraj, 2010). Although the instability was not caused solely by the high inflation rates as it could be attributed to other factors such as information asymmetry, policy lending by state owned banks, politics among other factors, inflation was a key factor in the non-performance of loans (Ndung'u, 2014). Lending is a risky enterprise because repayment of loans can seldom be fully guaranteed. Kenya has paid dearly in the past following the collapse of more than ten banks in mid-1990's that was mainly attributed to non-performance of loans due to high rates of interest fueled by inflation. The high non-performance loans ushered a regime of high lending rates, which further exacerbated the levels of default.

The problem of interest rates and loan portfolio performance is not unique in Kenya. Others outside Kenya have researched on it considerably. The interest rate aspects of loan portfolio performance are discussed based on the theoretical and practical recommendations outlined in other research works done elsewhere outside Kenya. Saurina (2005) defines interest as the amount a borrower pays in addition to the principal of loan to compensate the lender for the use of the money while Interest rates are the expressions of interest as a percentage of the principal. Whereas interest rate is a rate which is charged or paid for the use of money, an interest rate is often expressed as an annual percentage of the principal. It is calculated by dividing the amount of interest by the amount of principal. In general, interest rates rise in times of inflation, greater demand for credit, tight money supply, or due to higher reserve requirements for banks. A rise in interest rates for any reason tends to dampen business activity (because credit becomes more expensive) and the stock market (because investors can get better returns from bank deposits or newly issued bonds than from buying shares).

In a loan structure, the interest rate is the difference in percentage between money paid back and money got earlier, keeping into account the amount of time that elapsed. When establishing the interest rate to the public, banks all over the world refer to these rates. If the firm is a sound primary firm with excellent trustworthiness, the bank would agree an interest rate only slightly higher than the rate the same bank would be requested to pay in the inter banking market from other lending institutions. By contrast, for smaller industrial firms, the rate usually would be significantly higher because of the worsened credit risk. According to Pasha and Khemraj (2010), the impact of real interest rates on Non-Performing Loans is extensively documented in the literature. Several studies report that high real interest rate is positively related to this variable. This variable is constructed by subtracting the annual inflation rate from the weighted average lending rate of each bank. Using a pseudo panel-based model for several Sub-Saharan African countries, Fofack (2005) finds evidence that economic growth, real exchange rate appreciation, the real interest rate, net interest margins, and inter-bank loans are significant determinants of Non-Performing Loans (NPLs) in these countries.

2.4.3 Bank Market Niche and Loan Portfolio Performance

Different corporates have different negotiation abilities, based on their turnover negotiate differently with commercial banks regarding the level of interest rate to be paid on any facility extended. For purposes of this study, the Market niche shall be segmented into large corporate, small and medium enterprises, and retail enterprises. Large companies have higher turnover and thus it's expected that they have access to better terms of access to credit facilities and better payment terms as well as better interest rates. This brings out a major difference in interest rate spread despite the clients being from the same bank. Clients with more capacity have a smaller interest rate spread because of their bargaining power while those with lesser capacity have a high interest rate spread. Large banks may have a comparative advantage in lending to large customers as they can exploit scale economies in evaluating the hard information that is available on such customers. Small banks, however, may not be able to lend to large companies because of size limitations. They are, for instance, more constrained by regulatory lending limits. Small banks may also have a comparative advantage in processing soft information on SMEs.

Ngugi (2001), Were and Wambua (2013) applied panel data analysis on disaggregated banking sector data to study interest rate spread. They found that bank-specific factors play a significant role in the determination of interest rate spreads but their studies never seem to factor in the issue of bargaining power of customers. They seemed to assume that the interest rate spread in a commercial bank is even, which is not the case in the current market, banks discriminate depending on customers' capacity and thus it would be untrue to overlook that factor. The corporate clients in fact being the ones with higher capacity influence greatly the overall spread of the bank since a small percentage change will reflect a substantial figure in the financial.

Sanya and Gaertner (2012) have shown that market concentration reduces competition. Ruprecht and Wilkens (2012) studied determinants of bank interest margins in Deutsche Bundes bank and observed that the industry's competitive structure is determined by the extent to which the demand for loans and deposit supply are inelastic with respect to the intermediation fees charged.

The financing of small and medium-sized enterprises (SMEs) has been a subject of great interest both to policymakers and researchers because of the significance of SMEs in private sectors around the world and the perception that these firms are financially constrained. According to Ayyagari *et al*. (2007) on average, SMEs account for close to 60 percent of manufacturing employment. More importantly, SMEs not only perceive access to finance and the cost of credit to be greater obstacles than large firms, but these factors constrain SMEs (affect their performance) more than large firms. Until recently, the conventional wisdom regarding SME finance was that small and domestic banks are more prone to finance SMEs because they are better suited to engage in "relationship lending", a type of financing based primarily on "soft" information gathered by the loan officer through continuous, personalized, direct contacts with SMEs, their owners and managers, and the local community in which they operate (Sengupta, 2007). However, De la Torre *et al.* (2008) disputed this conventional wisdom and proposed a new paradigm for bank SME finance, arguing that large and foreign banks, relative to other institutions, can have a comparative advantage at financing SMEs through arms-length lending technologies for example, asset-based lending, factoring, leasing, fixed-asset lending, credit scoring and centralized organizational structures instead of relationship lending. Suppliers of external funds regard SME as riskier enterprises for a number of reasons. First, SME face a more uncertain competitive environment than larger companies and hence experience more variable rates of return and higher rates of failure.

Olawale and Garwe (2010) argues that despite the noted contributions of new SMEs, their failure rate in South Africa is one of the highest in the world, about 75% of new SMEs in South Africa do not become established firms. This is attributed to vulnerability to market changes and often inadequate management capabilities because

of their smaller size. Secondly, SMEs are comparatively less equipped in terms of both human and capital resources to withstand economic adversities. Schiffer and Weder (2001) argued that due to vulnerability and high turnover SMEs are intrinsically riskier borrowers than large firms.

2.4.4 Bank Conditionality and Loan Portfolio Performance

Bank Lending policy is a statement of its philosophy, standards, and guidelines that its employees must observe in granting or refusing a loan request. These policies determine which retail or corporate clients the commercial banks approved for loans and which will be avoided, and must be based on the bank lending laws and regulations. The banking industry plays a major role in economic growth and development through provision of credit to execute economic activities. However, the major concern of any lender while advancing credit is how they will get their money back. Credit risk emanates from the probability that borrowers will default on terms of debt, subsequently leading to high levels of non-performing loans. This concern has resulted into several attempts to manage the increasing levels of non -performing loans.

Loan size can be measured in terms of loan supply or demand and loan repayment. Loan size has been a subject of interest to scholars who have studied banking. It has been studied either as a dependent variable or as an independent variable. In this study, loan size is studied as an independent variable. In the present study, loan size will be measured as the amount of loans given in a year. The level of interest rates has a direct effect on a consumer's ability to repay a loan. For example, Thordsen and Nathan (1999), assert that when interest rates are low, people are willing to borrow because they find it relatively easy to repay their debt. When interest rates are high, people are reluctant to borrow because repayments on loans cost more. Some consumers may even find it difficult to meet their existing loan repayments, especially if interest rates increase faster than the rise in a consumer's income. If interest rates rise sharply and stay high for a long period, some consumers will default on their loans.

Calcagnini *et al.* (2012) studied the link between loans, interest rates, and guarantees found that loan size was negatively related with bank interest rate spread. Moore & Craigwell (2013) examined the relationship between interest rates and loan sizes in Barbado and found that interest rate was positively related with size of bank loans. Further, Yusoff, Rahman, and Alias (2001) examined the relationship between interest and loan supply of Islamic and Conventional banking system in Malaysia and found positive relationship between bank loan growth and interest rates. Akinlo and Owoyemi (2012) examined the determinants of interest rate spreads in Nigeria and found a positive relationship between interest rate spread and loan size. On the other hand, Steffen (2008) examined how lending relationships affect loan rate smoothing in UK and found a negative but insignificant effect of loan size on interest rate spread.

In Kenya all banks seem to be in a race of customer acquisition and capitalization and thus the extent of exploitation of customer is quite high since the banks have strict targets to achieve in order to sustain profitability at a specific level. Profit incentive is thus a major factor that has led to the ever-increasing interest rate spread. The proportion to which the profit incentive contributes to the overall interest rate spread is however difficult to measure since profitability is a closely kept secret of the banks. The level of disclosure of profits is calculated because of issues of taxation and shareholders. This study hopes to find out the extent profitability incentive affects the overall interest rate spread and hence its overall effect on loan portfolio performance.

Kithinji (2010), observed that several theories have been put forward having implications on credit risk management; Interest rates theories recognize that interest rates have an effect on credit risk because, the higher the interest rate, the higher the risk that the loan might not be repaid and thus the higher the credit risk. Derban *et al*. (2005) argues that borrowers should be screened by banks as a form of credit assessment. According to the Credit reference bureau report (2005), Kenyan commercial banks employ rigorous credit assessment processes although they are yet to excel in the management of their loan portfolio.

2.4.5 Operating Costs and Loan Portfolio Performance

This is usually computed as ratio of operating costs to total net operating income. Banks incur costs of financial intermediation such as screening loan applicants to assess the risk profile of borrowers and monitor the projects for which loans are advanced. An increase in operating costs is expected to have positive influence on interest rate spreads (Were &Wambua, 2013). High operating costs are likely to include costs due to inefficiency leading to higher spreads and hence this variable is commonly used as an indicator of operational inefficiency. A higher cost of financial intermediation will drive up interest rates on loans while depressing interest rates on deposits.

In Kenya, overhead costs are largely reflected in high employee payments and highly automated and well designed and furnished bank branches (Ngugi, 2001). The increase demonstrates initiatives by banks to increase provision of their services by adopting cost effective channels (CBK, 2012). Banks in Kenya also incur high administrative cost and these are the factors which could explain their interest rate spread. Brock and Rojas (2000) also showed that administrative and other operating costs contributed to the prevalence of high spreads in Latin American countries. Ngugi (2001) studied factors determining interest rate spread in the Kenya's banking sector for pre-liberalization period and post-liberalization period. She found out that interest rate spread increases due to yet to be gained efficiency and high intermediation costs. Both implicit and explicit taxes widen the interest spread as they increase the intermediation costs (Ngugi, 2001).

In case of Pakistan, the State Bank of Pakistan (2006) observed that bank-specific factors such as administrative expenses positively influence the level of banking spreads in Pakistan. Siddiqui (2012) in the study in Pakistan concluded overhead costs are highest for foreign banks, resulting in the lowest return on assets (ROA) compared to private and public sector banks. The studies show that high overhead costs are largely reflected in high employee payments and highly automated and well designed and furnished bank branches and contributes to interest rate spread. In line with studies

(Maudos & Guevara, 2004; Williams 2007; Khawaja & Din, 2007) on banking spreads in different countries, it was found that administrative expense was particularly important in explaining commercial bank spreads in Pakistan. Wong and Zhou (2008) and Khawaja and Din (2007), asserted that the level of competition in the banking industry in Pakistan was considered as a key factor in explaining high spreads.

2.4.6 Loan Portfolio Performance

Katerega (2013) defined loan portfolios as loans that have been made or bought and are held for repayment. Loan portfolios are the major asset of banks, thrifts, and other lending institutions (Katerega, 2013). The values of a loan portfolio depend not only on the interest rates earned on the loans, but also on the quality or likely hood that interest and principal will be paid.

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 bank's safety and soundness. The level of interest risk attributed to the bank's lending activities depends on the composition of its loan portfolio and the degree to which the terms of its loans (e.g., maturity, rate structure, and embedded options) expose the bank's revenue stream to changes in rates.

Loan portfolio performance refers to the rate of profitability or return on an investment (ROI) in various loan products thus broadly, it looks at the number of clients applying for loans, how much they are borrowing, timely payment of installments, security pledged against the borrowed funds, rate of arrears recovery and the number of loan products on the chain. The loan products may comprise of; Salary loans, Group guaranteed loans, Individual loans and corporate loan (Kateregga, 2013).

Since one of the main tasks of commercial banks is to offer loans and their main source of risk is credit risk, that is, the uncertainty associated with borrowers' repayment of these loans. A non- performing loan (NPL) may be defined as a loan that has been

unpaid for ninety days or more (Greenidge & Grosvenor, 2010). Such loans unpaid affect the bank loan portfolio performance. For effective loan portfolio performance banks should pay attention to several factors when providing loans in order to curtail the level of impaired loans (Khemraj & Pasha, 2010). Specifically, commercial banks need to consider the international competitiveness of the domestic economy since this may impair the ability of borrowers form the key export-oriented sectors to repay their loans which in turn would result in higher nonperforming loans. These lending institutions should also take the performance of the real economy into account when extending loans given the reality that loan delinquencies are likely to be higher during periods of economic downturn. Finally, banks should constantly review the interest rates on loans since loan delinquencies are higher for banks which increase their real interest rates.

To overcome the challenge of non-performing loans (NPLs), an institution is required to monitor the behavior of borrowers. Thus, the idea of establishing Credit Reference Bureau (CRB) was conceived in order to enable banks to determine credit worthiness of their borrowers – individuals, groups and enterprises; and therefore, reduce the loan default risk. In this respect CRB assists in first, sharing information on default among banks; secondly, eliminating corrupt borrowers – those with the aim of borrowing from different financial institutions with the aim of defaulting; thirdly, to provide commercial professional credit reference to say prospective foreign investors; and also, to identify honest/credible borrowers based on known history and character. Paydaycash (2010) highlighted that CRB contributes significantly to reduction in the costs of screening loan applications by enabling the lender to sort out prospective borrowers who have defaulted with other lenders.

Research by Armstrong (2008) based on information from several countries across the globe showed that the existence of credit registries is associated with increased lending volume, growth of consumer lending, improved access to financing and a more stable banking sector. Further, Hansen *et al.* (2004), highlighted that many borrowers make a lot of effort to repay their loans, but do not get rewarded for it because this good repayment history is not available to the bank that they approach for new loans.

Whenever borrowers fail to repay their loans, banks are forced to pass on the cost of defaults to other customers through increased interest rates and other fees. Put simply - good borrowers are paying for bad. Credit reporting allows banks to better distinguish between good and bad borrowers.

2.5 Empirical Review

The relevant literature reviewed indicates the existence of several studies in developed and emerging economies while there was paucity of studies in Africa except handful of them like (Chirwa & Mlachila, 2004); Folawewol and Tennant (2008); Beck and Hesse (2006); Aboagye *et al.* (2008); Ikhide (2009). Using dynamic panel data model, Folawewol and Tennant (2008) studied the determinants of interest rate spread in 33 Sub-Saharan African (SSA) countries focusing on macroeconomic variables. Their results show that interest rate spread is influenced by the extent of the crowding out effect of government borrowing, public sector deficits, discount rate, inflation, level of money supply, reserve requirement, level of economic development and population size. A more recent study on determinants of bank interest margins in SSA is by Ahokpossi (2013) using a sample of 456 banks in 41 SSA countries. The results show that bank-specific factors such as credit risk, liquidity risk and bank equity are important, determinants of interest margins, but such spreads are not sensitive to economic growth.

Nampewo (2013) studied the determinants of the interest rate spread of the banking sector in Uganda using time series data for the period 1995 – 2010.Results show that the interest rate spread in Uganda is positively affected by the bank rate, the Treasury bill rate and non-performing loans. However, the analysis is undertaken at macro level hence concealing micro and bank-specific characteristics. Nakeba (2010) conducted a study on the role of credit management in the performance of indigenous commercial banks in Uganda. The findings of his study indicated that loan committees needed to take full responsibility of overseeing the loan acquisition process and report on the portfolio progress as a measure of careful monitoring of the loan portfolio performance in the bank. Nakeba's study mostly focused on credit management but didn't test the impact of

interest rates on the loan portfolio performance in commercial banks and the current study seeks to close this research gap.

McShane and Sharpe (1984) postulated a theoretical model of determining bank interest margins based on hedging behavior of interest margin determination – the dealer model of bank interest margin determination – and applies this model to Australian banks. Their model assumes the following about banks in undertaking intermediation between depositors and borrowers: (i) Maximization of expected utility (ii) risk aversion in loan and deposit markets Loan/deposit interest margins are defined in the study as fees for financial intermediation given the randomness of loan requests and receipt of deposits, and the uncertainty in short term interest rates. However, the study notes the narrowness of this definition of interest rate margin and embeds their model in a more general model of profit maximization. The a priori expectations are that there is a positive relationship between bank interest margins and market power, the degree of bank risk aversion, interest rate uncertainty and average transaction size.

Globally and in Kenya in particular, most studies on interest rate spread examine the effect of the determinants on financial performance and few studies exist that examine the influence of determinants of interest rate spread on loan portfolio performance. Ngugi (2000) incorporates excess liquidity and non-performing loans ratio as explanatory variables and finds that a rise in non-performing loans ratio leads to a rise in spreads while excess liquidity is negatively related with spreads. Nonetheless, the study ignored macroeconomic indicators such as GDP and inflation. The current study goes beyond these factors by considering not only macroeconomic variables but also bank-specific variables using panel data for the commercial banks. Nyambok (2010) studied the relationship between inflation rates and liquidity of companies quoted at the Nairobi Securities Exchange (NSE). The study noted that increases in inflation had mixed effects on the liquidity of firms quoted at the NSE. The effects varied across different segments at the stock exchange.

A study on the Kenyan banking sector by Wambua (2013) however applied panel data analysis on disaggregated banking sector data to study interest rate spread. They found that bank-specific factors play a significant role in the determination of interest rate spreads. Industry specific factors and macroeconomic factors are insignificant. The study however uses a simple measure of spread i.e. difference between lending rate and deposit rate. This measure is adversely affected by the composition of lending of individual banks. Kaggwa (2013) did a study on the interest rate spread and loan portfolio performance in Ugandan commercial banks. This study examined the role of lending interest rates on the loan portfolio performance in commercial banks in Uganda. The study specifically looked at how Centenary Bank has ensured that the bank loan portfolio is maintained within acceptable limits; examined how the bank ensures compliance with regulatory requirements and how the bank has worked out problem loans including rescheduling and restructuring for better performance.

Onyekachi and Okoye (2013) examined the impact of bank lending rate on the performance of Nigerian Deposit Money Banks between 2000 and 2010. It specifically determined the effects of lending rate and monetary policy rate on the performance of Nigerian Deposit Money Banks and analyzed how bank lending rate policy affects the performance of Nigerian deposit money banks. The study utilized secondary data econometrics in a regression, where time-series and quantitative design were combined and estimated. The result confirmed that the lending rate and monetary policy rate has significant and positive effects on the performance of Nigerian deposit money banks.

2.6 Critique of the Literature

Kenyan literature seems to focus on macro industry level variables, Ngugi (2000) incorporated excess liquidity and non-performing loans ratio as explanatory variables and found that a rise in non-performing loans ratio leads to a rise in spreads while excess liquidity is negatively related with spreads. Kenyan scholars on the subject, Ngugi (2001), Were and Wambua (2013) seem to concentrate on macro-economic variables and industry specifics. Ngugi (2001) and Maina (2015) touched on bank specifics but

dealt more on the issue of bank size, operational costs and liquidity. The other variables such as customers bargaining power, Bank loan policies and profit incentive were not discussed in detail. The significance of different bank specifics is not reviewed in Kenyan studies in relation to loan portfolio performance and there seems to be a blanket analysis that Bank specifics have a significant influence on interest rate spread while macroeconomic and industrial specific factors have less significance. Most studies reviewed have also concentrated on a few factors determining interest rate spread while this study will explore several determinants and their effect on loan portfolio performance of commercial banks in Kenya. This study hopes to fill the gaps by providing proportional analytics of the influence of the determinants of interest rate spread on loan portfolio performance of commercial banks in Kenya by examining the following key components of interest rate spread; Liquidity, inflation, market niche, conditionality and operating costs.

2.7 Research Gaps

Research in Kenya seems to be skewed towards three major factors that affect interest rate spread in Kenya; namely Bank specific factors, Macro economic variables and industry specifics. The research seems to conclude that Macroeconomic and industry variables have no significant influence on interest rate spread Were and Wambua (2013). The main factor affecting the interest rate is highlighted as Bank specifics however there seems to be a research gap as far as making a correlation between loan portfolio and the components of interest rate spread. Researchers have delved into the discussion of determinants of interest rate and their relation to loan repayment has been overlooked despite interest on loan from diverse clients being the main income generator for commercial banks. Most studies reviewed have also concentrated on a few factors determining interest rate spread. For instance, a study by Maina (2015) looked at the determinants of interest rate spread and financial performance of commercial banks in Kenya. Specifically, the study investigated the effects of inflation, operating costs, market structure, business risks and ownership structure on interest rate spread among commercial banks in Kenya. Apart from operating costs all the other variables were

found to have a great influence on interest rate spread. While this study will explore several determinants looking at the current relevant literature, it will seek to find out their relationship with loan portfolio performance as opposed to financial performance.

A related research by Mang'eli (2012) also looked at the relationship between interest rate spread and financial performance of commercial banks in Kenya. Mwangi (2013) studied the effect of lending interest rates on financial performance of microfinance intuitions. It is apparent that these studies and others, have delved at the relationship between interest rate and financial performance of financial institutions and little has been researched on the influence of interest rates spread on loan portfolio performance which is a key source of banks revenue. This research hopes to clarify the level of significance interest rate spread affect loan portfolio performance. The research will provide researchers with invaluable information on the subject and set a baseline for further research on the topic.

2.8 Summary

In summary, there are a number of empirical studies on the determination of interest rate margins and spreads, focusing on different sets of factors (bank specific, industry-related and/or macroeconomic factors) and methodologies (time series and panel data methods) depending on the type of data, frequency and coverage (panel of banks, countries or country-specific analyses). However, most of the explanatory variables considered are similar or more-or-less related, depending on the type of study and coverage. That notwithstanding, there is still paucity of empirical studies on interest rate spreads with respect to African countries, particularly at the bank-level, given the fact that a number of African countries like Kenya are still grappling with the challenge of higher interest rate spreads. Literature reviewed in Kenya reveals that Ngugi (2001), Were and Wambua (2013) are the main contributors to the subject. They reviewed three major factors that affect interest rate spread and they grouped them as Bank specifics, Macro economic variables and industry specifics. They concluded that bank specifics greatly influence the interest rate spread while macroeconomic variable and industry specifics

have no significant effect on the interest rate spread. However, their studies were on the determinants of interest rate spread while this study will look at the influence of the determinants of interest rate spread on loan portfolio performance amongst commercial banks. This study hopes to cast light in regards to determinants of the interest rate spread and its level of significance to loan portfolio performance in Kenya by examining the following key components of interest rate spread; Liquidity, inflation, market niche and bank conditionality and operating costs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter identifies the methodology for conducting this research. The areas covered were research design, the population of the study, sampling techniques, sample size, methods of data collection and data analysis.

3.2 Research Design

A research design is the structure, or the blueprint, of research that guides the process of research from the formulation of the research questions and hypotheses to reporting the research findings (Gakure, 2010). According to Lavrakas (2008), a research design is a general plan or strategy for conducting a research study to examine specific testable research questions of interest. Kothari (2014) described a research design as a master plan that specifies the methods and procedures for collecting and analyzing the needed information. Research design refers to how data collection and analysis are structured in order to meet the research objectives through empirical evidence (Cooper & Schindler, 2014).

The study adopted a descriptive research design. The advantage of this design is that the researcher is able to use various forms of data as well as incorporating human experience. It gives researchers the ability to look at what they are studying in various aspects and provides a bigger picture as opposed to other types of research design (Kothari, 2014). According to Mugenda and Mugenda (2003), the purpose of descriptive research design is to describe the state of affairs as it is at present. It provides data about the population being studied; it is used when the objective is to provide a systematic description that is as factual and accurate as possible. It provides the frequency of occurrence hence lending itself to statistical calculations such as determining the average

number of occurrences or the central tendency. The descriptive research design enables the researcher to find out the relationship between variables of interest.

3.3 Research Philosophy

Research philosophy, refers to the development of knowledge adopted by the researchers in their research (Saunders, Lewis and Thornhill, 2015). In other words, it is the theory that is used to direct the researcher for conducting the procedure of research design, research strategy, questionnaire design and sampling (Malhotra, 2009). According to Saunders, Lewis and Thornhill (2016), three major ways of thinking about research philosophy are examined: ontology, epistemology and axiology. Each of them carries significant differences which will have an impact on the way we consider the research procedures. Ontology, "is concerned with nature of reality", while epistemology "concerns what constitutes acceptable knowledge in a field of study and axiology "studies judgements about value" (Saunders, Lewis and Thornhill, 2015). Epistemology was chosen for this study as the way of thinking about the research philosophy. More specifically, epistemology contains three philosophical positions: positivism, realism and interpretivism (Saunders, Lewis and Thornhill, 2015).

The philosophy of positivism was adopted for collecting creditable data from the subjects to produce some law-like generalisations. The positivist position is derived from natural science and is characterized by the testing of hypothesis developed from existing theory (hence deductive or theory testing) through measurement of observable social realities (Klenke, 2016). It assumes that reality is fixed, directly measurable, and knowable and that there is just one truth, one external reality and thus provides an objective reality against which researchers can compare their claims and ascertain the truth (Gray, 2013).

Positivism presumes the social world exists objectively and externally, that knowledge is valid only if it is based on observations of this external reality and that universal or general laws exist or that theoretical models can be developed that are generalisable, can explain cause and effect relationships, and which lend themselves to predicting

outcomes (Sarantakos, 2012). Thus, this stance was appropriate for this study since it aimed at exploring the creditable and measurable results from individuals in order to understand the influence of the antecedents of interest rate spread on loan portfolio performance amongst listed commercial banks in Kenya. Positivism stance usually supports investigating or studying an observable social reality and the final production could be law-like generalisations similar to those produced by the physical and natural scientists (Saunders, Lewis and Thornhill, 20015).

3.3 Target Population

The study aims to assess the effect of antecedents of interest rates spread on portfolio performance of all the commercial banks that have been listed at the Nairobi securities exchange (NSE) between 2010 and 2015 and licensed by the Central Bank of Kenya and were in operation as on 31st December 2015 and still in existence by the time of collecting data in the year 2016. A complete list of the listed commercial banks operating in Kenya was obtained from CBK. Appendix II indicates that there are 44 commercial banks and 11 are listed in the NSE as on December 2015.The listed commercial banks were deliberately chosen for this study since they have to comply with stringent regulatory requirements to publish financial statements and other disclosures, objective and reliable data on bank interest rates is readily available for purposes of cross-validation. Questionnaires were structured in a manner that displayed different sections targeting management in banking industry mostly the credit management and credit management department employees.

3.4 Sampling Frame

The sampling frame focused on the 44 commercial banks in Kenya CBK, (2011) with the sample being the 11 listed commercial banks in Kenya. The bank population was stratified broadly according to the level of management for instance, Top level management, Middle level management and operational management. The strata provided samples that were selected from each category and the departmental managers

from the selected samples were interviewed. Beck and Polit (2014) refers to a sampling frame as the technical name for the list of the elements from which the sample will be chosen.

3.5 Sample Size and Sampling Technique

This study used stratified sampling design and purposive sampling. Kothari (2012) noted that stratified sampling was used when population from which a sample is drawn did not constitute a homogeneous group. Stratified sampling will involve organizing the units in the population into strata using common characteristics. In this case bank managers were classified into strata based on the level of management. Purposive sampling involved selecting a certain number of respondents based on the nature of their knowledge in credit management. The respondents included finance managers, credit managers, credit analysts, credit risk managers, portfolio managers and investor relations managers. This method was used to select respondents from the various bank departments. The method was appropriate because the sample selected comprised of informed persons who possess vital data that is comprehensive to allow gaining a better insight into the problem.

Table3.1: Sample Size

Management Level	**Target population Per bank**	**No. of banks**	**Sample size**	**Percentages**
Top level Management	5	11	55	31.25
Middle level Management	5	11	55	31.25
Operational Management	6	11	66	37.5
Total	**16**	**11**	**176**	**100.0**

3.6 Data Collection Instruments

The instruments used in this research study were questionnaires and secondary data. When used in combination, qualitative and quantitative methods complement each other and allow for complete analysis (Tashakkori & Teddlie, 2009). The questionnaires were used to obtain qualitative data for analysis to support or refute the hypotheses and to confirm the evidence obtained from the quantitative data analysis. They are valuable method of collecting a wide range of information from a large number of respondents and they are usually straightforward to analyze (Saunders *et al*., 2009). Secondary data on the two identified variables (Liquidity & inflation) for the years 2012-2016 was obtained from the audited financial statements of the listed commercial banks in Kenya, Central Bank of Kenya and from the Kenya National Bureau of Statistics. Secondary data was used to validate the findings from analysis of primary data which was collected using questionnaires. The strategy of using both primary and secondary data to address the same study objectives is meant to improve the interpretive coherence and improve both communicative and pragmatic validity of the study results.

3.6.1 Primary Data Collection

Primary data for the research study was obtained through the administration of questionnaires to the sampled population. The questionnaire contained statements meant to address the research questions and objectives. The structured questionnaires had a customized likert scale which was used to collect qualitative data on the independent variables from the respondents. According to Mugenda and Mugenda (2003) questionnaires are commonly used to obtain important information about the population. Each item in the questionnaire is developed to address a specific objective, research question or hypothesis of the study. So, the researcher must know how information obtained from each questionnaire item will be analyzed (Mugenda & Mugenda, 2003). The questionnaire items under different sections specific to the objectives and research questions will be tested for statistical reliability based on the Cronbach's alpha (a). This is important because the data collection instruments must have the ability to consistently

yield the same results when repeated measurements are taken of the same individuals under the same conditions (Koul, 2004).

3.6.2 Secondary Data Collection

Secondary quantitative data was to supplement the results of the primary data which was the main source of data for the present study. The researcher made use of secondary data collected from financial statements of listed commercial banks and Central bank Manuals. The researcher obtained data on return on investment (ROI) and return on assets (ROA) from the audited financial statements for the years 2012 to 2016.The length of period chosen is consistent with studies such as Ng'ang'a (2017); Aboagye-Otchere *et al.* (2012) and Kribat *et al.* (2013) who examined disclosures for periods covering more than five years.

3.7 Data Collection Procedures

Primary data was collected through the administration of questionnaires to credit managers, credit department employees and corporate clients of the commercial banks. The entry point to the banks was mainly through either the human resource or credit departments. The dully filled in collected questionnaires were coded and responses fed immediately into excel for ease of analysis. Morrison and Louis (2007) describe primary data as those items that are original to the problem under study. Kothari (2004) describes primary data as those which are collected afresh and for the first time, and thus happen to be original in character. Secondary data was used to validate the results of the primary data. The secondary data was obtained from the financial statements of the listed commercial banks after which the researcher had to calculate the relevant ratios for the study such as return on investment and return on assets. Dawson (2009) states that secondary research data involves the data collected using information from studies that other researchers have made of a subject. To supplement the audited financial statements, the researcher also used other important quarterly business journals.

3.8 Pilot Study

According to Orodho (2003) a pilot study is necessary for testing the reliability of data collection instruments. The study carried out a pilot test to check the validity and reliability of the questionnaires in gathering the data required for purposes of the study. The questionnaires were pre-tested to selected commercial banks. After piloting, Comments and suggestions made by respondents during the pre-testing were seriously considered and incorporated. Questions which were vague were revealed in the sense that the respondents interpreted them differently. Adjustments were made in the order of some questions and ambiguity was removed from others.

3.8.1 Validity Test of Research Instrument

Validity refers to the accuracy of the measurement process while the reliability of measurement refers to its consistency; that is, the extent to which a measuring device will produce the same results when applied more than once to the same person under similar conditions (Gakure, 2010). Validity refers to the extent to which a scale encoded into a set of questions actually measures the variable it is supposed to measure (Kothari, 2014). The only way to assess the validity of such measurement devices is to evaluate the results against some other measures, or criteria, which have already demonstrated its validity. To ensure internal validity, the questionnaire was simplified for easy understanding by the respondents. The results of the pilot test established that the questionnaire was easy to answer and the questions were easily understood by the respondents. Establishing validity and reliability in qualitative research can be less precise, though participant/informant checks, peer evaluation where another researcher checks the researcher's inferences based on the instrument (Denzin & Lincoln, 2005), and multiple methods (triangulation), are convincingly used. This study adopted triangulation of the quantitative and qualitative data that was collected and as such enhanced validity and reliability of the study instruments and results (Creswell, 2011)

3.8.2 Reliability Test of Research Instrument

Results of the pilot test were subjected to a reliability test. Reliability is an assessment of the degree of consistency between multiple measurements of a variable (Hair *et al*., 2010). The test for reliability was done using the Cronbach's Alpha test. Bonnet and Wright (2015) observed that Cronbach's alpha is one of the most commonly used measures of reliability in the social and organizational sciences. The main reason for this test was to measure the internal consistency of the study components in the survey questionnaire, i.e. how closely related a set of components were as a group. A variable is reliable if it is consistent. It means that repeat observations give similar results. A high alpha value is used to suggest that the variables have a relatively high internal reliability. Sekaran and Borgie (2010) states that the size of a sample to be used for piloting testing varies depending on time, costs and practicality, but the same would tend to be 5- 10 per cent of the main survey.

According to Cooper and Schindler (2013) the respondents in a pilot test do not have to be statistically selected when testing the validity and reliability of the instruments. In this study, data collection instrument which is a questionnaire was tested on 5% of the sample of the questionnaires to ensure that it is relevant and effective. The rule of the thumb is that 1% of the sample should constitute the pilot test (Cooper & Schindler, 2013). The overall Cronbach's alpha for the five determinants of interest rates spread was 0.9. Scales in the questionnaire of 0.7 and above indicate satisfactory reliability (Christensen, Johnson & Turner, 2011; Newing, 2011). The recommended value of 0.7 was used as a cut–off of reliability for this study. DeVellis (2012) recommended the commonly accepted rule of thumb for explaining internal consistency as follows: $\alpha \geq 0.9$ as excellent, $0.9 > \alpha \geq 0.8$ as good, $0.8 > \alpha \geq 0.7$ as acceptable, $0.7 > \alpha \geq 0.6$ as questionable, $0.6 > \alpha \geq 0.5$ as poor, and $0.5 > \alpha$ as unacceptable. These high Cronbach's alpha coefficient indicated a high internal consistency among the responses against each item. A commonly acceptable rule of thumb for describing internal consistency using Cronbach's α is as follows:

Table 3.2: Internal consistency- Cronbach's alpha

Cronbach's alpha	Internal consistency
α≥0.9	Excellent (high stakes testing)
0.7≤ α <0.	Good (low stake testing)
0.6≤ α<0.7	Acceptable
0.5≤ α<0.6	Poor
a<0.5	Unacceptable

However, greater number of items in the test can artificially inflate the value of alpha and a sample with a narrow range can deflate it, so this rule of thumb should be used with caution.

3.8.3 Data management

For proper data management, there was need to establish the accuracy of data, missing data, outliers, normality and multicollinearity. After data was collected it was screened and cleaned to find out whether there were errors that could be corrected. To determine the accuracy of data, the researcher checked the assumption that independent variables are normally distributed. The following specific tests were carried out: test for outliers, skewness and Kurtosis test, Heteroscedacity test the kolmogorov-smirnov and Shapiro-wilk tests

i) Kurtosis and Skewness Test

This test was used to test for outliers and normality of the data. In a distribution of values within a variable an outlier is often a score or value that is either too high or too low relative to all the other scores or values. Sekaran and Bougie (2011) explain how outliers occur in multiple regressions as outliers on the independent variables or on the dependent variable. Bonn (2012) observed that the removal of outliers often changes the

non-normal variable distribution into a distribution that better approximates a normal curve. The study defined outlier as a value that is at least 3 standard deviations above or below the mean. The researcher checked the outliers by running the skewness and kurtosis tests as shown in Table 4.8. The results indicate that the values were within the accepted range.

The collected data was tested for normality using Kurtosis and Skewness test. Skewness describes how evenly data is distributed with majority of the scores piled up in one side of the distribution. This may be caused by outliers. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values. Negative skewness indicates a distribution with an asymmetric tail extending toward more negative values. Kurtosis describes the peakness or flatness of a distribution and if too many scores are around the mean then the distribution is too peaked and not normal. Positive kurtosis indicates a relatively peaked distribution while a negative kurtosis is an indicator of a relatively flat distribution. George and Mallery (2010) observed that the values of asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution. The tests indicated that the skewness and kurtosis were within range as depicted in table 4.8

ii) KMO and Bartlett's tests for Sample Adequacy

Kaiser-Meyer-Olkin (KMO) and Bartlett's tests were used on the samples to test whether the samples taken were adequate for statistical analysis. Prior to the extraction of the factors. KMO measure of sampling adequacy and Bartlett's test of sphericity were carried out. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1 with 0.50 considered suitable for factor analysis. For factor analysis to be suitable the Bartlett's Test of Sphericity should be significant ($p<0.05$) (Costello & Osborne, 2015).

iii)Multicollinearity test

To test for multicollinearity the study adopted the variance inflation factors and the tolerance levels. Table 4.65 depicts the Variance Inflation Factor (VIF) which is used to provide an index that measures how much the variance (the square of the estimate's standard deviation) of the estimated regression coefficient is increased because of multicollinearity. (2004) proposed ten (10) to be the cut off value to test for multicollinearity. On the basis of VIF values presented by table 4.65 all the variables have satisfied the set level of less than 10. This means that the data does not suffer from multicollinearity since the values are less than 10 as it is recommended that the VIF values should not exceed 10 otherwise they will be considered to be multi-collinear. Based on the coefficients output, collinearity statistics bank liquidity obtained VIF value of 1.100, inflation 1.435, market niche 1.463, conditionality 1.405 and operating costs 1.304. These results show that the VIF value obtained is between 1 to 10, hence it can be concluded that there is no multicollinearity effect.

iv) The Kolmogorov-Smirnov Test

The kolmogorov-Smirnov and Shapiro-Wilk tests were used to decide if a sample comes from a population with a completely specified continuous distribution. Decision making process in K-S test is if the value sig. < 0.05, then data is normal and if the value sig.>0.05, then data is not normal (Kilungu *et al.,* 2015*).* Based on output coefficients the obtained values sig. values for all the variables under the study is 0.000, meaning that the values of the study variables sig. < 0.05, hence it can be concluded that the data is normal and for this reason it was safe to use statistical tests and procedures that assume normality as depicted in Table 4.7.

v) Autocorrelation for Secondary Data

The Durbin Watson test was used to test autocorrelation among the independent variables. The size of Durbin Watson statistic depends on the number of predictors and number of observations, as conservative rule of thumb, values less than 1 or greater than3 are definitely cause for concern (Karithe, 2016). Table 4.9presents the Durbin Watson test model. Independence of the variables test was carried out and Durbin Watson value of 1.553 indicates that the model did not suffer from autocorrelation since it is greater than 1 and less than 3. Hence there was independence of the independent variables.

vi)Test of Significance

Analysis of variance test was used to test the statistical significance of the variables in satisfying the set objectives while Correlation was used to test the relationship of the variables in the study.

3.9 Data Processing and Analysis

The statistical data analysis employed both qualitative and quantitative analysis approaches.

3.9.1 Qualitative Data Analysis

The study used qualitative data collected through questionnaires to gather recipients' responses. The data was first edited and response rate calculated. The data was then categorized into different themes according to research variables and descriptive statistics such as frequency distribution. Frequency distribution measures the point about which items tend to cluster and also describes the characteristics of the data collected (Kothari, 2014).

3.9.2 Quantitative Data Analysis

Data was also analyzed using quantitative techniques. The data was analyzed using both descriptive and inferential statistics. Inferential statistics included Analysis of Variance (ANOVA), Pearson correlation, factor analysis and regression analysis. These were used to establish the association among the study variables and to test the formulated hypotheses.

The study was based on the premise that interest rate spread (independent variable) as explained by liquidity, inflation, market niche, bank conditionality and operational costs have an effect on loan portfolio performance (dependent variable). In order to establish the statistical significance of the respective hypothesis, Correlation coefficient analysis was used to statistically test the five hypotheses as presented in conceptual framework. All the hypotheses were tested at 95 percent confidence level (α=0.05). All these tests were done using SPSS (statistical package for social science) version 24.

3.9.3 Model Specification

Regression model was employed in the study. Regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable (or 'criterion variable') changes when any one of the independent variables is varied, while the other independent variables are held fixed. Independent variables in this study like liquidity, inflation, bank market niche, conditionality and operating costs will be varied each at a time holding others constant to determine the effect of the variables on interest rate spread.

The following assumptions will be made: The independent variables are measured with no error; the predictors are linearly independent, i.e. it is not possible to express any predictor as a linear combination of the others; the sample is representative of the population for the inference prediction; the error is a random variable with a mean of zero conditional on the explanatory variables; the errors are uncorrelated, that is, the variance–covariance matrix of the errors is diagonal and each non-zero element is the variance of the error; the variance of the error is constant across observations (homoscedasticity) and if not, weighted least squares or other methods were instead used. The assumptions imply that the parameter estimates were unbiased, consistent, and efficient in the class of linear unbiased estimators. Multiple linear regressions were ideal for this study since there were several independent variables and it is as follows;

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon}$$

Where: Y = Loan Portfolio Performance (dependent variable).

β_0 = the Y-Constant or intercept.

β_{1-5} =Regression coefficient for each independent variable.

X_1 = Liquidity

X_2 = Inflation

X_3 = Bank market niche

X_4 = Bank conditionality

X_5 = operating costs

ε = Stochastic or disturbance term or error term

3.9.4 Variable Measurement

The study focused on determinants of interest rate spread and performance of loan repayment in commercial banks amongst corporate clients in Kenya and a structured questionnaire. The major focus was explanatory variables (liquidity, Inflation, bank market niche, bank conditionality and operational costs) influence on the dependent variable (loan portfolio performance).The questionnaire consisted of five sections covering all the five variables.

Table 3.3:Variable Measurement

Variable	Definition	Indicator/Measurement
Bank Liquidity	Current asset ratio Quick asset ratio, Cash Ratio	Extent bank liquidity influences loan portfolio performance on scale 1-5.
Inflation	Interest rates, Lending rates, Treasury bill rates	Extent inflation influences loan portfolio performance on scale 1-5
Bank Market Niche	Large corporate SME, Retail enterprises	Extent bank market niche influences loan portfolio performance on scale 1-5
Bank conditionality	Loan security, Loan volume Credit assessment	Extent bank conditionality influences loan portfolio performance on scale 1-5
Loan operational costs	Loan initiation costs Loan monitoring costs Loan recovery costs	Extent loan operational costs influences loan portfolio performance on scale 1-5
Loan portfolio performance	Profitability level ROA and RO1	Extent to which each I. Vs affects loan portfolio performance on scale 1-5

Key: I. Vs – independent variables

Table 3.4: Summary of Statistical Tests and Hypotheses

Hypothesis statement	Statistical test	Model and anticipated results
$H0_{1:}$ There is no significant influence of bank liquidity on loan portfolio performance amongst listed commercial banks in Kenya.	**$Ho_1\ \beta_1 \neq 0$** ANOVA- tests overall robust of regression model. correlation tests the correlation between the variables	**$y=\beta_0 + \beta_1 X_1 + \varepsilon$** Reject Ho if P ≤ 0.05 fail to reject if P>0.5
$H0_2$: There is no significant influence of inflation on loan portfolio performance amongst listed commercial banks in Kenya.	**$Ho_2\ \beta_2 \neq 0$** ANOVA- tests overall robust of regression model. correlation tests the correlation between the variables	**$y=\beta_0 + \beta_2 X_2 + \varepsilon$** Reject Ho if P ≤ 0.05 fail to reject if P>0.5
$H0_{3:}$ There is no significant influence of bank market niche on loan portfolio performance amongst listed commercial banks in Kenya. .	**$Ho_3\ \beta_3 \neq 0$** ANOVA- tests overall robust of regression model. correlation tests the correlation between the variables	**$y=\beta_0 + \beta_3 X_3 + \varepsilon$** **Reject Ho if P ≤ 0.05 fail to reject if P>0.5**
$H0_{4:}$ There is no significant influence of the bank conditionality on loan portfolio performance amongst listed commercial banks in Kenya	**$Ho_4\ \beta_4 \neq 0$** ANOVA- tests overall robust of regression model. correlation tests the correlation between the variables	**$y = \beta_0 + \beta_4 X_4 + \varepsilon$** **Reject Ho if P ≤ 0.05 fail to reject if P>0.5**
$H0_{5:}$ There is no significant influence of operating costs on loan portfolio performance amongst listed commercial banks in Kenya.	**$Ho_5\ \beta_5 \neq 0$** **ANOVA- tests overall robust of regression model. Correlation tests the correlation between the variables**	**$y = \beta_0 + \beta_5 X_5 + \varepsilon$** **Reject Ho if P ≤ 0.05 fail to reject if P>0.5**

All the hypotheses were tested at 95 per cent confidence level (level of significance, α= 0.05)

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study and discussion of the results. It contains the research response rate, reliability and validity testing, demographic characteristics of the study variables, data normality analysis, descriptive statistics of independent variables, correlation of variables, regression analysis, hypothesis testing and a summary of the chapter.

4.2 Response Rate

The researcher distributed one hundred and fifty-seven questionnaires and was able to collect one hundred and forty-three fully filled in questionnaires which represented 91.08% of the total questionnaires distributed. According to Kothari (2014) 50% response rate is considered average, 60-70%is considered adequate while anything above 70% is considered to be an excellent response rate. Morrison and Louis (2007) indicated that for a social study, anything above 60% response rate is adequate for making significant conclusion in social sciences. Data above 50% can provide quality data analysis (Rindfuss, 2015). The 91.08% response rate was therefore a good representative of the respondents to provide enough information for analysis and to derive conclusions. However, some respondents were reluctant to respond to questionnaires citing demanding work schedules, stringent bank disclosure policies and general lack of time as their excuses.

Table 4.1: Response Rate

ITEM	NUMBER	%
Number of respondents	143	91.08
Non-respondents	14	8.92
total	157	100

4.3 Reliability and Validity Results

The measurement of the reliability and the validity of a data instrument help the researcher to gauge the goodness of the variables of measurement (Sekaran & Bougie, 2010). Reliability was measured using Cronbach's Alpha coefficient which was used to measure the internal consistency of the variable measures. Cronbach's alpha reliability coefficient is a value that ranges between 0 and 1. 0 implies that there is no internal reliability while 1 indicated perfect internal reliability. Cronbach's alpha reliability coefficient value of 0.7 or higher is considered sufficient (Karihe, *2016*). Factor Analysis was also used to determine the underlying dimensions of variables and to determine the key factors from a large number of variables.

The study consists of five independent variables and one dependent variable. The independent variable consists of bank liquidity, inflation, market niche, bank conditionality and operating costs. In Table 4.2 below, scales in the questionnaire of 0.7 and above, the value commonly required for descriptive research, indicated satisfactory reliability (Vogt, 2007; Saunders, Lewis & Thornhill, 2009; Christensen, Johnson & Turner, 2011). Based on these recommendations all the variables in the study questionnaire were concluded to have adequate internal consistency and were reliable for the study and their results could be used to generalize on population characteristics. The overall Cronbach's alpha coefficient for all variables is 0.905 which is considered appropriate.

As shown in table 4.2, the liquidity scale consisted of 9 items (α=.756) inflation scale had 9 items (α=.794), market niche scale had 9 items (α=.723), lending conditionality scale had 9 items (α=.757) and operating cost had 9 items (.824). The Cronbach's alpha values were all above the recommended minimum (α =.7) thus the study instrument was considered reliable.

The findings suggest that the questionnaire used was satisfactory and therefore collected reliable data that measured each study constructs well. The instrument can therefore be used in similar research in future and therefore conclusions that were drawn were reasonably reliable.

Table 4.2: Summary of Cronbach's Alpha

Reliability Statistics	No. of Items	Cronbach's Alpha	Accept/Reject
Overall	50	0.905	Accept
Bank liquidity	9	0.756	Accept
Inflation	9	0.794	Accept
Bank Market Niche	9	0.723	Accept
Bank Conditionality	9	0.757	Accept
Operating costs	9	0.824	Accept

4.4 Demographic Characteristics

This section described the general characteristics of the respondents in terms of their position in the bank, experience and qualifications. The study segmented the target population into the following categories; Directors, head of finance, Credit manager and others. The categories were critical in assessment of different opinion across the different levels of management across the bank. The issue of experience came to play as

well and the different years different individuals have worked were examined. The different management levels were targeted and the response rate was well above 70%. Operational management level displayed the highest response rate.

Operational managers formed the majority of the respondents. This implied that the views expressed in this study capture the opinions of operational managers. Generally, operations manager performs administrative and financial management. They organize and supervise banking services and operations, and related functions and activities. As such they were at positions that are able to provide required information on financial indicators.

Table 4.3: Position Held in the Bank

Level of management	Frequency	Percent
Top level	2	1.4
Middle level management	7	4.9
Operational management	134	93.7
Total	**143**	**100.0**

4.4.1 Work Experience

Respondents below 5 years' experience constituted 22% of the data, 42% range of experience fell between 6-10 years while 31% fell between 11-15 years as highlighted in the table 4.4 above. The banks seem to share similarities across board with regards to distribution of expertise and a large proportion of the bank staff was in the operational middle level management.

The findings implied that the respondents had adequate experience working in the banks. As such the information they provided was credible based on the empirical evidence that almost 72% of the employees have 6 to 15 years' experience.

Table 4.4: Work Experience

Work Experience	Frequency	Percent
Below 5 years	31	21.4
6-10 years	61	42.1
11-15 years	44	30.3
16-20 years	6	4.1
Over20years	1	.7
Total	**143**	**100.0**

4.4.2 Level of Education

The results of the item on the level of education show that 82% of respondents were graduates while only 17% were post graduates as displayed in the table below. Majority of the respondents had bachelors' degree and thus had the knowledge required to answer the questionnaires in this study. These results are supported by Rabera and Namusonge (2016) whose study found majority of the respondents were undergraduate degree holders and therefore had no problem in answering questionnaires.

The findings implied that most of the employees were adequately educated because they had attained university level of education. As such they are expected to be knowledgeable in on the area understudy.

Table 4.5: Level of Education

Level of Education	Frequency	Percent
Post graduate	24	16.8
Under Graduate	118	82.5
Diploma	1	.7
Total	**143**	**100.0**

4.4.3 Client Portfolio

Table 4.6 below shows that the largest clients of the listed commercial banks is the corporate 43% followed by government at 21% then individual clients at 19%. Thus the findings in this study indicated that most clients were corporate who usually take large loans for a long period relative to one taken by individual small clients.

In general, big loans taken by corporate clients have low interest rates and fairly flexible payment plans. However, according to Hasan *et al.* (2014), they have a very rigorous approval process. This rigorous process has high probability of scrutinizing accurately the lending process- a prerequisite of credible lending process. Thus, the loans are quality with minimal default rate and high returns in the long run.

Table 4.6: Client Portfolio

Largest Client Portfolio	Frequency	Percent
Individual clients	27	18.8
Corporate	63	44.1
Government	30	21.0
Others	23	16.1
Total	**143**	**100.0**

4.5 Tests for Regression Analysis Assumptions

The study adopted K-S test of normality, skewness and kurtosis statistics and autocorrelation test.

4.5.1 Overall Kolmogorov-Smirnov (K-S) Normality Test

Condition for normality is required for one to fit a linear regression model (Sekaran & Bougie, 2011). The test undertook both the kolmogorov –Smirnov and Shapiro –wilk (K-S). K-S test was used to decide if a sample comes from a population with a completely specified continuous distribution. Decision making process in K-S test is if the value sig. < 0.05, then the data is normal and if the value sig. > 0.05, then the data is not normal. Based on output coefficients, the obtained value sig. of all the five variables of the study is 0.00, meaning that the value of the variables sig.< 0.05, it can be concluded that the data is normal. From the results of the table 4.7, the data on all the variables did not deviate significantly from the normal distribution and for this reason it was safe to use statistical tests and procedures that assume normality of variables.

Table 4.7: Overall Kolmogorov-Smirnov (K-S) Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Loan Portfolio Performance	.151	143	.000	.936	143	.000
Bank Liquidity	.185	143	.000	.893	143	.000
Inflation	.181	143	.000	.908	143	.000
Bank Market Niche	.159	143	.000	.877	143	.000
Bank Conditionality	.185	143	.000	.884	143	.000
Operating Cost	.192	143	.000	.851	143	.000

a. Lilliefors Significance Correction

4.5.2 Skewness and Kurtosis Descriptive Statistics

Skewness measures the degree of asymmetry of a distribution around its mean while kurtosis measures the degree to which a distribution is more or less peaked than a normal distribution. Applying the rule of thumb of dividing each value by its standard error (Std. Error), gives -6.79 for skewness and 5.52 for kurtosis, both well within ±1.96

limits, suggesting that the departure from normality is not too extreme. If you divide either score by its standard error and the result is greater than ±1.96, it suggests that data are not normal with respect to that statistic. These data findings suggested that the data came from a normally distributed population. In this regard, parametric tests which require that the assumption that the data conform to normal were appropriate. Thus, the study was safe from the risk of undermining the conclusion of the research and interpretation of the results.

Table 4.8: Overall Skewness and Kurtosis Test

	Maximum	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Bank liquidity	45.00	-1.376	.203	2.226	.403
Inflation	42.00	-1.557	.203	3.846	.403
BankMarketNiche	42.00	-1.191	.203	1.914	.403
Bank Conditionality	43.00	-1.538	.203	2.832	.403
Operating Cost	41.00	-1.514	.203	2.177	.403
LoanPortfolioPerformance	24.00	-.768	.203	.338	.403

4.5.3 Test for Autocorrelation

Autocorrelation (also called serial correlation) occurs when the error term observations in a regression are correlated. One approach of detecting autocorrelation is using the Durbin Watson test statistics. The size of Durbin Watson statistic depends on the number of predictors and number of observations. The rule of thumb, values less than 1 or greater than3 are definitely cause for concern (Karithe, 2016). Table 4.9 below represents the Durbin Watson test model. Independence of the variables test was carried out. Durbin Watson value of 1.553 indicates that the model did not suffer from autocorrelation since it is greater than 1 and less than 3. Hence there was independence of the independent variables. The most important practical problem with autocorrelation

is its tendency to make regression results look too significant. The result thus implied that we were able to draw meaningful inferences about the significance of explanatory variables by correcting for the effect.

Table 4.9: Overall Durbin –Watson Test Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.532[a]	.283	.257	2.43549	1.553

a. Predictors: (Constant), Operating Cost, Bank liquidity, Bank conditionality, Inflation, Bank market niche

b. Dependent Variable: Loan Portfolio Performance

4.6 Loan Portfolio Performance Measures Results

The study sought to investigate the influence of determinants of interest rate spread on loan portfolio performance amongst listed commercial banks in Kenya. Loan portfolio performance being the dependent variable, the researcher carried out factor analysis to establish the factors that indicate to loan portfolio performance amongst listed commercial banks in Kenya. Loan portfolio performance was assessed by five measures namely, Increased bank profitability rates, return on investments, Effective loan repayment, Decrease in non-performing loans and Debt collection period.

4.6.1 Loan Portfolio Performance Descriptive Results

In this section, the study responded to general objective which sought to investigate whether loan portfolio performance is affected by bank liquidity, inflation, market niche, bank conditionality and operating cost. The findings in Table 4.10 reveal that commercial banks surveyed were doing well on LPP indicators. That is to say, they

noted that there was increased bank profitability rate, return on investments. There was effective loan repayment and decrease in non-performing loans.

The high mean of responses was approximately 4 (agree), this suggest that portfolio performance indicators were rated high. Banks were recording positive returns in investments of their capital. There was an increased bank profitability rate, return on investments and effective loan repayment and as such there was decrease in non-performing loans. Thus, the banks were competitive because they were able to generate enough loans to have a decent net interest margin and performing.

This further imply that the banks delivered on what customers value, including strong customer service, quick turnaround in decisions, flexibility in lending activities, and providing ease of doing business. By satisfying customer needs, high performing banks are better able to build and maintain customer relationships, not just transactions.

Table 4.10: Mean and standard Deviation Results from Loan Portfolio Performance

Statements	n	Mean	Std. Dev.
Increased bank profitability rates	143	3.51	.759
Return on investments	143	3.94	.815
Effective loan repayment	143	3.94	.753
Decrease in non-performing loans	143	3.87	.871
Debt collection period	143	4.03	.745

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.6.2 Factor Analysis on Loan Portfolio Performance Results

Factor analysis was carried out before analysis of the results to describe variability among the observed and check for any correlated variables with the aim of reducing data that was found redundant. Factor analysis carried out on the dependent variable – loan portfolio performance is as indicated on Table 4.11. Statements scoring more than 0.300 which is the minimum requirement included.

Table 4.11: Loan Portfolio Performance Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.566	51.318	51.318	2.566	51.318	51.318
2	.808	16.154	67.473			
3	.678	13.564	81.037			
4	.557	11.145	92.182			
5	.391	7.818	100.000			

Extraction Method: Principal Component Analysis.

The constructs were subjected to a variance tests through the principle component analysis test. The test is used to identify a group of components or factors which were able to explain most of the information carried by other variables. It makes it easy to interpret results and come up with generalizations which could be applied to the general constructs. The five measures of loan portfolio performance were subjected to factor analysis and results indicated that there was only one critical factor with the greatest influence on loan portfolio performance. This factor had a cumulative variance of 51.318% of the total variance in this construct. The factor had eigen value of more than one.

A confirmatory factor analysis was done for the dependent variable, Loan portfolio performance. The results of this analysis are presented in Table 4.12 and all the five factor loadings were above 0.4 and positive. From these results it can be concluded that return on investment (ROI) is the best measure of loan portfolio performance since it had the highest loading of 0.785.

Table 4.12: Loan Portfolio Component Matrix

Statement	Component1
Increased bank profitability rates	.733
Return on investments	.785
Effective loan repayment	.695
Decrease in non-performing loans	.749
Debt collection period	.607

Extraction Method: Principal component analysis. a. 1components extracted.

PCFA with Varimax rotation suggested that all 5 portfolio measures converged as one component (Table 4.). The descriptive statistics result of this component had a mean of 3.858 (SD=.582) but with a slight negative skew (-.768) and kurtosis value of .338. The Cronbach's reliability coefficient of value of .761 obtained was more than the 0.7 threshold indicated that the component had acceptable internal consistency. The skewness and kurtosis were well within a tolerable range for assuming a normal distribution, thus the data on loan portfolio were well suited for parametric statistical analyses (see Table 4.).

Thus the findings, based on the Cronbach's alpha coefficient, suggested that the research instrument used was stable and therefore the data collected was reliable and therefore consistently performed its intended or required function of data collection with minimal error. As such, the questionnaire reliably assessed information from commercial banks concerning LPP. The mean value implied that, in most banks, LPP indicators were positive rated.

Table 4.13: Descriptive Results from Loan Portfolio Performance Measures

	No of items	M (SD)	Skewness	Kurtosis	Alpha
Loan Portfolio	5	3.858 (.68)	.-.768	.338	.761

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

An overall mean score of loan portfolio was 3.858 (SD=0.68) implied that respondents agreed to the performance statements. The Cronbach's Alpha (.761) indicates moderate internal consistency. Portfolio data was slightly negatively skewed (-.768) with a kurtosis of .338. The skewness and kurtosis values were well within a tolerable range for assuming a normal distribution, thus the data on current and cash ratios were well suited for parametric statistical analyses.

4.7 Bank Liquidity Measures Results

The study sought to investigate the influence of level of liquidity on loan portfolio performance of listed commercial banks in Kenya. Bank liquidity was assessed by three broad measures namely; current ratio, quick ratio and cash ratio.

4.7.1 Bank Liquidity Descriptive Results

Respondents were asked the extent to which bank liquidity affects loan portfolio performance. Among the variables highlighted was the issue of leverage ratio, operational assets, bank deposits and their effects on loan portfolio performance. The findings reveal that the cash ratio was the biggest determinant of bank liquidity and affected the loan portfolio performance greatly as depicted in Table 4.14 below. With a mean of 4.2 and a standard deviation of 0.84, this shows that most respondents strongly agreed that cash ratio is one of the key considerations in decision-making on loaning. The second determinant was current ratio with a mean of 4.20 and standard deviation of 0.75 most of the respondents agreed that the company is capable to pay its current liabilities comfortably when due using the current assets. The third determinant was the quick ratio which averaged a mean of 4.0 and a standard deviation of 0.85 most respondents agreed that in their company the quick ratio is normally high (more than 1 to 1).

Based on these findings, it can be concluded that cash ratio is the key liquidity indicator amongst the listed commercial banks in Kenya followed by current ratio then quick ratio. The findings also imply that liquidity factors were in place according to the respondents. As such the most banks are capable to pay current liabilities comfortably when due using the current assets. They have low current liabilities compared to current assets. The quick ratio is normally high (more than 1 to 1.). The higher the quick ratio, the sound is the company's liquidity position. While a quick ratio lower than 1 does not necessarily mean the company is going into default or bankruptcy, it could mean that the company is relying heavily on inventory or other assets to pay its short-term liabilities (Bauer & Agarwal, 2014). However, too high a quick ratio may indicate that the company has too much cash sitting in its reserves. It may also mean that the company has a high accounts receivable, indicating that the company may be having problems collecting on its account receivables.

Banks try to ensure that they have sufficient liquidity to meet all relevant regulatory requirements, plus a buffer to reduce the likelihood that liquidity falls below these thresholds and triggers a regulatory or market response or creates constraints on the bank's actions. Banks management and regulatory bodies are also concerned of liquidity levels because banks are important to the financial system in a country and they are inherently fragile if they do not have sufficient safety margins.

Table 4.14: Bank Liquidity Descriptive Statistics

	N	Mean	Std. Deviation
In this bank the current ratio is normally high (more than 1 to 1.)	143	4.0	.731
This company is capable to pay its current liabilities comfortably when due using the current assets.	143	4.2	.750
This company's current liabilities are less compared to current assets.	143	4.1	.729
In this company the quick ratio is normally high (more than 1 to 1.)	143	4.0	.847
The quick ratio in this organization is central in decision-making.	143	4.0	.799
Quick ratio is key consideration on loaning decisions	143	4.0	.904
This bank has a normally high cash ratio	143	4.1	.860
The company keeps substantially high amounts of cash and near-cash to cover its liabilities.	143	4.2	.810
The cash ratio is one of the key considerations in decision-making on loaning.	143	4.2	.839
Valid N= (list wise)143			

Key: Ranked on a scale:1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.7.2 Bank Liquidity Factor Analysis

Prior to the extraction of the factors, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (MSA) and Bartlett's Test of Sphericity were carried out. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1 with 0.50 considered suitable for factor analysis. For factor analysis to be suitable the Bartlett's Test of Sphericity should be significant ($p<0.05$) (Costello & Osborne, 2015).

From the results shown in Table 4.15 below the Kaiser-Meyer-Olkin measure of sampling adequacy was .732, above the commonly recommended value of .6, and Bartlett's test of sphericity was significant ($\chi 2$ (143) = 115.380, $p < .001$). Given these overall indicators, factor analysis was deemed to be suitable with all 9 items.

Table 4.15: Bank Liquidity KMO

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.732
Bartlett's Test of Sphericity	Approx. Chi-Square	115.380
	df	36
	Sig.	.000

The Principal Component Factor Analysis (PCFA) was used in this study. The goal of PCFA was to reduce a set of variables down to a smaller number of factors and to create composite scores for these factors for use in subsequent analysis (Almed, 2016). Nine measures of bank liquidity were subjected to PCFA and the results showed that there were two critical factors of bank liquidity which accumulated to 54.178% of total

variance. Factor 1 had the highest variance of 33.309% while factor 2 had 20.869%. See result Table 4.16.

Table 4. 16: Bank Liquidity Factor Analysis (Total Variance Explained)

	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2.998	33.309	33.309	2.998	33.309	33.309	2.629
2	1.878	20.869	54.178	1.878	20.869	54.178	2.495
3	.883	9.809	63.987				
4	.697	7.748	71.735				
5	.631	7.010	78.745				
6	.588	6.532	85.277				
7	.478	5.315	90.591				
8	.464	5.151	95.742				
9	.383	4.258	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 4.17 depicts the rotated component factor loadings of banks liquidity measures of listed commercial banks. From the rotation matrix all the banks liquidity measures were loaded into only two components.

Table 4.17: Bank Liquidity Rotated Pattern Matrix

Statement	Component 1	2
In this bank the current ratio is normally high (more than 1 to 1.).		.836
This company is capable to pay its current liabilities comfortably when due using the current assets.		.754
The deposits held by bank affect loan portfolio performance.		.682
In this company the quick ratio is normally high (more than 1 to 1.)		.706
The quick ratio in this organization is central in decision-making	.396	
Quick ratio is key consideration on loaning decisions	.763	
This bank has a normally high cash ratio.	.764	
The company keeps substantially high amounts of cash and near-cash to cover its liabilities.	.762	
The cash ratio is one of the key considerations in decision-making on loaning.	.748	

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Principal components factor analysis (PCFA) was used because the primary purpose was to identify and compute composite scores for the factors underlying liquidity. As such, a two-factor structure for 9 items was evident based on principal components factor analysis with a promax rotation (table 4.18). The first component was renamed current ratio (n=5, Cronbach's=0.738, mean=4.079) with a positive skew (.36). The second component renamed cash ratio (n=4, Cronbach's= 0.63, mean=4.113) with negative skew of -.54(**Error! Reference source not found.**). The Cronbach's Alpha obtained

indicates moderate internal consistency. The skewness and kurtosis were well within a tolerable range for assuming a normal distribution, thus the data on current and cash ratios were well suited for parametric statistical analyses.

Table 4.18: Descriptive Statistics of cash ratio and current as measures of Bank Liquidity

	No. of items	M (SD)	Skewness	Kurtosis	Alpha
Current-Ratio	5	4.079 (.68)	.36	.20	.7382
Cash-Ratio	4	4.113 (.72)	-.54	.43	.6377

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.7.3 Coefficient of Correlation between Bank Liquidity and Loan Portfolio Performance

In order to establish the relationship between bank liquidity and loan portfolio performance in listed commercial banks in Kenya a correlation matrix was used. Maina *et al.* (2015) argued Karl Pearson correlation coefficient is most widely used method of measuring the degree of relationship between two variables. This ranges from -1 to +1, where -1 denotes a perfect negative correlation, 0 no correlation and +1 a perfect positive correlation. The aim of the use of correlation matrix is to help the researcher to determine the direction and magnitude of the relationship between two variables. From the results indicated by Table 4.19 below, the Pearson correlation coefficient was generated at a significant level of 1 percent (2-tailed). This output indicates a moderate positive relationship between current ratio, r=.317, p=.003 and loan portfolio performance of listed commercial banks in Kenya. In a related study, Emekter *et al.* (2015) found a positive relationship between current ratio and bank performance. Similarly, cash ratio and LPP were found to be positively related.

The result indicates that, holding other factors constant, a high cash ratio is an indicator of good loan performance. As such the findings indicate that loan portfolio performance increases with increase in magnitude of bank liquidity and vice versa.

Table 4.19: Bank Liquidity Correlation Results primary data

		Current Ratio	Cash Ratio	Performance
Current Ratio	Pearson Correlation	1	.246**	.317
	Sig. (2-tailed)		.003	.003
Cash Ratio	Pearson Correlation	.246**	1	.443
	Sig. (2-tailed)	.003		.000
Loan portfolio performance	Pearson Correlation	.317	.443	1
	Sig. (2-tailed)	.003	.000	

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

The study used secondary data sources to gather information relevant in reaching at the research objectives. The secondary data was collected from the eleven listed commercial banks audited financial statements, the CBK annual reports, the Kenya National Bureau of Statistics (KNBS) and Capital market authority (CMA) websites. The study's data collection source was justified by the fact that listed commercial banks must prepare on annual basis audited financial reports which are readily available to the public domain. These ensured completeness and consistency of the study elements.

In order to further corroborate the findings from the primary data, secondary data on bank liquidity and loan portfolio performance was collected for financial periods 2012 to 2016. The data collected was from the eleven listed commercial banks in Kenya. Maina

(2015) observed that, secondary research involves the use of data gathered in a previous study to test new hypotheses or explore new relationships. Secondary analysis of existing data is efficient and economical because data collection is typically the most time-consuming and expensive part of a research project (Beck & Polit, 2014). Results depicted by table 4.20 below indicates that there is a positive correlation between liquidity and return on investment. The positive correlation suggests that as the liquidity (cash ratio and current ratios) increases, the ROI also increase. Banks which are more liquid imply that the banks are able to meet their financial obligation and therefore pay their liabilities. It also implies that banks would are liquid enough to lend and increase their revenue base. As noted in other studies bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due to a lower liquidity premium charged on loans (Were &Wambua, 2013).

Table 4.20: Liquidity Secondary Data Analysis Correlation results

		ROI	Current Ratio	Cash Ratio
ROI	Pearson Correlation	**1**	-.223	.237
	Sig. (2-tailed)		.102	.082
Current Ratio	Pearson Correlation	**.223**	1	-.255
	Sig. (2-tailed)	**.102**		.060
Cash Ratio	Pearson Correlation	**.237**	-.255	1
	Sig. (2-tailed)	**.082**	.060	

Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

4.7.4 Analysis of Variance (ANOVA) of Bank liquidity

Table 4.21 below presents Analysis of variance (ANOVA) results for both primary and secondary data. The F statistics tends to be greater when the null hypothesis of independence is not true. P values of less than 0.05 indicates that the F statistics is high and that the null hypothesis of independence needs to be rejected since it is not true**.** In

this case the F ratio for primary (F= 27.154, p = 0.000) and secondary ($F_{2, 140}$= 14.532, p=.000) were found to be statistically significant hence the model used for analysis was fit.

Table 4.21: Bank Liquidity ANOVA Primary and Secondary

		Sum of Squares	df	Mean Square	F	Sig.
Source						
Primary	Regression	183.069	1	183.069	27.154	.000[b]
	Residual	950.595	141	6.742		
	Total	1133.664	142			
Secondary	Regression	433.94	2	216.97	14.532	.000[b]
	Residual	2090.270	140	14.931		
	Total	2524.210	142			

a. Dependent Variable: Loan Portfolio Performance [b.] Predictors: (Constant), Cash Ratio, Current ratio.

Therefore, the data fitted well to the regression model. So, the model is appropriate for projecting loan portfolio performance at given levels of liquidity. Analysis of both primary and secondary data produced a significant F-statistic. This implied the model was appropriate in relating current ratio and cash ratios as independent variables and LPP as dependent variable.

The result of the model summary in table 4.22 shows that the predictor variables positively correlated with dependent variable as shown by the multiple correlation coefficient for primary (R=.402). Bank liquidity explained 17.2% (R-square=.172) using secondary data and almost similar percentage (16.1%) using primary data of variability on loan portfolio performance.

4.7.6 Model Fitness/ Summary Bank Liquidity and Loan Portfolio Performance

From the results shown by Table 4.22 below, the explanatory power of bank liquidity (Current ratio and cash ratio) on loan portfolio performance indicated that the variability was moderate at 16.1 percent (R square = 0.161).

Table 4.22: Bank Liquidity Model Summary primary and secondary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Primary	.402[a]	.161	.156	2.59650
Secondary	.415[a]	.172	.325	2.79064

a. Predictors: (Constant), current ratio, cash ratio

Secondary data on liquidity was regressed with secondary data on loan portfolio performance of listed commercial banks in Kenya. The ANOVA, model summary and regression coefficient result obtained are presented and discussed in the sections that follow below. The results suggest that liquidity accounted for about 16% or 17% of variations in LPP in commercial banks in Kenya. The other remaining percentage is accounted for by other determinants

4.7.7 Regression Analysis of Bank Liquidity (current and cash ratio) and Loan Portfolio Performance

To establish the influence of bank liquidity on loan portfolio performance in listed commercial banks hypotheses was stated as follows:

$H0_1$: There is no significant influence of bank liquidity on loan portfolio performance amongst listed commercial banks in Kenya. The aggregate mean scores of bank liquidity measures (independent variable) were regressed against the aggregate mean scores of

loan portfolio performance (dependent variable) and the results were depicted in Table 4.23. The study results showed that current ratio and cash ratio, as an indicators of bank liquidity had moderate explanatory power on loan portfolio performance as they accounted for 16.2%and 15.7% (R=.157) respectively of its variability. The individual research findings in Table 4.23 below indicated a statistically positive linear relationship between bank liquidity (current and cash ratio) and loan portfolio performance (current ratio β =.771, P-value =0.047 and β=.774, p=.042). Hence, $H0_1$ is rejected since β ≠0 and P-value < 0.05. The regression constant is also significant; therefore, the fitted equation is;

$$\text{Loan portfolio performance} = 19.304 + .771\text{Current Ratio} + .774\text{Cash Ratio}.$$

From the regression model, it is clear that the cash ratio ($\beta = .774$)had a marginally higher influence on loan portfolio performance compared to current ratio ($\beta = .771$). The regression coefficient table 4.23 results were obtained using secondary data. It shows that current ratio (β=1.705, p=.003) and cash ratio, β=2.073, p=.003) significantly influence the loan portfolio performance. Thus, the regression model of bank liquidity and loan portfolio performance, including the constant is;

$$\text{Loan portfolio performance} = 9.731 + 1.705\text{Current Ratio} + 2.073\text{Cash Ratio}.$$

Like in the primary data, the regression model obtained using secondary data show that cash ratio had greater influence (β=2.073) on loan portfolio performance and the current ratio ($\beta = .1.705$).The regression result suggested that cash ratio had more positive influence on LPP compared to Current ratio. As such increasing cash ratio is more effective than current ratio on LPP. Holding other factors constant, it is prudent to increase the cash ratio as strategy of portfolio performance. Banks can achieve this by increasing its capital base or assets that can quickly be turned to cash in a short duration of days.

Table 4.23: Regression Coefficient of Liquidity for secondary and primary data

Data source		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Primary	(Constant)	19.30	2.091		9.231	.000
	Current ratio	.77	.408	.162	1.889	.047
	Cash Ratio	.77	.422	.157	1.837	.042
Secondary	(Constant)	9.73	2.407		4.044	.000
	Current Ratio	1.70	.623	.174	2.532	.003
	Cash Ratio	2.07	1.000	.384	2.073	.002

a. Dependent Variable: Loan Portfolio

4.8 Inflation

The study sought to determine the influence of bank inflation on portfolio performance amongst listed commercial banks in Kenya. Bank liquidity was assessed by three measures; interest rates, lending rates and treasury bills.

4.8.1 Inflation Descriptive Results

Inflation was assessed by three measures namely interest rates, lending rate and risk-free rate of treasury bills. The findings in Table 4.24 below indicate that most respondents strongly agreed that potential loan takers greatly consider interest rate as the key factor in their decision with a mean of 4.20 and a standard deviation of 0.724 followed by those that agreed that interest rate was stable over a reasonably long period which stood at a 4.13 and a standard deviation of 0.813. The findings reveal that high interest rate and treasury bills rate fluctuations seemed to have the greatest effect on loan portfolio performance. According to the respondents inflation has an effect on loan portfolio performance. Therefore, changes in inflation will result to changes in portfolio performance.

The result suggests that inflationary were in place. As such, changes in inflation, there is a corresponding response on to mitigate the effect of inflation. Some of the measures included customers been keen on lending interest rate and its stability, and competitiveness of lending rates. They also value and make their decisions based on whether the lending rates are adjustable or not. During inflation, lending rates adopted by banks are quite competitive in the market and Movement in treasury bills rates bank leads to a significant movement in number of loans.

Table 4.24: Inflation Descriptive Statistics

	N	Mean	SD
This bank has the lowest (most competitive) interest rate in the market	143	3.82	.718
Potential loan takers greatly consider interest rate as the key factor in their decision	143	4.20	.724
In this bank, interest rate is stable over a reasonably long period	143	4.13	.807
Fixed lending rates in this bank has been our reason of our level of loan performance	143	3.96	.838
Customers values and makes their decisions based on our adjustable lending rates	143	3.96	.838
Lending rates adopted by our bank are quite competitive in the market	143	3.98	.800
Movement in treasury bills rates in this bank leads to a significant movement in loans	143	3.97	.787
Treasury bills rates in this bank are competitive in the market	143	4.10	.776
Fluctuations in treasury bills rates have a great influence on loan portfolio	143	4.19	.813
Valid N (listwise)	143		

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.8.2 Factor analysis of Inflation

Initially, the factorability of the nine inflation items was examined. Kaiser-Meyer-Olkin measure of sampling adequacy tests was used to assess the suitability of the respondent data for factor analysis. Also, Bartlett's test of sphericity was together used with KMO to test for factor analysis assumptions.

The factor analysis assumptions test was conducted and result presented in Table 4.25 Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.689, above the commonly recommended value of 0.6, and Bartlett's test of sphericity was significant ($\chi 2$ (143) = 183.756, $p < .001$). Given these overall indicators, factor analysis was considered to be suitable with all 9 items.

Table 4.25: Inflation KMO and Bartlett's sampling Adequacy Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.689
Bartlett's Test of Sphericity	Approx. Chi-Square	183.756
	df	36
	Sig.	.000

4.8.3 Inflation Factor Analysis (Total Variance Explained)

The variance result of the nine measures of bank inflation is presented in table 4.26 it is clear that the nine factors loaded into two components (factors) with a total variance of 51.1%. Factor 1 had the highest variance of 35.459% while factor two had 15.648%. These two factors had the greatest influence on bank inflation. This is confirmed by the fact they all had Eigen values of more than 1.0 as shown in Table 4.26.

Table 4.26: Inflation Factor Analysis (Total Variance Explained)

	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.191	35.459	35.459	3.191	35.459	35.459	2.681
2	1.408	15.648	51.106	1.408	15.648	51.106	2.591
3	.986	10.956	62.062				
4	.790	8.773	70.836				
5	.630	7.004	77.839				
6	.591	6.567	84.406				
7	.569	6.318	90.724				
8	.454	5.044	95.768				
9	.381	4.232	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 4.27 depicts the rotated component factor loadings for bank inflation amongst listed commercial banks. From the rotation matrix in table 4.27 below, the bank inflation measures were grouped into two factors namely interest rates and Treasury bill rates.

Table 4.27: Factor Loadings Based on a Principal Components Analysis with Promax Rotation for 9 Items of Inflation

	Component	
	1	2
most competitive interest rate in the market		.862
Loan seekers considers interest rate as the key factor in their decision		.862
In this bank, interest rate is stable over a reasonably long period		.565
Fixed lending rates has been our reason of our level of loan performance		.570
Customers values and makes their decisions based on our adjustable lending rates	.509	
Lending rates adopted by our bank are quite competitive in the market	.611	
Movement in TB rates in this bank leads to a significant movement in loans	.711	
Treasury bills rates in this bank are competitive in the market	.618	
Fluctuations in treasury bills rates have a great influence on loan portfolio	.827	

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.[a]. Rotation converged in 3 iterations.

Principal components analysis was used because the primary purpose was to identify and compute composite scores for the factors underlying inflation measures in commercial banks in Kenya. KMO and Bartlett's test tests suggested that factor analysis was appropriate. The nine items when subjected to PCFA with a Varimax rotation revealed that a two-factor structure for 9 items was apparent. The first component had 5 items and second component had 4 items. The first component was renamed as interest rate (n=5, α =0.738, mean=4.034) with a positive skew value of .26. The second component was renamed treasury bills (n=4,$\alpha = .720$ mean=4.113) with a positive skew of 0.24. The Cronbach's Alpha coefficient values obtained were all greater than the 0.7 threshold indicated moderate and therefore acceptable internal consistency (Table 4.28).

The skewness and kurtosis were well within a tolerable range for assuming a normal distribution, thus the data on interest rate and treasury bills were well suited for parametric statistical analyses.

Table 4.28: Descriptive Statistics of Inflation (interest rate and treasury bills)

	No. of items	M (SD)	Skewness	Kurtosis	Alpha(α)
Interest Rate	5	4.034 (.88)	.26	.40	.703
Treasury Bills	4	4.028 (.92)	.24	.33	.720

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.8.4 Correlation of Inflation and loan portfolio performance

In order to establish the relationship between bank inflation and loan portfolio performance amongst listed commercial banks in Kenya correlation analysis was performed to obtain a correlation matrix shown in table 4.29. The Pearson correlation coefficient was generated at a significant level of 1 percent (2-tailed). The output indicates weak positive correlation between bank treasury bills and loan portfolio performance (r=.123, p=.144). The correlation between interest rate and portfolio performance is strong (r=.523, p=.004).

The result suggested that as the number of T-bills increased, the LPP increased too. The Treasury bill rate is used as a proxy for the return on the governments' debt instruments. It is expected that high Treasury bill rates could have a positive impact on commercial banks' investment in Government's instrument (Barrett, 2014). Further, it is anticipated that the high Treasury bill rates could engineer upward pressure on commercial rates in the economy thereby leading to higher interest rates on loans and advances. In this regard, the positive relationship is thus expected on commercial banks' portfolio.

Table 4.29: Correlation Result of Inflation (treasury bills, interest rate) and Loan Portfolio Performance in Listed Banks in Kenya Using Primary Data

		Treasury bills	Interest rates	Loan Portfolio Performance
Treasury bills	Pearson Correlation	1	1.000**	.123
	Sig. (2-tailed)		.000	.144
Interest rates	Pearson Correlation	1.000**	1	.523
	Sig. (2-tailed)	.000		.004
Loan Portfolio Performance	Pearson Correlation	.123	.523	1
	Sig. (2-tailed)	.144	..004	

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

Table 4.30 shows the correlation between inflation indicators (Treasury bills and interest) and portfolio performance indicator using secondary data; ROI. Data show that treasury bills and ROI were weakly and positively correlated (r=.102, p=.458). Interest rate correlated positively with ROI (r=-054, p=.695).

The results from both primary and secondary data show a positive relationship between inflation and portfolio performance. The positive result indicated that loan portfolio performance increases with increase in magnitude of inflation indicators in an economy and vice versa. Inflation makes it costly to keep a lot of cash on hand, as it causes the value of that cash to erode over time. Putting cash to work by saving it in an interest-bearing account or investing it can mitigate the negative effects of inflation. Therefore, during inflation banks lend out loans at increased interest rates than the rate of inflation to earn real interest rates (the difference between nominal interest rate and inflation rate). However, Hanson and Stein (2015) suggest that as nominal interest rates decline, banks rebalance their asset holdings toward longer maturities to prevent their portfolios' overall yield from decreasing too much.

Table 4.30: Correlation Result of Inflation (treasury bills, interest rate) and ROI in Listed Banks in Kenya Using Secondary Data

		Treasury bills	Interest Rate	ROI
Treasury bills	Correlation	1	-.875**	.102
	Sig. (2-tailed)		.000	.458
Interest Rate	P. Correlation	-.875**	1	.054
	Sig. (2-tailed)	.000		.695

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

4.8.5 Analysis of Variance (ANOVA) of Inflation Using the Primary Data

Table 4.31 below presents Analysis of variance (ANOVA) results using the primary data. The F- statistics tends to be greater when the null hypothesis of independence is not true. P-values of less than 0.05 indicate that the F statistics is high and that the null hypothesis of independence needs to be rejected since it is not true**.** In this case the F ratio (F= 23.268, p = 0.000) was found to be statistically significant hence the model used for analysis was fit. Thus, the model relating T-bills and interest rates as independent variables can be used to explain or relate with a bank's returns on investment as the dependent variable.

Table 4.31: Inflation ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	160.580	1	160.580	23.268	.000[b]
	Residual	973.085	141	6.901		
	Total	1133.664	142			

[a.] Dependent Variable: Loan Portfolio Performance· Predictors: (Constant), treasury bills, interest rate

Table 4.32 presents the ANOVA result obtained using secondary data. The F value indicated that the model was statistically significant (F= 6.364, p=.002). Therefore, the model used fitted the data significantly well and appropriate for projecting performance at given levels of inflation. Results from both primary and secondary data show that the regression model that relate treasury bills and interest rates to loan portfolio performance were significant. This means that the treasury bills and interest rates can significantly predict loan portfolio performance of commercial banks listed in the Nairobi securities exchange. As such the banks can enhance their loan investment through prudent adjustment of these ratios.

Table 4.32: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	94.471	2	47.235	6.364	.002[b]
	Residual	1039.193	140	7.423		
	Total	1133.664	142			

[a.] Dependent Variable: Loan Portfolio Performance, [b]. Predictors: (Constant), Interest rate, Treasury Bills

4.8.6 Model Fitness /Summary- Inflation

In Table 4.33 below, the study results showed that bank inflation had moderate explanatory power on loan portfolio performance as it accounted for 14.2% of its variability (R square =0.142).

Table 4.33: Inflation Model Summary of Primary Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.376	.142	.136	2.62703

a. Predictors: (Constant), treasury bills, interest rate

The model summary result in table 4.34 shows the R-value of .289, that is; the multiple correlation coefficients between the predictor variables and the predicted value. The result shows that bank inflation explained 7% (R-square=.070) of variability on loan portfolio performance. Using the primary data, inflation accounted for 14.2% of variability of loan performance portfolio (R square =0.142).

Table 4.34: Model Summary of Secondary Data

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.289[a]	.083	.070	1.7448

a. Predictors: (Constant), Interest rate, Treasury Bills

4.8.7 Regression Analysis on Inflation

To assess the influence of bank inflation on loan portfolio performance of listed commercial banks in Kenya the following null hypotheses was formulated:$H0_2$: There is no significant influence of inflation on loan portfolio performance amongst listed commercial banks in Kenya. The aggregate mean scores of primary data on inflation were regressed against the aggregate mean score of primary data on loan portfolio performance and regression results are presented in Table 4.35. From these results, the explanatory power of inflation on variability of loan portfolio performance amongst listed commercial banks was moderate at 37.6 percent (R square = 0.376). The individual results revealed that influence of inflation on loan portfolio performance was statistically significant ($\beta = 0.376$, P-value =0.000). Hence, $H0_2$ is rejected since $\beta \neq 0$ and P-value< 0.05. The fitted equation is:

$$\text{Loan p.performance} = 5.737 + 1.364\text{Treasury bills} + 1.659\text{Interest Rate.}$$

Hence it was established that there is statistically significant correlation between inflation and loan portfolio performance amongst listed commercial banks in Kenya.

Table 4.35 shows the result regression coefficients of inflation (interest rate and treasury bills) fitted to the regression model using secondary data. The corresponding t-values and significance level are also shown. From the result, it is clear that the coefficient of treasury bills was statistically significant (β=1.242, p=.008). The coefficient of interest rate which is one of inflation indicators, was significant (β=.449, p=0.000). Results from both primary and secondary data agree that treasury bills and interest rates have significance influence on portfolio performance among listed banks in Kenya.

Table 4.35: Inflation Regression Coefficients

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Primary	(Constant)	5.737	1.807		3.175	.000
	Treasury bills	1.364	.423	.174	3.225	.000
	Interest rate	1.659	.8100	.384	2.048	.002
Secondary	(Constant)	12.469	1.982		6.291	.000
	Treasury Bills	1.242	.464	.239	2.678	.008
	Interest rate	.449	.133	.391	3.376	.000

4.9 Bank Market Niche

The study sought to determine the influence of bank market niche on portfolio performance amongst listed commercial banks in Kenya. Bank market niche by three key measures namely large corporate, small and medium enterprises and retail enterprises**.**

4.9.1 Descriptive Results of Bank Market Niche

Bank market niche was assessed by three measures namely large corporate,small and medium enterprises and reatail enterprises. The findings in Table 4.36 below indicate that most respondents strongly agreed that frequency of loan default by retail enterprises significantly influenced loan portfolio performance with a mean of 4.20 and a standard deviation of 0.737 followed by those who agreed that rate of loan default depended on the market segment of the customer with a mean of 3.99 and a standard deviation of 0.847. The findings reveal that high default rate by retail enterprises and small and medium enterprises seemed to have the greatest influence on loan portfolio performance.

The study findings further reveal that niche market strategy was used in a majority of commercial banks to boost their investment in loans. They were aware of the significance of the market segmentation (corporate, SME or retail) on quality of our loans. The banks further tailored their loans on the based on the knowledge that rate of loan default depend on the market segment of the customer.

Table 4.36: Bank Market Niche Descriptive Statistics

	N	Mean	Std. Deviation
The quality of a loan given depend on the size on the market segment (corporate, SME or retail)	143	3.83	.715
Segmenting customers improves quality of our loans	143	3.87	.871
Corporate loans are of higher quality than those of SME and retail enterprises	143	3.94	.820
Small and Medium Enterprises loans are of high quality than corporate or retail loans	143	3.73	.865
Retail loans are of high quality than SME or corporate	143	3.84	.784
Rate of loan default depend on the market segment of the customer	143	3.99	.847
The retail enterprises' clients are more than SME or corporate clients	143	3.99	.796
The loan repayment pattern influences loan repayment performance.	143	3.99	.800
The frequency of loan default by retail enterprises has a great influence on loan portfolio performance.	143	4.20	.737
Valid N (listwise)	143		

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.9.2 Factor Analysis of Bank Market Niche

Prior to extraction of the factors, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity tests were used to assess the suitability of the respondents' data for factor analysis. The KMO index is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis. The Bartlett's test of sphericity should be significant ($p<.05$) for factor analysis to be suitable. From the results depicted in Table 4.37 below, the KMO measure of sample adequacy was 0.740 which indicated that the test of variables was suitable for factorization. Bartlett's test of sphericity was significant (Chi-square109.433, $p< 0.000$).

Table 4.37: Market Niche KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.740
Bartlett's Test of Sphericity	Approx. Chi-Square	109.433
	Df	36

The purpose of factor analysis is to summarize data so that relationships and patterns can be easily interpreted and understood. Factor analysis was carried out to describe variability among the observed variables and check for any correlated variables with the aim of reducing data that was found redundant. Statements scoring more than 0.3 which is the minimum requirement for inclusion of variables into the final model (Hair, Black & Babin, 2010; Kothari, 2004) were included. On this variable all the statements were included. The nine measures of market niche were subjected to factor analysis and the results show that there were two critical factors of market niche influencing loan portfolio performance which accumulated to 52.858% of the total variance. Factor 1 had the highest variance of 36.463% while factor two had 16.395%. These two factors had

the greatest influence on loan portfolio performance. This is confirmed by the fact that they all had eigen values of more than 1.0 as presented in Table 4.38 below.

Table 4.38: Bank Market Niche Factor Analysis (Total Variance Explained)

	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.282	36.463	36.463	3.282	36.463	36.463	2.976
2	1.476	16.395	52.858	1.476	16.395	52.858	2.393
3	.896	9.951	62.810				
4	.735	8.163	70.973				
5	.689	7.650	78.623				
6	.641	7.120	85.743				
7	.582	6.466	92.209				
8	.423	4.698	96.908				
9	.278	3.092	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 4.39 below depicts the rotated component factor loadings for the market niche on loan portfolio performance of listed commercial banks in Kenya. From the rotation matrix all market niche measures were grouped in two components.

Table 4.39: Market Niche Rotation Pattern Matrix

	Component	
	1	2
The quality of a loan given depend on the size on the market segment (corporate, SME or retail)	.890	
Segmenting customers improves quality of our loans	.704	
Corporate loans are of higher quality than those of SME and retail enterprises	.775	
Small and Medium Enterprises loans are of high quality than corporate or retail loans	.797	
Retail loans are of high quality than SME or corporate	.420	
Rate of loan default depend on the market segment of the customer		.657
The retail enterprises' clients are more than SME or corporate clients		.707
The loan repayment pattern influences loan repayment performance.		.720
The frequency of loan default by retail enterprises has a great influence loan portfolio performance.		.654

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization. a. Rotation converged in 3 iterations.

Principal components factor analysis (PCFA) was used because the primary purpose was to identify and compute composite scores for the factors underlying market niche measures in commercial banks in Kenya. KMO and Bartlett's test tests suggested that factor analysis was appropriate on the nine items. The nine items when subjected to PCFA with a promax rotation revealed that a two-factor structure for 9 items was apparent (Table 4.39 above). The first component had 5 items and second component

had 4 items. The first component renamed loan size (n=5, α =0.794, mean=3.843) was positively skewed (.56). The second component renamed default (n=4,$\alpha = .825$ mean=.4043) was also positively skewed (0.44). The Cronbach's Alpha coefficient values obtained were all greater than the 0.7 threshold indicated moderate and therefore acceptable internal consistency. The skewness and kurtosis were well within a tolerable range for assuming a normal distribution, thus the data on loan size and default were well suited for parametric statistical analyses (see Table 4.40).

Principal components analysis was used because the primary purpose was to identify and compute composite scores for the factors underlying inflation measures in commercial banks in Kenya. KMO and Bartlett's test tests suggested that factor analysis was appropriate. The nine items when subjected to PCFA with a Varimax rotation revealed that a two-factor structure for 9 items was apparent. The first component had 5 items and second component had 4 items. The first component was renamed as interest rate (n=5, $\alpha =$ 0.738, mean = 4.034) with a positive skew value of .26. The second component was renamed treasury bills (n=4, $\alpha = .720$ mean=4.113) with a positive skew of 0.24. The Cronbach's Alpha coefficient values obtained were all greater than the 0.7 threshold indicated moderate and therefore acceptable internal consistency (Table 4.28). The skewness and kurtosis were well within a tolerable range for assuming a normal distribution, thus the data on interest rate and treasury bills were well suited for parametric statistical analyses.

Table 4.40: Descriptive Results of Market Niche Measures (Loan Size and Loan Default)

Measurement	No. of items	M (SD)	Skewness	Kurtosis	Alpha (α)
Loan Size	5	3.843 (.48)	.56	.40	0.794
Default measures	4	4.043 (.72)	.44	.33	0.825*

4.9.3 Correlation of Market Niche and Loan Portfolio Performance

In order to establish the relationship between market niche and loan portfolio performance amongst listed commercial banks in Kenya correlation matrix was used. Table 4.41 below shows a varied degree of interrelationships between market niche and loan portfolio performance of listed commercial banks in Kenya. The Pearson correlation coefficient was generated at a significant level of 1 percent (2-tailed). The output indicates a perfect positive relationship between bank market loan size and loan portfolio performance of listed commercial banks in Kenya. However, loan default was negatively correlated.

The result suggests that as loan size increases the investment in loans also is increased. The corporate loans are in most cases big and take rigorous lending process to be approved. This enable banks to vet their loans so as to improve quality and reduce default rate. Therefore, the positive relationship is expected between loan size and loan portfolio. Default measures and portfolio were positive. This implied that as banks strictly implement the default measures, the cases of default decreased thus improved portfolio. Increasing number of corporate loans and strict in default measures, could be one strategy of growing the loan portfolio. Similar positive relationship was established in other studies (Love & Ariss, 2014).

Table 4.41: Market Niche Correlations

		Loan Size	Default	Loan P Perform
Loan Size	Pearson Correlation	1	.367**	.305**
	Sig. (2-tailed)		.000	.000
	N	143	143	143
Default measures	Pearson Correlation	.367**	1	.268**
	Sig. (2-tailed)	.000		.001
	N	143	143	143
Loan P Perform	Pearson Correlation	.305**	-.268**	1
	Sig. (2-tailed)	.000	.001	
	N	143	143	143

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

4.9.4 Market Niche Analysis of Variance (ANOVA)

Table 4.42 shows the F test results carried out to test the hypothesis. The results indicate that the significance of F-statistics is less than 0.05 meaning that the hypothesis is rejected thus indicating a relationship between market niche and loan portfolio performance.

Table 4.42: Market Niche ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	210.706	1	210.706	32.190	.000[b]
	Residual	922.958	141	6.546		
	Total	1133.664	142			

a. Dependent Variable: Loan Portfolio Performance

b. Predictors: (Constant), loan size, loan default

4.9.5 Model Fitness/ Summary of Loan Portfolio Performance

From the results in Table 4.43 below, the explanatory power of bank market niche on loan portfolio performance shows the variability was moderate at 18.6 percent (R square = 0.186).

Table 4.43: Market Niche Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.431	.186	.180	2.55848

a. Predictors: (Constant), Predictors: (Constant), loan size, loan default

4.9.6 Regression of Market Niche and Loan Portfolio Performance

To establish the influence of market niche on loan portfolio performance of listed commercial banks the hypothesis was stated as follows:

$H0_3$: There is no significant influence of bank market niche on loan portfolio performance amongst listed commercial banks in Kenya. Market niche measures (loan size and loan default) were regressed against the loan portfolio performance. The results depicted in Table 4.44 shows that loan size and loan default had moderate explanatory power on loan portfolio performance. Loan size accounted for 23.9% (R-square=.239) and loan default accounted for 18.0% (R-square=.180) of its variability in loan portfolio performance. The regression result show that that loan size (β=1.125, p=.006) and loan default (β=.932, p=.036) have a positive and significant contribution to portfolio performance of listed banks in Kenya. Hence, $H0_3$ is rejected since regression coefficients are significantly different from zero (β_1 and $\beta_2 \neq 0$ and P-value < 0.05). Since the regression constant is also significant, then the fitted equation is;

$$LPP = 11.203 + 1.125 Loan\ size + .932 Loan\ default$$

Hence, there is statistically significant influence of bank market niche (loan size and loan default rates) and loan portfolio performance amongst listed commercial banks in Kenya.

The result suggests that loan size had a greater contribution to LPP than loan default measures. Thus, increasing number of large loans is more effective portfolio performance strategy than increasing loan default measures. This can be achieved through having more institutional lending which in many a time has low rate of default and other advantages than small loans (Ault & Spicer, 2014). The result thus suggests that the management can achieve more returns on their investment by increasing number of large loans, that establishing large corporate clientele.

Table 4.44: Market Niche (Loan size and loan default) Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
1	(Constant)	11.203	1.892		5.921	.000
	Loan Size	1.125	.401	.239	2.804	.006
	Default measures	.932	.441	.180	2.116	.036

Dependent Variable: Loan Portfolio Performance

4.10 Bank Conditionality

The study sought to investigate the influence of bank conditionality on loan portfolio performance amongst listed commercial banks in Kenya. Bank conditionality was assessed by three measures namely Loan security, Loan volume and credit assessment.

4.10.1 Conditionality Descriptive Results

Table 4.45 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1 strongly disagree), most respondents agree that credit worthiness of potential customers in their bank is a key determinant of quality of loan with a mean score of 4.13 and standard deviation of 0.795 followed by those that agreed there is regular review and classification of loans in their bank with a mean score of 4.12 and a standard deviation of 0.783.

The result suggests that the conditionality conditions were being observed in commercial banks in Kenya. According to the data findings, the collateral security policies are strictly adhered to and reduced loan default cases. They also suggested that unsecured loans have a high-risk default. Big loan size attracts high returns to the bank and lending policies significantly influences loan repayment. Banks therefore were keen in attaching collateral assets to lending to reduce default rate.

The results suggest that assets increase the likelihood that borrowers perceived to be less creditworthy will obtain loans from informal sources and repay them. The results also supported by the view that there is a positive effect of collateral and referral and access to funds, which implies that relationship lending and social collateral is key to increasing access to finance.

Table 4.45: Bank Conditionality Descriptive Statistics

	Mean	Std. Deviation
The collateral security policies are strictly adhered to in this bank	3.67	.748
Collateral requirement reduced loan default cases	3.97	.926
Unsecured loans have a high-risk default.	3.92	.800
Big loan size attracts high returns to the bank	3.93	.869
In this bank loan size lending policies significantly influences loan repayment	3.97	.782
The bigger the loan the higher the chances of default.	3.85	.847
There are effective customer credit analysis mechanisms in this bank	3.99	.760
There is regular review and classification of loans in this bank	4.12	.783
Credit worthiness of potential customers in this bank is a key determinant of quality of loan.	4.13	.795
Valid N (list wise)		

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.10.2 Factor Analysis Conditionality

Prior to extraction of the factors, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity tests were used to assess the suitability of the respondents' data for factor analysis. KMO measures of sample adequacy were 0.675. Bartlett's test of sphericity was significant (Chi-square = 160.358, $p < 0.000$). The result suggested that all the nine of lending conditionality variables were suitable for factorization and thus factor analysis was performed.

Table 4.46: Bank Conditionality KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.675
Bartlett's Test of Sphericity	Approx. Chi-Square	160.358
	Df	36
	Sig.	.000

The main purpose of factor analysis is to summarize data so that relationships and patterns can be easily interpreted and understood. Factor analysis was carried out before analysis of the results to describe variability among the observed and check for any correlated variables with the aim of reducing data that was found redundant. The nine measures of bank conditionality were subjected to factor analysis and the results presented in Table 4.47 below show that there were three critical factors of bank conditionality influencing loan portfolio performance which accumulated to 59.875% of total variance. Factor 1 had the highest variance of 35.338% followed by factor 2 and factor 3 with variances of 12.960% and 11.577% respectively. These three factors had the greatest influence on loan portfolio performance because they all had Eigen values of more than 1.

Table 4.47: Bank Conditionality Factor Analysis (Total Variance Explained)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.180	35.338	35.338	3.180	35.338	35.338	2.445
2	1.166	12.960	48.298	1.166	12.960	48.298	2.109
3	1.042	11.577	59.875	1.042	11.577	59.875	1.888
4	.801	8.895	68.770				
5	.768	8.537	77.307				
6	.687	7.632	84.939				
7	.568	6.307	91.247				
8	.477	5.303	96.550				
9	.311	3.450	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 4.48 depicts the rotated component factor loadings for bank conditionality on loan portfolio performance amongst listed commercial banks in Kenya. From the rotated matrix in the Table 4.48 below all the bank conditionality measures were grouped into three component factors.

Table 4.48: Bank Conditionality Rotated Pattern Matrix

	Component		
	1	2	3
The collateral security policies strictly adhered to here	.814		
Collateral requirement reduced loan default cases	.713		
Unsecured loans have a high-risk default.			.690
Big loan size attracts high returns to the bank			.686
loan size lending policies influences loan repayment here		.528	
The bigger the loan the higher the chances of default.	.748		
There are effective credit analysis mechanisms in this bank		.767	
There is regular review and classification of loans in this bank		.775	
Credit worthiness of potential customers is a key determinant of quality of loan.		.546	

Extraction Method: Principal Component Analysis. a. Rotation converged in 8 iterations Rotation Method: Promax with Kaiser Normalization.

Principal components factor analysis (PCFA) was used because the primary purpose was to identify and compute composite scores for the factors underlying lending conditionality measures in commercial banks in Kenya. KMO and Bartlett's test tests suggested that factor analysis was appropriate on the nine items (Table 4.49). The nine items when subjected to PCFA with a Varimax rotation revealed that a three-factor structure for 9 items was apparent (Table 4.48 above). The first component had 3 items and second component had 4 items and third had 2 items. The first component renamed loan collateral (n=3, α =0.700, mean=3.383) was positively skewed (.66). The second component renamed lending policy (n=4,$\alpha = .623$ mean=.3.925) was negatively skewed (-0.33) and the third factor renamed credit analysis (n=2, $\alpha = .602$, mean=4.043 (table

4.49). The Cronbach's Alpha coefficient values obtained were all moderate indicated acceptable internal consistency. The skewness and kurtosis were well within a tolerable range for assuming a normal distribution, thus the data on loan size and default were well suited for parametric statistical analyses.

Table 4.49: Descriptive Results of Bank Conditionality

Measurement	No. of items	M (SD)	Skewness	Kurtosis	Alpha (α)
Loan collateral	3	3.830 (.48)	.66	.40	.700
Lending Policies	4	3.925 (.77)	-.33	.55	.623
Credit analysis	2	4.043 (.71)	.44	.33	.602*

4.10.3 Correlation of Conditionality and Loan Portfolio Performance

In order to establish the relationship between bank conditionality and loan portfolio performance amongst listed commercial banks in Kenya, a correlation matrix was used. Table 4.50 depicts a varied degree of interrelationships between bank conditionality and loan portfolio performance of listed commercial banks in Kenya. The Pearson correlation coefficient was generated at a significant level of 1 percent (2- tailed). The output indicates a perfect positive relationship between bank conditionality and loan portfolio performance of listed commercial banks in Kenya. The strongest relationship was observed between bank conditionality and loan portfolio performance (r = 0.291).

The result suggest that strict implementation of collateral requirement is characterized in banks with high LPP. Low default rate is one way to achieve high loan performance. Low default rate is thus negatively related to stringent collateral requirements. The findings by Baele *et al.* (2014) also found collateral requirement had a negative correlation with default rate.

Loan policy and credit analysis are both positively related with LPP. The effective level of implementing lending policies ensures the realization of quality loans. An effective loan policy is one that addresses key credit decision criteria and underwriting factors such as the purpose of the loan, required financial information, collateral, risk ratings. Prudent management and administration of the overall loan account, including establishment of sound lending and collection policies, critical lending policies. In this regard it calls for effective evaluation of management's ability to identify and manage risk. Able to evaluate the quality of the loan portfolio and the extent of related risks in lending activities. When these policies are effective, then quality of loan is expected to be high.

Table 4.50: Bank Conditionality Correlations

		Collateral_	Policy	Credit	LPP
Collateral	Pearson Correlation	1	.462**	.397**	.124
	Sig. (2-tailed)		.000	.000	.140
Policy	Pearson Correlation	.462**	1	.381**	.177*
	Sig. (2-tailed)	.000		.000	.034
Credit	Pearson Correlation	.397**	.381**	1	.299**
	Sig. (2-tailed)	.000	.000		.000
LPP	Pearson Correlation	.124	.177*	.299**	1
	Sig. (2-tailed)	.140	.034	.000	

**. Correlation is significant at the 0.01 level (2-tailed).*. Correlation is significant at the 0.05 level (2-tailed).

4.10.4 Bank Conditionality Analysis of Variance (ANOVA)

Analysis of variance (ANOVA) was used to test whether the regression analysis model used is fit or the relationship of variables just occurred by chance. In this case the F ratio (F = 13.051, p =0.000) was found to be statistically significant hence the model used for analysis was fit as shown on table 4.51 below.

Table 4.51: Bank Conditionality ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	96.040	1	96.040	13.051	.000[b]
	Residual	1037.624	141	7.359		
	Total	1133.664	142			

a. Dependent Variable: Loan Portfolio Performance b. Predictors: (Constant), collateral, policy credit

4.10.5 Model Fitness/ Summary Condition

Table 4.52 below showed that bank conditionality had explanatory power on loan portfolio performance as it accounted for 8.5 percent of its variability (R-square= 0.085).

Table 4.52: Bank Conditionality Model Summary

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.291[a]	.085	.078	2.71275

a. . Predictors: (Constant), collateral, policy, credit

4.10.6 Regression of Conditionality and Loan Portfolio Performance

To establish the relationship between banks conditionality on loan portfolio performance of listed commercial banks in Kenya. The hypothesis was stated as follows:

$H0_4$: There is no significant influence of bank conditionality (collateral, policy and credit) on loan portfolio performance amongst listed commercial banks in Kenya. In Table 4.53 below the aggregate mean scores of the bank conditionality (collateral, policy and credit) on loan portfolio performance were presented. The individual regression results showed that loan portfolio performance of banks is significantly influenced by bank collateral (β=-1.030, p=.005), policy (β=1.772 p=.004 and credit (β=.1.155, p=.000). The regression constant is also significant, and therefore the fitted regression model is;$\mathrm{LPP} = 13.363 - 1.030\mathrm{Collateral} + 1.772\mathrm{Policy} + 1.155\mathrm{Credit}$

Hence, $H0_4$: is rejected since the regression coefficients of conditionality are all significantly different from zero and P-Value < 0.05). This shows there is statistically significant correlation between bank conditionality and loan portfolio performance amongst listed commercial banks in Kenya.

The result suggests that a unit increase in effective implementation of lending policies had the highest positive contribution to LPP, followed by a unit increase in credit analysis. Collateral requirement had the least contribution to loan portfolio. To improve the portfolio in banks, the management can prioritize on emphasizing on effective implementation of lending policies. They can achieve this through having policies that incorporates risks that may affect loan quality. While risk is inevitable, banks can mitigate credit risk through the development of and adherence to effective loan policies and procedures. A well-written and descriptive loan policy is the cornerstone of a sound lending function.

In this regard, effective loan policies align with the mission and objectives of the bank, as well as support safe and sound lending activity. Policies and procedures serve as a framework for all major credit decisions and actions, cover all material aspects of credit risk, and reflect the complexity of the activities in which a bank engages.

Table 4.53: Bank Conditionality Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Beta β	Std. Error	Beta		
1	(Constant)	13.363	1.933		6.912	.000
	collateral	-1.030	.398	-.240	-2.590	.004
	policy	1.772	.700	.332	2.531	.005
	credit	1.155	.378	.277	3.055	.000

a. Dependent Variable: Loan Portfolio Performance

4.11 Operating Cost

The study sought to investigate the influence of operating costs on loan portfolio performance of listed commercial banks in Kenya**.** Operating cost was assessed by three measures namely loan initiation costs, loan monitoring costs and loan recovery costs.

4.11.1 Operating Costs Descriptive Results

Table 4.54 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1 = strongly disagree, most respondents agree loan portfolio performance was to a great extent influenced by operating costs. From the results indicated in Table 4.54 most respondents strongly agree that with the statement that loan recovery expenses are effectively utilized with a mean score of 4.32 and a standard deviation of 0.827 followed by those who agreed with the statement that the Underwriting costs have been effective on loan issues with a mean score of 3.90 and standard deviation 0.808.

The result suggests that in the surveyed commercial banks expenses are strictly incurred under strict conditions to achieve organizational competitiveness. The expenses were incurred in prudently and consistent with the purposes of the funds. There are good financial management practices that involved critical management of funds. This implied that there was optimum utilization of monetary resources to meet unavoidable risk cover and expenses. This aspect is crucial to business welfare. With effective utilization of funds, banks can even attract more finance to meet the short-term and long-term requirements of the bank.

Table 4.54: Operating Costs Descriptive Statistics

	N	Mean	Std. Deviation
There are training cost on detailed procedure	143	3.46	.794
The is increase of loan initiation costs in this bank	143	3.77	.962
There are substantial training expenses on loaning in this bank	143	3.71	.926
Significant loan monitoring expenses are always incurred by the bank.	143	3.78	.843
The loan monitoring expenses are adequately provided for in the budget	143	3.73	.855
Loan monitoring costs reduces the level of default risk	143	3.89	.823
In this bank, legal expenses on loan issues is adequately provided for	143	3.87	.821
The Underwriting costs have been effective on loan issues	143	3.90	.808
The loan recovery expenses are effectively utilized	143	4.32	.827
Valid N (listwise)	143		

Key: Ranked on a scale: 1.0-1.7(strongly disagree); 1.8-2.5(disagree); 2.6-3.3(neutral); 3.4-4.1(agree) and 4.2-5.0(strongly agree)

4.11.2 Operating Costs Factor Analysis

Prior to the extraction of the factors, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were carried out. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1 with 0.50 considered suitable for factor analysis. For factor analysis to be suitable the Bartlett's Test of Sphericity should be significant ($p<0.05$) (Costello & Osborne, 2015). From the results shown in Table 4.55 the KMO test of 0.835 showed that the factor analysis could be carried out because KMO lied between 0 and 1. Bartlett's test of sphericity was (Chi-square 354. 390, $p<0.0001$) which was within the acceptable level to test for significance and validity of data collected to the research problem**.**

Table 4.55: Operating Costs KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.835
Bartlett's Test of Sphericity	Approx. Chi-Square	354.390
	Df	36
	Sig.	.000

Factor analysis was carried out to describe variability among the observed variables and check for any correlated variables with the aim of reducing data that was found redundant. Statements scoring more than 0.3 which is the minimum requirement for inclusion of variables into the final model (Hair, Black & Babin, 2010; Kothari, 2004) were included. Principal component analysis with Promax with Kaiser rotation was used. From the variance matrix, there were two variables that had eigen values of more than 1.0 which meant that these were component 1 and two. Table 4.56 below shows that component one had the highest variance of 3.772 which accounted for 41.915% of the variance. Component 2 had the second highest variance of 1.027 contributing

11.414% of variance. The cumulative results showed that there were two critical factors of operating costs which accumulated to 53.329 % of the total variance in this construct.

Table 4.56: Operating Costs Factor Analysis (Total Variance Explained)

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.772	41.915	41.915	3.772	41.915	41.915	3.249
2	1.027	11.414	53.329	1.027	11.414	53.329	2.948
3	.935	10.389	63.718				
4	.746	8.292	72.010				
5	.646	7.181	79.191				
6	.576	6.401	85.592				
7	.520	5.783	91.375				
8	.450	5.000	96.375				
9	.326	3.625	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 4.57 depicts the rotated component factor loadings for operating costs on loan portfolio performance amongst listed commercial banks in Kenya. From the rotated matrix in the Table 4.57 below all the bank operating cost measures were grouped into two component factors.

Table 4.57: Operating Costs Rotation Pattern Matrix

Statement	Component 1	2
High training cost affects loan portfolio performance.	.470	
The initiation costs improve loan repayment performance.	.456	
Low training costs adversely affects loan portfolio performance.	.623	
loan monitoring expenses affects loan portfolio performance.	.620	
The decrease in loan monitoring costs greatly improves loan repayment performance		.378
Loan monitoring costs reduces the level of default risk		.847
The increase of bank legal action costs affects loan portfolio performance	.529	
The increase of bank underwriting costs affects loan portfolio performance.	.952	
Loan recovery costs affect loan portfolio performance.		.818

Principal components factor analysis (PCFA) was used because the primary purpose was to identify and compute composite scores for the factors operating cost measures in commercial banks in Kenya. KMO and Bartlett's test tests suggested that factor analysis was appropriate on the nine items (Prior to the extraction of the factors, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were carried out. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1 with 0.50 considered suitable for factor analysis. For factor analysis to be suitable the Bartlett's Test of Sphericity should be significant ($p<0.05$) (Costello & Osborne, 2015). From the results shown in Table 4.55 the KMO test of 0.835 showed that the factor analysis could be carried out

because KMO lied between 0 and 1. Bartlett's test of sphericity was (Chi-square 354. 390, p<0.0001) which was within the acceptable level to test for significance and validity of data collected to the research problem**.**

The nine items when subjected to PCFA with a Varimax rotation revealed that a two-factor structure for the 9 items was apparent. The first component had 6 items and second component had 3 items. The first component renamed loan underwriter (n=6, α =0.790, mean=3.748) was positively skewed (.41). The second component renamed recovery (n=3,$\alpha = .618$ mean=3.980) was negatively skewed (-0.53). The Cronbach's Alpha coefficient values obtained were all moderate indicated acceptable internal consistency. The skewness and kurtosis were well within a tolerable range for assuming a normal distribution, thus the data on loan size and default were well suited for parametric statistical analyses (Table 4.58).

Table 4.58: Descriptive Results of Bank Conditionality

Measurement	No. of items	M (SD)	Skewness	Kurtosis	Alpha (α)
Underwriting	6	3.748(.81)	.41	.53	.790
Recovery	3	3.980 (.65)	-.53	.41	.618

4.11.3 Correlation of Operating Costs and Loan Portfolio Performance

In order to establish the relationship between operating costs and loan portfolio performance of listed commercial banks in Kenya a correlation matrix was used. Table 4.59 shows the correlation matrix which shows a varied degree of interrelationships between operating costs and loan portfolio performance of listed commercial banks in Kenya. Pearson correlation coefficient was generated at a significant level of 1 percent (2-tailed). The results indicate a perfect positive relationship between operating costs

and loan portfolio performance of listed commercial banks in Kenya. Operating costs (underwriter, r=.426, p=.000 and recovery, r=.464, p=.000) had a positive correlation with loan portfolio performance.

The implication of these findings is that firms operating at high underwriter and recovery costs will have high expected returns on investments as they would lower the returns. Siddiqui (2012concluded overhead costs are highest for foreign banks; resulting in the lowest return on assets (ROA) compared to private and public sector banks. The study show that high overhead costs are largely reflected in high employee payments and highly automated and well designed and furnished bank branches and contributes to interest rate spread which translates into poor loan portfolio performance.

Table 4.59: Operating Costs Correlations

		Underwriter	Recovery	Loan performance
Underwriter	Pearson Correlation	1	.576**	.426**
	Sig. (2-tailed)		.000	.000
Recovery	Pearson Correlation	.576**	1	.464**
	Sig. (2-tailed)	.000		.000
Loan performance	Pearson Correlation	.426**	.464**	1
	Sig. (2-tailed)	.000	.000	

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

4.11.4 Operating Costs Analysis of Variance (ANOVA)

Analysis of variance (ANOVA) was used to test whether the regression analysis model used is fit or the relationship of the variables just occurred by chance. In this case the F

ratio (F = 44.110, p = 0.000) was found to be statistically significant hence the model used for analysis was fit as shown on table 4.60 below.

Table 4.60: Operating Costs ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	270.143	1	270.143	44.110	.000[b]
	Residual	863.521	141	6.124		
	Total	1133.664	142			

a. Dependent Variable: Loan Portfolio Performance, [b]. Predictors: (Constant), underwriter, recovery

4.11.5 Model Fitness/Summary Operating Costs and Loan Portfolio Performance

The aggregate mean scores of operating costs on loan portfolio performance were regressed against the aggregate mean scores of loan portfolio performance. The research findings presented in Table 4.61 indicate that bank operating cost had high explanatory power on loan portfolio performance. Operating cost accounted for 23.8 percent of its variability (R square = 0.238).

Table 4.61: Operating Costs Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.488[a]	.238	.233	2.47473

4.11.6 Regression of Operating Costs and Loan Portfolio Performance

To establish the relationship between banks operating costs and loan portfolio performance of listed commercial banks in Kenya, the hypothesis was stated as follows:$H0_5$: There is no significant influence of operating costs on loan portfolio performance amongst listed commercial banks in Kenya.

From Table 4.62 results reveal that loan portfolio performance of the sampled listed commercial banks in Kenya were significantly influenced by operating cost, that is, underwriter costs (β=1.115, p=.009) and recovery costs (β=1.471, P=.000). The regression constant is also significant, thus the regression model linking operating cost indicators (underwriter and Recovery) and portfolio performance of banks listed in Kenya is;

$$LPP = 9.258 + 1.115Underwitter + 1.471Recovery$$

Hence, $H0_5$ is rejected since regression coefficients are significantly different from zero (P- value <0.05). Hence there is statistically significant correlation between operating cost and loan portfolio performance amongst listed commercial banks in Kenya.

Table 4.62: Operating Costs (underwriter and recovery) Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.258	1.475		6.276	.000
	underwriter	1.115	.420	.237	2.655	.009
	Recovery	1.471	.402	.327	3.663	.000

a. Dependent Variable: Loan Portfolio Performance

4.12 Overall Pearson Correlation Coefficient on Loan Portfolio Performance

The study used correlation technique to assess the association between interest rate components and loan portfolio performance with the Karl Pearson correlation coefficient (rho) analysis which gives a statistic that lies between -1 and +1. Correlation coefficient indicates the measure of linear relationship between two variables. Table 4.63 below shows the Pearson correlation coefficients between the dependent variable – loan portfolio performance with the five independent variables: liquidity, inflation, market niche, conditionality and operating cost.

The result in Table 4.63 show that there is insignificant positive relationship between all liquidity ratios (current ratio, r= .123, p= .144, cash ratio, r= -.117, p=.163) and portfolio performance. This is because the p>0.05. These findings implied that, it is not the case that when a firm operated at high current ratios, it has a sound loan portfolio. These findings agree to findings by Durrah *et al*. (2016) who found no relationship significant between liquidity ratios and financial performance in Food Industrial Companies Listed in Amman Bursa.

There is a significant positive but weak correlation between inflationary measures (T-bills, r=.277, p=.001 & interest rates r=.191, p=.023) and loan portfolio performance. The finding means that high T-bills rates and interest rates is associated with high LPP. These findings are consisted with the view that bank lending growth is an important driver of both interest rates and inflation. Based on the view that as broader measures of money supply are most impacted by lending, it would seem unlikely that there would be an increase in inflation without strong bank loan growth. This view is also very relevant for interest rates since bank lending drives economic growth and inflation levels.

Findings reveal that there is positive significant link between both market Niche measures (that is, Loan Size r= .305, p= .000 and default, r= .268, p=.001) and LPP. This implied that as the loan size increased the LPP also increased. The findings are in line with the argument that large loans have high loan returns. These large loans are commonly taken by large institutions where loan defaults are relatively low compared to retail (small loan sizes).

The study found evidence of a significant relationship between conditionality measures (policy r=.177 p=.034 and credit analysis r=.299, p=.000) and LPP. However, there was no evidence of a relationship between collateral (r=.124, p= .140) and LPP. This implied that as banks become more efficient in credit risk analysis and lending policies, there quality of loan is increased also. Traditionally most banks have relied on subjective judgment to assess the credit risk of a borrower. They used information on various borrower characteristics – such as character (reputation), capital (leverage), capacity

(volatility of earnings), conditions (purpose of the loan), and collateral – in deciding whether or not to make a given loan (Ahmed Sheikh & Wang, 2011). Collateral requirement is an instrument ensuring good behaviour on the part of borrowers given evidence of credible credit. Empirical evidence predicts either a positive or negative relationship between collateralized loans and LPP as argued by Jimenez and Saurina (2002)

Finally, both operating cost measures (Underwriter r=.426, p=.000 and recovery r=.464, p=.000) were positively and significantly related with LPP. This implied that firms that have high operating costs have reduced loan default risks and hence associated with significant loan growth. These costs are expenses used in maintenance and administration of a business on a day-to-day basis, thus the more the costs associated with the administration of loans the more accurate the assessment of the likelihood of a borrower to commit to repayment. As such these findings are consistent with the view that spreading overhead expenses associated with large firms may be one source of cost advantage for large banking firms in administration of loans.

Table 4.63: Overall Correlation Coefficients Between Independent Variables and LPP in Commercial Banks in Kenya

		Loan Portfolio Performance
LPP	Pearson Correlation	1
	Sig. (2-tailed)	
Current ratio	Pearson Correlation	.123
	Sig. (2-tailed)	.144
Cash Ratio	Pearson Correlation	-.117
	Sig. (2-tailed)	.163
Treasury Bills	Pearson Correlation	.277**
	Sig. (2-tailed)	.001
Interest rate	Pearson Correlation	.191*
	Sig. (2-tailed)	.023
Loan Size	Pearson Correlation	.305**
	Sig. (2-tailed)	.000
Default	Pearson Correlation	.268**
	Sig. (2-tailed)	.001
collateral	Pearson Correlation	.124
	Sig. (2-tailed)	.140
policy	Pearson Correlation	.177*
	Sig. (2-tailed)	.034
credit	Pearson Correlation	.299**
	Sig. (2-tailed)	.000
Underwriter	Pearson Correlation	.426**
	Sig. (2-tailed)	.000
Recovery	Pearson Correlation	.464**
	Sig. (2-tailed)	.000

4.13 Summary of Study Variables Results

Loan portfolio performance was assessed by five variable measures namely, bank liquidity, inflation, market niche, bank conditionality and operating costs. The significant results showed that the means were statistically the same and the null hypotheses were rejected.

4.14 Overall Goodness of Fit Model

The indicators of the model fitness are shown in Table 4.64. The coefficients indicate that the correlation coefficient (r) between the independent variables and dependent is 0.551 which is a positive strong relationship. The coefficient of determination (R-Square) of 0.303 indicates that the model can explain 27.8% of the variations or changes in the dependent variable. In other words, bank liquidity, inflation, market niche, conditionality and operating cost taken together can explain 27.8 % of changes in loan portfolio performance.

Table 4.64: Overall Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.551[a]	.303	.278	2.40126

a. Predictors: (Constant), Operating Cost, Bank Conditionality, Inflation, Bank Market Niche, Bank Liquidity

4.15 Overall Regression Analysis of Inflation and Liquidity on Loan Performance

Secondary data on inflation and liquidity was regressed with ROI, a loan performance indicator. Analysis of variance (ANOVA) was used to test whether the two independent variables significantly related with ROI. That is, if the model fitted well fitted the data

with minimum variation. As shown in table 4.65 the F ratio from secondary (F = 120.43, p =0.000) and primary data (F=49.332, p=000) indicates that the model was statistically significant.

Table 4.65: Analysis of Variance Result from Primary and Secondary Data

Model		Sum of Squares	df	Mean Square	F	Sig.
Primary	Regression	79.088	2	39.544	49.332	.000[b]
	Residual	41.682	52	.802		
	Total	120.770	54			
Secondary	Regression	2.532	2	1.266	120.143	.000[b]
	Residual	.548	52	.011		
	Total	3.080	54			

Dependent Variable ROI: b. Predictors: (Constant), Inflation, liquidity

The model summary results in tables 4.66 show that the inflation and liquidity accounted for 81.5% (secondary data) and 64.2% (primary data) of variations respectively in loan performance. The findings suggest that these factors were major determinants in loan performance variations witnessed in the banking sector. It also suggests that other factors accounts for the remaining percentages of variations in loan performance.

Table 4.66: Model Summary Result from Primary and Secondary Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.809[a]	.655	.642	.89531
1	.907[a]	.822	.815	.10266

a. Predictors: (Constant), Inflation, liquidity

The regression coefficient table 4.67 indicate that the regression constant was significant (β=.999, p=.000) liquidity (β=.830, p=.000) and inflation (β=.831, p=.000) were significant determinants of ROI. Similarly, the regression coefficients from primary data were significant as shown in table 4.67. The findings thus suggest that changes in either liquidity or inflation would result to significant changes in ROI.

Table 4.67: Regression Coefficient from Primary and Secondary Data

			Coefficients				
			Unstandardized		Standardized	t	Sig.
			B	Std. Error	Beta		
primary	(Constant)		3.047	.357		8.536	.000
	L-Ratios	Current	1.24	.422	1.981	2.938	.000
		Cash	1.071	.5	2.671	2.142	.002
	Inflation	T-Bills	.844	.332	.642	2.542	.
		I. Rate	.951	.40	.863	2.375	.000
Secondary		(Constant)		.999	.232	4.298	.000
	L-Ratios	Current	.830	.401	12.964	2.070	.000
		Current	1.030	.344	8.088	2.994	.000
	Inflation	T-Bills	.642	.212	1.789	3.028	.000
		I. Rate	.831	.224	12.745	3.710	.000

a. Dependent Variable: ROI

4.16 Overall Analysis of Variance (ANOVA)

Table below presents the analysis of variance (ANOVA) on the influence of liquidity, inflation, market niche, bank conditionality and operating cost on loan portfolio performance. The results indicate that the model is statistically significant in explaining the impact of liquidity, inflation, market niche, bank conditionality and operating cost on

interest rate spread among commercial banks in Kenya. This means that the ANOVA results indicate that the combined effect of liquidity, inflation, market niche, conditionality and operating cost is statistically significant in explaining loan portfolio performance among commercial banks at a 0.05 level of significance.

ANOVA creates a way to test several null hypotheses at the same time. The logic behind this procedure has to do with how much variance there is in the population. It is likely the researcher will not know the actual variance in the population but they can estimate this by sampling and calculating the variance in the sample. Compare the differences in the samples to see if they are the same or statistically different while still accounting for sampling error. Table 4.68 below indicates that F ratio (F = 11.922, p value = 0.000) was statistically significant. This meant that the model adopted in the study was significant and the variables tested fitted well in the model. The F- tests displayed that the null hypotheses was rejected, thus the model is valid since all of five regression variables were significant.

Table 4.68: Overall Analysis of Variance(ANOVA)

Model			Df	Mean Square	F	Sig.
1	Regression	343.714	5	68.743	11.922	.000[b]
	Residual	789.950	137	5.766		
	Total	1133.664	142			

a. Dependent Variable: Loan Portfolio Performance

b. Predictors: (Constant), Operating Cost, Bank Conditionality, Inflation, Bank Market Niche, Bank Liquidity

4.17 Multiple Regression Results

The result presented in table 4.69 show the regression coefficient, the t-statistics and the corresponding p values of sub-variables of liquidity, inflation, conditionality, market niche and operating cost. A sub-variable with a p<0.05, means that there is statistical evidence that that particular sub-variable significantly influenced LPP. But a P>0.05 meant that the sub-variable did not significantly influence LPP.

Data findings on liquidity established that current ratio ($p = .020$) had a positive significant influence on LPP. However, no evidence that cash ratio ($p = .3.21$) significantly influence LPP among listed commercial banks in Kenya. Both inflation measures; T-bills and interest rates, had a significant influence on LPP since all their respective p-values were all less than the 0.05.

Finding on market niche established that loan size had significant influence on LPP. But there was no statistical evidence that loan default significantly influenced LPP among listed commercial banks in Kenya. Findings on loan conditionality measures established that both collateral requirement and loaning policies significantly influenced LPP among listed commercial banks in Kenya. However, credit analysis of potential borrower did not significantly influence LPP among these listed commercial banks. Finally, on operating costs measures; findings established that both underwriter costs and recovery cost significantly influenced LPP among listed commercial banks in Kenya.

Table 4.69: Regression Coefficients of Sub-Variables of Liquidity, Inflation, Market Niche, Conditionality and Operation cost

Variable	Sub-variable	Unstand-Coeff. B	Unstand-Coeff. Std. Error	Stand-Coeffi. Beta	t	Sig.
	(Constant)	4.219	1.602		2.6	.004
Liquidity	Current	.321	.141	.213	2.277	.020
	Cash	.322	.219	.161	1.470	.321
Inflation	T-Bills	.099	.042	.037	2.357	.003
	I_ Rates	.145	.058	.136	2.500	.015
Market niche	Loan size	.128	.057	.195	2.246	.027
	Default	.183	.138	.127	1.326	.522
Conditionality	Collateral	-.146	.046	-.018	-3.174	.002
	Policy	.821	.229	.439	3.585	.000
	Credit	.622	.320	.419	1.944	.642
OP. Cost	Underwriter	.338	.117	.271	2.889	.000
	Recovery	.168	.050	.227	3.360	.657

To fit the regression model relating the set of predictor variables (liquidity, Inflation loan conditionality and operating costs) and response variable the LPP in listed commercial banks in Kenya, a multiple linear regression was performed. Multiple linear regression analysis is a statistical tool useful in predicting the behavior of dependent variable from its predictors. The multiple linear regression equation is presented as follows;

$$LPP = 7.714 + .123Liqty - 0.145Inflatn + 0.128M_{Niche} - 1.36Condlty + 0.238Opn_cost$$

Table 4.70 shows the overall regression coefficients of independent variables- bank liquidity, inflation, market niche, conditionality and operating costs, on the dependent

variable loan portfolio performance. The Beta coefficients indicate the extent to which loan portfolio change due to a unit change in the independent variable. The positive Beta coefficients indicate that a unit change in the independent variable leads to a positive change in loan portfolio performance. A negative Beta coefficient indicates an inverse effect between the variables hence a unit change in the independent variable leads to a negative change in loan portfolio performance. A unit change in inflation; market niche and operating cost cause 0.145, 0.128 and 0.238 positive change in portfolio performance respectively. On the other hand, a unit change in bank liquidity and conditionality causes negative change of loan portfolio performance of 0.123 and 0.136 respectively.

Table 4.70 presents the level of significance also called the p value. This is the coefficient that is used to test hypothesis and the significance of the independent variables. The p-value of inflation, market niche and operating costs were less than the set threshold of 0.05. This means that these variables are significant in explaining loan portfolio performance amongst listed commercial banks in Kenya. Study's null hypothesis stated that bank liquidity, inflation, market niche, conditionality and operating costs each had no influence on loan portfolio performance amongst listed commercial banks in Kenya. Based on the p value coefficients of these variables, all the study variables have a significant influence on loan portfolio performance among listed commercial banks in Kenya. Therefore, we fail to accept all the null hypotheses on liquidity, inflation, market niche, conditionality and operating costs for they have a significant positive influence on loan portfolio performance amongst listed commercial banks in Kenya. The data findings analyzed show that taking all other independent variables at zero, a unit increase in bank liquidity will lead to a 0.063 decrease in loan portfolio performance, a unit increase in bank inflation will lead to a 0.045 increase in loan portfolio performance, a unit increase in market niche will lead to a 0.128 increase in loan portfolio performance, a unit increase in bank conditionality will lead to a 0.012 decrease in loan portfolio performance while increase in operating costs will lead to a 0.238 increase in loan portfolio performance.

Table 4.70: Overall Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	7.714	2.602		2.965	.004		
	Liquidity	.123	.051	.153	2.412	.020	.909	1.100
	Inflation	-.145	.058	.136	2.500	.015	.697	1.435
	Market niche	.128	.057	.195	2.246	.027	.683	1.413
	Conditionality	.-012	-.056	.018	.214	.031	.712	1.405
	Operating cost	.238	.047	.416	5.036	.000	.767	1.304

a. Dependent Variable: Loan Portfolio Performance

To test for multicollinearity the study adopted the variance inflation factors and the tolerance levels. Table 4.71 above depict the Variance Inflation Factor (VIF) which is used to provide an index that measures how much the variance (the square of the estimate's standard deviation) of the estimated regression coefficient is increased because of multicollinearity. Kutner (2004) proposed ten (10) to be the cut off value to test for multicollinearity. On the basis of VIF values, all the variables have satisfied the set level of less than 10. This means that the data does not suffer from multicollinearity since the values are less than 10 as it is recommended that the VIF values should not exceed 10 otherwise they will be considered to be multicollinear. Based on the coefficients output, collinearity statistics bank liquidity obtained VIF value of 1.100, inflation 1.435, market niche 1.463, conditionality 1.405 and operating costs 1.304. These results show that the VIF value obtained lie between 1 and 10 hence it can be concluded that there is no severe multicollinearity effect. In the presence of multicollinearity, statistical significance of independent variables is undermined. Multicollinearity inflates the standard error (SE) of estimate of the regression coefficients of independent variables. The SE indicates the precision of the coefficient

estimates. In this regard, the lack of severe multicollinearity implies that the regression coefficients were reasonably accurate and therefore the fitted model was accurate in prediction.

Table 4.71: Summary of Hypotheses

Hypotheses		Accept/Reject
There is no significant influence of bank liquidity on loan portfolio performance	.020	Rejected
There is no significant influence of inflation on loan portfolio performance	.015	Rejected
There is no significant influence of market niche on loan portfolio performance	.027	Rejected
There is no significant influence of conditionality on loan portfolio performance	.031	Rejected
There is no significant influence of operating costs on loan portfolio performance	.000	Rejected

4.18 Discussion of Key Findings

This section discusses key finding of the study in terms of study objectives. In this study, default rate indicator is considered a proxy for quality of the loan portfolio. The main regression results demonstrated that the lending variables; liquidity, inflation, market niche, conditionality and operating costs, are all significant contributory factors to the loan portfolio quality. These findings are consisted with findings by Cotugno, Stefanelli and Torluccio (2013) who also Typically, lending is the principal business activity for most commercial banks. LPP of banking institutions depends on the effectiveness of Loan Portfolio Management (LPP). This is the process by which risks that are inherent in the credit process are managed and controlled. Assessing LPM involves evaluating the steps bank management takes to identify and control risk throughout the

credit process. The assessment focuses on what management does to identify issues before they become problems.

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 bank's safety and soundness. Loan portfolio management (LPM) is the process by which risks that are inherent in the credit process are managed and controlled.

4.18.1 Bank liquidity and Loan Portfolio Performance

Bank liquidity was assessed by three key measures namely current ratio, quick ratio and cash ratio. The study results showed that bank liquidity had moderate explanatory power on loan portfolio performance as it accounted for 40.2 percent of its variability (R-square = 0.402). The individual research findings indicated a statistically positive linear relationship between bank liquidity and loan portfolio performance (β =0.309, P-value =0.000). Hence, $H0_1$ is rejected since $\beta \neq 0$ and P-value < 0.05. Hence there is statistically significant correlation between bank liquidity and loan portfolio performance amongst listed commercial banks in Kenya. To further validate the results, the ANOVA test showed a statistically significant positive influence between the bank liquidity and loan portfolio performance (F= 27.154, p= 0.000).

The positive correction coefficient result suggests that on average, the general increase in the bank liquidity would result to sound loan portfolio in commercial banks in Kenya. Thus, increasing bank liquidity would result to sound loan portfolio in commercial banks. Indeed, this is the case considering that liquidity at a bank is a measure of its ability to readily find the cash it may need to meet demands upon it. As such banks strive to have reliable liquidity sources. More commonly liquidity comes from holding securities that can be sold quickly with minimal loss. This typically means that banks need to keep highly credit worthy securities, including government bills, which have short-term maturities. Banks should strive to keep high levels of liquidity to be able to expect them to perform in their loan portfolios. However, liquidity comes at a cost; a

bank faces a trade-off between the safety of greater liquidity and the expense of obtaining it.

Banks should try to ensure that they have sufficient liquidity to meet all relevant regulatory requirements, plus a buffer to reduce the likelihood that liquidity falls below these thresholds and triggers a regulatory or market response or creates constraints on the bank's actions. This calls for sound liquidity management by commercial banks which usually have more deposits than it can find creditworthy borrowers for. Excess funds are typically invested in assets that provide it with liquidity such as government securities.

In contrast, when banks lack sufficient deposits to fund their main business, they need to borrow the funds they need from other major lenders in the form of short-term liabilities which must be continually rolled over. Therefore, this calls for prudent liability management in order to keep sound liquidity level. Therefore, a bank's most vital asset in this situation is its creditworthiness. The rate a bank must pay to borrow will go up rapidly with the slightest suspicion of trouble- this may raise the operational cost and cost of the loan. This may explain the empirical happenings in recent years were large banks have been making increasing use of asset management in order to enhance liquidity. They have achieved this by holding a larger part of their assets as securities as well as securitizing their loans to recycle borrowed funds. Therefore, liquidity is the risk to a bank's earnings and capital arising from its inability to timely meet obligations when they come due without incurring unacceptable losses. To expect sound loan portfolio, bank management must ensure that sufficient funds are available at a reasonable cost to meet potential demands from both funds' providers and borrowers.

4.18.2 Inflation and Loan Portfolio Performance

Bank inflation was assessed by interest rates, lending rates and treasury bills rate. From these results, the explanatory power of inflation on variability of loan portfolio performance amongst listed commercial banks was moderate at 37.6 percent (R =

0.376). The individual results revealed that influence of inflation on loan portfolio performance was statistically significant ($\beta = 0.376$, P-value =0.000). Hence, $H0_2$ is rejected since $\beta \neq 0$ and P-value< 0.05. Hence it was concluded that there is statistically significant correlation between inflation and loan portfolio performance amongst listed commercial banks in Kenya. To further validate the results the ANOVA test showed a statistically significant positive influence between inflation and loan portfolio performance ($F= 23.268$, $p= 0.000$).

The result established that inflation and LPP are positively correlated. These findings suggest that during periods of high inflationary, the loan portfolio in commercial banks is generally sound. Other studies found a similar positive relationship between inflation and LPP. When bank profitability is taken as a proxy for LPP, studies by Tan and Floros (2012) found that there is a positive relationship between bank profitability, cost efficiency and inflation in China. Guru *et al*. (2002) who viewed reported inflation as a macroeconomic variable that have a positive relationship with bank profitability and performance whereas a negative relationship exists between interest rate and bank profitability. However, many other studies other studies (Namazi & Salehi, 2010) established a negative relationship.

Inflation is an external factor which triggers an internal response because it raises the cost of doing business, banks find they make less money on loans during rise in inflation. Their incomes remain the same while expenses go up, which means smaller profit margins. Consequently, banks tend to raise interest rates to compensate for their increased expenses.

Goodfriend (2016) argued that borrowers can have a harder time paying back loans as inflation rises. Their living and business expenses go up during inflationary periods, squeezing their budgets so they have less to spend. If income doesn't keep up with inflation, bank customers reach a point where they can't service their loans. Default rates can rise as a result and banks may then view the lending environment as having more risk, causing them to raise interest rates to compensate. Thus, based on this view, default

rate may rise. As such successful management of inflationary and interest rate are key managerial decision that balances between the negative effects of inflation on the banks and the positive effect of increased interest rate.

The positive relationship between inflation and portfolio performance can be argued through the demand-supply view point. Keynes (2016) argued that when companies experience inflation they have to spend more money to operate. They pay higher prices for supplies, raw materials, shipping and these increased costs can cause them to borrow money for growth and expansion rather than financing it themselves. That makes for increased loan demand, which can cause banks to raise their interest rates. Since they only have limited amounts to loan, banks see the increased demand as an opportunity to make more money from what they have. Therefore, the higher business costs that result from inflation can translate into higher interest rates and loan portfolio.

It is also argued that banking sector's profitability from lending activities increases with interest rate hikes during inflation. This is the case especially in the commercial banks which have massive cash holdings due to customer balances and business activities. Therefore, the observed positive relationship between inflation and loan portfolio performance is explained by the indirect effect of inflation via interest rate hike.

4.18.3 Market Niche and Loan Portfolio Performance

Bank market niche was assessed by large corporate, small and medium enterprises and retail enterprises. As presented in Table 4.45 the aggregate mean score of market niche measures (independent variable) were regressed against the aggregate mean scores of loan portfolio performance. The empirical results depicted in Table 4.48 shows that bank market niche had moderate explanatory power on loan portfolio performance as it accounted for 43.1 percent of its variability (R square =0.431). The individual research findings in Table 4.49 indicated a statistically positive linear relationship between bank market niche and loan portfolio performance (β= 0.338, P-value = 0.000). Hence, $H0_3$ is rejected since $\beta \neq 0$ and P-value < 0.05. Hence, there is statistically significant

correlation between bank market niche and loan portfolio performance amongst listed commercial banks in Kenya. To further validate the results the ANOVA test showed a statistically significant positive influence between the bank market niche and loan portfolio performance (F= 32.190, p= 0.000).

The above empirical results suggest that commercial banks with sound loan portfolio are generally associated with banks that have an effective niche market strategy. In niche market strategy, banks cater and serve the needs of a certain demographic segment of the population. They typically target a specific market or type of customer, and tailor a bank's advertising, product mix and operations to this target market's preferences. In this case they target particular segment of loan customers. This strategy is advantageous; efficient and cost effective (Miklaszewska & Wachtel, 2016).

As one of several key findings of a Booz Allen &Hamilton study (cited by Tung & Carlson, 2015) of retail banking best practices shows, top-performing banks around the world tailor their services across all channels to adapt to the preferences of a small segment. Banks can segment their clients in terms of income levels and tailor their service to serve those market segments differently.

Indeed, one study has noted that mass affluent customers are roughly 30 times more profitable than those of the mass market. The findings suggest that commercial banks seeking to enhance their loan portfolio performance, developing offerings to attract particular and not mass market of customers may be the key to raising their profile and reducing their cost-to-income ratios.

4.18.4 Bank Conditionality and Loan Portfolio Performance

Bank conditionality was assessed by loan security, lending policy and credit assessment. The indicators of bank conditionality taken into consideration included the collateral security requirement, lending policy and credit analysis. Bank conditionality accounted for 8.5% (R square= .085, see table 4.51) of variability in loan performance).

Conditionality had a significant influence on loan portfolio performance (beta=-.136, p<.05) based on the multiple regression result. Hence, $H0_4$: is rejected since $\beta \neq 0$ and P-Value < 0.05). Therefore, statements on the influence of conditionality variable were concluded to be statistically significant in explaining loan portfolio performance in listed commercial banks in Kenya.

The result suggest that appropriate use of bank lending conditions and policies would in commercial banks will in most cases be accompanied by sound loan. As such good loan portfolio managers should direct their effort on prudently approving loans and carefully evaluating risks associated with lending. They can achieve this through creating effective credit analysis tools, setting appropriate collateral requirement and effective policies loaning policies that are strictly adhered to.

As suggested by Norden, Buston and Wagner (2014), effective management of the loan portfolio's credit risk requires that the board and management understand and control the bank's risk profile and its credit culture and policies. To accomplish this, successful bank management have a thorough knowledge of the portfolio's composition and its inherent risks. They are individual capable to understand the portfolio's product mix industry and geographic concentrations, average risk ratings, and other aggregate characteristics. They must be sure that the policies, processes, and practices implemented to control the risks of individual loans and portfolio segments are sound and that lending personnel adhere to them.

Once banks lend out to customers, they are exposed to the risk of repayment, is either lessened or increased by a bank's credit risk management practices. In the handbook by Golin and Delhaise (2013), they shed light that bank's first defense against excessive credit risk is the initial credit-granting process − sound underwriting standards, an efficient, balanced approval process, and a competent lending staff. And given that a bank cannot easily overcome borrowers with questionable capacity or character, these factors exert a strong influence on credit quality, they concluded.

On that note, loan quality would definitely be impacted on by the adherence to lending conditionalities. Thus, these empirical findings make sense that lending conditionalities significantly underpin the loan portfolio performance in commercial banks. As such banks to have sound portfolio and be able to invest the bank's funds profitably for the benefit of shareholders and the protection of depositors, the lending conditionalities has to be fool-proof. Based on this view, performance-oriented management target to effectively determine whether the risks associated with the bank's lending activities are accurately identified and appropriately communicated to senior management and the board of directors, and, when necessary, whether appropriate corrective action is taken.

4.18.5 Operating Costs and Loan Portfolio Performance

Operating cost was assessed by loan initiation costs and loan recovery costs. From Table 4.65individual study results reveal that there was statistically significant positive linear relationship between operating cost and loan portfolio performance ($\beta = 0.488$, P-value = 0.000). Hence, $H0_5$ is rejected since $\beta \neq 0$ and P- value <0.05. Hence there is statistically significant correlation between operating cost and loan portfolio performance amongst listed commercial banks in Kenya. To further validate the results the ANOVA test showed a statistically significant positive influence between operating costs and loan portfolio performance ($F= 44.110$, $p= 0.000$).

Empirical evidence presented here strongly suggests that operating costs and loan portfolio are linearly related. As the operating costs of commercial banks increase within certain limits, the loan portfolio performs better. Operating cost includes all expenses relating to the ordinary and regular banking business other than interest expenses, fee and commission expenses. According to Ongore and Kusa (2013) who investigated the determinants of financial performance of commercial banks in Kenya, controlling operating costs is closely related to the concept of managerial efficiency or productive efficiency.

Equally significant are customers' fast changing interests and preferences in terms of banking products and services, particularly the channels they use to access these products. These changing preferences are generating a constant demand for new technological capabilities, which carry their own cost pressures. Banks must not only invest time, money, and resources into acquiring technology to provide better mobile access, they also must devote even more resources to address the significant security risks these new platforms introduce.

It is important to recognize that long-term efficiency is impossible to achieve without a corporate culture that supports and values it. This requires a visible commitment from top management to balance value and cost, reduce unnecessary expenditures, and implement metrics and accountability that encourage individual attention to cost reduction and efficiency. Good management should therefore be cost effective.

Operating expenses represent an element that is as important in determining the level of bank performance. Indeed, related studies established a positive relationship between the quality of management and the level of bank performance. For instance, Athanasoglou et al. (2008) found a positive relationship between efficiency and loan performance of Greek banks. This result is explained by the fact that efficient banks are those able to use their resources appropriately in administration and monitoring of loans and investing in technologies, resulting in better analysis of lending variables, better scrutiny of potential customers and therefore reduced default rates. Consequently, the result is sound loan portfolio performance.

In summary, liquidity, market niche strategy, lending conditionalities and operating costs are determinants of LPP. They are therefore significant determinants of the overall state of financial performance sector.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the research findings, relevant discussions, conclusions and recommendations. The study sought to investigate the influence of interest rate spread on loan portfolio performance amongst listed commercial banks in Kenya. Specifically; the study investigated the influence of liquidity, inflation, market niche, bank conditionality and operating cost on loan portfolio performance amongst listed commercial banks in Kenya. The presentation was therefore organized around the specific objectives and the research hypotheses. The conclusions are in tandem with the objectives and research hypotheses. The recommendations refer to suggestions for further study or proposal for change.

5.2 Summary of Findings

After conducting the research and comprehensively analyzing the findings, it was possible to prudently derive with certainty various conclusions and recommendations.

5.2.1. Bank liquidity and Loan Portfolio Performance

The first objective sought to establish whether bank liquidity had an influence on loan portfolio performance amongst listed commercial banks in Kenya. The indicators of bank liquidity taken into consideration included leverage ratio, operational assets, deposits held by banks, non-performing loans, cash over current liabilities, short term marketable securities, fixed deposits and cash flow cycle. Descriptive and inferential statistical methods were used to arrive at the findings where deductions and relationships were established. Liquidity was found to explain 16.1% (R square =.161, see table4.23) of variability in loan portfolio performance amongst listed commercial banks in Kenya as indicated by coefficient of determination, R-squared. Liquidity had a significant

influence on loan portfolio performance (beta=.123, p<.05) based on the multiple regression result. Therefore, statements which sought influence of liquidity variable were concluded to be statistically significant in explaining loan portfolio performance in listed commercial banks in Kenya.

The significance relation between bank liquidity and portfolio performance implied that, holding other portfolio performance determinants constant, as the liquidity level increases there is a corresponding increase in portfolio performance. In this regard the bank's portfolio is sound in terms of quality loans. The bank is thus able to meet the loan demands to both customers of diverse categories. Optimal levels of liquidity in bank give a bank a sound portfolio that is necessary in creating a competitive edge in number of ways (Tung & Carlson, 2015).

A sound portfolio is critical in creating more opportunities, example it can help banks steer away from densely populated industry sectors and discover underserved markets, such as the secondary market for manufactured home loans. Not only will sound loan portfolio expose a bank to a larger investment universe with a wider selection of asset classes, but it will also provide more attractive and lucrative opportunities for growth. Again, the growing size of the portfolio will enable a bank to adding new asset classes that will lead to a concentrated portfolio with a high-risk level. But it can use the portfolio to builds a diversified portfolio, as such only some of its segments will be threatened by negative economic events. This will make the bank less susceptible to failure.

For that reason, banks that maintain the optimal level of liquidity are more likely to witness enhanced loan portfolio. The findings thus call for effective liquidity planning strategy in banks to achieve optimality in bank liquidity. In line with the liquidity preference theory suggests that an investor prefer cash or other highly liquid holdings during lending. They demand a higher interest rate, or premium, on securities with long-term maturities, which carry greater risk, because all other factors being equal, Investments that are more liquid are easier to sell fast for full value.

This strategy liquidity includes the identification of those loans or loan portfolio segments that may be easily converted to cash. A loan's liquidity hinges on such characteristics as its quality, pricing, scheduled maturities, and conformity to market standards for underwriting. Loans are also a source of liquidity when used as collateral for borrowings. The ease with which a bank can participate or sell loans to other lenders or investors vary with market conditions, the type of loan, and the quality of loan. Information provided for liquidity analysis should include an assessment of these variables under various scenarios.

The liquidity preference theory suggests that an investor demands a higher interest rate, or premium, on securities with long-term maturities, which carry greater risk, because all other factors being equal, investors prefer cash or other highly liquid holdings. Investments that are more liquid are easier to sell fast for full value

5.2.2 Inflation and Loan Portfolio Performance

The second objective sought to establish whether inflation has an influence on loan portfolio performance amongst listed commercial banks in Kenya. The indicators of inflation taken into consideration were the increase in interest rates, Lending rates and Treasury bill rate. Inflation accounted for 14.2% (R square =.142, see table4.33) of variability in loan portfolio performance. Inflation had a significant influence on loan portfolio performance (beta=-.145, $p<.05$) based on the multiple regression result. Therefore, statements which sought influence of liquidity variable were concluded to be statistically significant in explaining loan portfolio performance in listed commercial banks in Kenya.

The findings suggested that at high inflation rate, the overall loan performance increases. The findings are in line based on the view that inflation leads to an increase in bank performance as long as the banks can be able to anticipate future inflation and adjust interest rate to generate higher revenue than cost which leads to higher profit and performance as a result of adjusting the rate of interest. This explains the positive

relationship observed between inflation and LPP. The other view is that inflation affect the purchasing power and bank exchange rate regime, opportunity cost of holding currency in the future, worsen loans policy, disrupt business plans and the equity holding performance of banks. Based on this view, inflation and LPP can exhibit a negative relationship.

Inflation is also known to worsen the loans policy which affects the performance of banks as a result of withdrawals by depositors from the banking system. This reduces bank resources thereby decreasing a large proportion of their profitability as a proxy of LPP. In other words, it reduces the in-and-out flow of loans and advances since banks may not want to lend except at a higher interest rate which discourages borrowing. Based on these findings, inflation acts as a drag on overall performance as banks are usually compel to shift their resources from more productive activities simply to focus on profit and losses from currency inflation.

Therefore, the empirical findings on the effect of inflations on banking performance as a proxy for portfolio performance, is a mixed one, even though, a greater proportion of the findings revealed a negative relationship. The current study belongs to the family of studies which established a positive relationship.

5.2.3 Bank Market Niche and Loan Portfolio Performance

The third objective sought to establish whether bank market niche has an influence on loan portfolio performance amongst listed commercial banks in Kenya. The indicators of market niche taken into consideration included Size of loan, increase in interest rates, Negotiation skills, Repayment period, increase in SME clients, Increase in retail enterprise, Repayment Pattern, Frequency of loan default by SME. Market niche explained about 18.6% (R square = .186, see table4.42) of the performance variability in commercial banks in Kenya. Market niche had a significant influence on loan portfolio performance (beta=.128, $p<.05$) based on the multiple regression result. Therefore,

statements on the influence of liquidity variable were concluded to be statistically significant in explaining loan portfolio performance in listed commercial banks in Kenya

A market niche strategy and LPP were significantly related. A bank management that is performance-oriented crafts an effective market niche strategy that that serves their different customers well. Effective market segmenting help in risk analysis through identifying borrowers whose loans have heightened sensitivity to interest rate changes and develop strategies to mitigate the risk. One method is to require vulnerable borrowers to purchase interest rate protection or otherwise hedge the risk as suggested by Tung and Carlson (2015).

Example it is common to see commercial banks offering differentiated service that evokes a sense of exclusivity to the affluent customers. They set the best retail bank branches that not only provide a hotel lobby–style appearance but also interactive information. Banks achieve this sense of exclusivity by creating a separate floor for the mass affluent to do their banking. These customers generally take huge loans and are well guided by trained and informative bank employees who have immediate access to customer and product information. These employees offer these specialized services at a premium. As such, customer needs are served better. And thus, the observed positive relationship between effective niche market and sound loan portfolio is thus justified.

5.2.4 Bank Conditionality and Loan Portfolio Performance

The fourth objective sought to establish whether bank conditionality affect loan portfolio performance among commercial banks in Kenya. The indicators of bank conditionality taken into consideration included the collateral security requirement, lending policy, and credit analysis. Bank conditionality accounted for 8.5% (R square= .085, see table4.51) of variability in loan performance). Conditionality had a significant influence on loan portfolio performance (beta=-.012, $p<.05$). based on the multiple regression result. Therefore, statements on the influence of conditionality variable were concluded to be

statistically insignificant in explaining loan portfolio performance in listed commercial banks in Kenya.

Lending conditionalities had a significant relationship with LPP. Lending conditionalities include but not limited to the loaning conditions, process analysis, risk analysis, creditworthiness and risk analysis, customer credit rating information from reference bureau in a country. The purpose is to increase the probability of repayment of the loan with minimum default rate. Banks with technological knowhow, resources and expertise to use in setting up effective lending conditionalities are expected to experience good loans returns in terms increased revenue as one of the indicators of LPP.

The increased revenues so obtained will not only be available for expansion and diversification in the organizations, but also for better analysis of other competitive and innovative initiatives in the financial sector. Banking management with a culture of effective lending conditionalities realizes increased revenues and decreased default rate (Li, Niskanen, Kolehmainen & Niskanen, 2016).

On that note, banks growth and competitiveness hinges on the adherence to lending conditionalities by the stakeholders. As such, banks to have sound portfolio that enable it to invest the funds profitably for the benefit of shareholders, the lending conditionalities has to be fool-proof. Based on this view, performance-oriented management target to effectively determine whether the risks associated with the bank's lending activities are accurately identified and appropriately communicated to senior management and the board of directors, and, when necessary, whether appropriate corrective action is taken.

5.2.5 Operating Costs and Loan Portfolio Performance

The fifth objective sought to establish whether operating costs has an influence on loan portfolio performance amongst listed commercial banks in Kenya. The indicators of

operational cost taken into consideration loan initiation costs, training costs, loan monitoring expenses, bank legal action bank underwriting costs and bank recovery cost.

Operating costs accounted for 30.3% (R square= .303, see table4.51) of variability in loan performance. On the basis of the multiple regression result (equation 5), operating costs had a significant influence on loan portfolio performance (beta=-.238 $p<.05$). Therefore, statements on the influence of operating cost variable were concluded to be statistically significant in explaining loan portfolio performance in listed commercial banks in Kenya.

Operating cost had a significant negative influence on LPP in commercial banks. At high operating cost the LPP is poor. The aim of these commercial banks to achieve organizational success and thus be engines of development in a Kenya, the management puts in place cost cutting measures that keeps the cost at optimal level. In large banks, the management is not only required to put in place cost cutting initiatives measures, but also to take advantages of economies of scale.

However organizational success and improved financial performance require more than just cutting costs. A successful organization must be able to provide customers with value and service at a cost that allows it to be competitive while still generating an acceptable return. The capital strength of a bank is of paramount importance in affecting its profitability.

5.3 Conclusions

The conclusions were based on the objectives of the study; the influence of interest rate spread on loan portfolio performance amongst listed commercial banks in Kenya.

5.3.1 Bank Liquidity (Current, cash ratio) and Loan Portfolio Performance

A simple linear regression involving liquidity indicators (current ratio and cash ratios) and loan portfolio performance indicated that current ratio (β =0.771, $p<0.05$) and cash

ratio (β =0.774), p<0.05) had significant positive influence on loan portfolio performance (table4.24). Therefore, it is concluded that high current and cash ratios level will result to high portfolio performance. Loan portfolio performance positively and significantly correlated with both liquidity indicators; current ratio (r=.317, p<.05) and cash ratio (r=.443, p<.05). Therefore, it was concluded that there is a significant positive relationship between bank liquidity and loan portfolio performance amongst listed commercial banks in Kenya. This means that banks with high current and cash ratios tend to record high loan portfolio performance.

5.3.2 Inflation and Loan Portfolio Performance

Simple linear regression established that the indicators of inflation; treasury bills (β = 1.364, P=0.000) and interest rate (β = 1.659, p =0.000) significantly influenced loan portfolio performance. Hence, $H0_2$ is rejected since $\beta \neq 0$ and P-value< 0.05. Treasury bills and interest rate correlated positively with loan performance. Therefore, loan portfolio amongst listed commercial banks in Kenya tends to be high under situations of high interest rate and treasury bills. Therefore, inflation is a significant determinant of bank inflation and loan portfolio performance amongst listed commercial banks in Kenya.

5.3.4 Market Niche and Loan Portfolio Performance

Loan size, as measures of market niche, positively correlated with loan portfolio performance amongst listed banks in Kenya (r=.305, p<.050). Therefore, banks with high loan size tend to also have high loan performance portfolio. Loan default was negatively correlated with loan p performance (r=-.268, p<.05). Therefore, it is concluded that banks in Kenya with high incidents of loan default tend to have poor loan portfolio. It can generally be concluded that there is a statistically significant association between bank market niche and loan portfolio performance. Both simple and multiple linear regression established that the two indicators of market niche significantly influenced loan portfolio. Accordingly, the performance level of loan portfolio recorded

in commercial banks was determined to a great extent by the amount loaned out to clients and number of loan default cases. Therefore, loan portfolio performance of these sampled banks was influenced to a significant extent by market niche.

5.3.4 Bank Conditionality and Loan Portfolio Performance

Loan collateral requirements, an indicator of bank conditionality, correlated with loan portfolio performance. However, the correlation was not significant ($r=.124$, $p>.05$). This meant that collateral requirement was not an indicator of loaning portfolio level. However, loan portfolio performance was found to positively and significantly correlate with both loan policies ($r=.177$, $p<.05$) and credit analysis ($r=.299$, $p<.05$). Banks that are characterized by strict lending terms based on industry (bank) standards and with sound credit management policies are associated with sound loaning portfolio. Therefore, lending policies and credit as proxies of loan conditionality are associated with loaning portfolio. Loaning conditionality had a significant influence on loan portfolio performance when other factors were considered in a multiple regression. Therefore, loaning conditionality amongst the listed commercial bank had a significant influence on the loaning portfolio.

In any lending organization, loan policy is the primary means by which senior management and the board guide lending activities. Although the policy primarily imposes standards, it also is a statement of the bank's basic credit philosophy. It provides a framework for achieving asset quality and earnings objectives, sets risk tolerance levels, and guides the bank's lending activities in a manner consistent with the bank's strategic direction. Loan policy sets standards for portfolio composition, individual credit decisions, fair lending, and compliance management

5.3.5 Operational Cost and Loan Portfolio Performance

Portfolio performance of sampled banks correlated with operational cost indicators; that is, underwriter ($r=.426$, $p<.05$) and recovery and recovery ($r=.464$, $p<.05$, see table 4.58). Therefore, banks that are characterized by high levels of underwriting and recovery tend to record sound loaning portfolio. As such banks that score highly in underwriter and recovery also record sound loan portfolio. Regression result depicted that loan portfolio performance in the sampled commercial banks, was significantly influenced by operational costs (beta=.238, $p<.05$). Thus, this study concludes that operational cost in the listed commercial banks had a significant influence on loan portfolio performance.

5.4 Recommendation

The study makes several recommendations to the government, policy makers and bankers based on the findings of the study and as per the specific objectives. From these research findings, the study recommends that;

Policymakers should devise new standards establishing an appropriate level of liquidity for banks, helping to ensure adequate stability for the overall financial system; the empirical results of this study suggest they should bear in mind the trade-off between resilience to liquidity shocks and the cost of holding lower-yielding liquid assets. According to the theory of liquidity preference commercial banks should maintain long term securities for they provide higher returns than short term obligations. Also, loan to asset ratio should be reduced. In granting loans, they should always be cautious of the value of their assets. Reducing ratio of loan to asset would help banks generate greater profitability and enhance loan portfolio performance.

The government should ensure existence of stable political and macroeconomic environment. Interest rates, treasury bills rates and lending rates were mentioned as major components of inflation which has been found to have significant influence on

loan portfolio performance of listed commercial banks in Kenya. Based on the findings, the study recommends that banks should do well to reduce interest rate on loans. Reducing interest rate on loans make loans less expensive; thus, reducing the risk on borrower's ability to pay the interest due to an increased ability of borrowers to meet their obligations. This reduces the number of loan default and hence boasts loan portfolio performance.

Listed commercial banks must consider the needs and wants of different market segment before determining its niche. Listed commercial banks in Kenya should assess their clients and charge interest rates accordingly, as ineffective interest rate policy can increase the level of interest rates and consequently non- performing assets.

Since operating costs have been found to have a significant influence on loan portfolio performance there is need for the listed commercial banks to put in place stringent measures to ensure that these costs are closely monitored and kept at reasonable and acceptable levels. Commercial banks should also explore investment in cost-saving and efficient forms of technology to reduce operating costs. Also, bank managers should also try to anticipate higher level of losses (bank's loan loss provision) by making stringent policies so as to minimize anticipated loss. As a result, bank managers would always try to minimize the expected loss so as to boast loan portfolio performance.

5.4.1 Policy Implications

The central bank should apply stringent regulations on interest rates charged by banks so as to regulate their interest rate spread. Commercial banks should also apply rigorous policies on loan advances so as loans are awarded to those with ability to repay and mitigate moral hazards such as insider lending and information asymmetry. Banks should apply efficient and effective credit risk management that will ensure that loans are matched with ability to repay, no or minimal insider lending, loan defaults are projected accordingly and relevant measures taken to minimize the same. The banks should also enhance regular credit risk monitoring of their loan portfolios to reduce the

level of non-performing assets. Interest rate is inevitable in the financial sector since it is the only way of rewarding depositors and meeting the costs in commercial banks. The difference between lending and deposit rate can however be controlled.

5.4.2 Managerial Implications

Commercial banks should also explore internally and industry driven strategies to mitigate against or counter some of the bank-specific factors associated with higher spreads such as diversification of products to reduce reliance on interest income and the associated risks and also investment in cost-saving and efficient forms of technology to reduce operating costs. Commercial banks should increase the range of alternative investments available to institutional investors which would improve their flexibility in managing both long term and short-term investments since high-concentration deposits from large depositors are able to distort spreads based on their leverage with the individual bank. Listed commercial banks in Kenya should participate in the interbank market or use the repurchase agreement for government securities to reduce their liquidity risk as it was mentioned to be the greatest source of fear and hence uncertainty in setting high interest rates which consequently influences loan portfolio performance.

5.5 Areas for Future Research

The high beta coefficient of constant in this study shows that there are other factors which were not included in the statistical model used which could be influencing the loan portfolio performance amongst listed commercial banks in Kenya. It is recommended that further studies be undertaken that will consider the effect of other factors on loan portfolio performance by incorporating more financial and accounting variables and also considering the prevailing macroeconomic situation in the country.

This study only concentrated on listed commercial banks in Kenya due to time and resources constraints and this limited the generalizability of the results. Hence caution should be taken when generalizing these findings to other financial institutions in the private sector and also to other countries of the world. Therefore, more research is recommended

in other financial institutions and a comparative study of the same between the listed commercial banks and other financial institutions covering a longer period of time than the five-year period adopted by this study. This would improve the validity of the results and mitigate the limitations of the scope.

The study employed both primary and secondary data. The challenges of using both secondary and primary data can be minimized by choosing to use either secondary or primary data at a time. A detailed study on loan portfolio performance is recommended using secondary data which is both authentic and readily available from the official data archives. This can allow for a longitudinal study to be undertaken that covers a longer period across different sectors.

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APPENDICES

Appendix I: Letter of Introduction

Dear Sir/Madam

RE: RESEARCH QUESTIONNAIRE

My name is Stephen Munyoki Mwanzia, a PhD candidate in the School of Human Resource Development at the Jomo Kenyatta University of Agriculture and Technology (JKUAT). I am pursuing a PhD Degree in Business Administration- Finance Option. As a requirement for the fulfillment of this degree course, I am expected to conduct a research thesis and my research is titled "Influence of interest rate spread on loan portfolio performance amongst listed commercial banks in Kenya". You have been selected to participate in this study by filling in the questionnaire to enable the collection of the needed data for analysis. The information collected will be used for academic research only and will be treated with utmost confidentiality and care.

Thanking you in advance for your co-operation.

Yours Sincerely,

Stephen M. Mwanzia

Cell number +254722 366 637 or email: mwanzias@yahoo.com.

Student/Researcher

Appendix II: Questionnaire

My name is Stephen Munyoki Mwanzia, a PhD candidate in the college of Human Resource Development at the Jomo Kenyatta University of Agriculture and Technology (JKUAT). I am conducting a research study concerning "*influence of interest rate spread on loan portfolio performance amongst listed commercial banks in Kenya*." I have selected you as my study respondent. Please, take a few minutes to answer the questions in this questionnaire. The information collected will be used for academic purposes and will be treated with utmost confidentiality and care. Your participation in responding to the questionnaire will be highly appreciated. Each section of the questionnaire has statements, please tick the statement which describes your opinion on each statement.

PART A: General Questions

1.Kindly name your Commercial Bank	
2. What position are you in this bank?	☐ Top level management ☐ Middle level management ☐ Operational management ☐ Others specify
3. For how long have you worked in this bank?	☐ Below 5 years ☐ 6-10 years ☐ 11-15years ☐ 16-20years ☐ Over 20 years
4. What is your highest level of education qualification?	☐ Post graduate ☐ Under Graduate ☐ Diploma ☐ Secondary ☐ Other specify
5.Kindly tick your largest client portfolio managed	☐ Individual clients ☐ Corporate clients ☐ Government Agencies ☐ Others

PART B: SPECIFIC OBJECTIVES

Kindly use the following rating criteria:

Strongly disagree	**1**
Disagree	**2**
Neutral	**3**
Agree	**4**
Strongly agree	**5**

6.0 Bank Liquidity

6.1 Please indicate with a tick the extent to which bank liquidity affects loan portfolio performance.

	Liquidity Indicators	**1**	**2**	**4**	**4**	**5**
A.	**Current Ratio**					
A1.	In this bank the current ratio is normally high (more than 1 to 1.)					
A2.	This company is capable to pay its current liabilities comfortably when due using the current assets					
A3.	This company's current liabilities are less compared to current assets					
B.	**Quick Ratio**					
B1.	In this company the quick ratio is normally high (more than 1 to 1.)					
B2	The quick ratio in this organization is central in decision-making					
B3	Quick ratio is key consideration on loaning decisions					
C..	**Cash Ratio**					
C1.	This bank has a normally high cash ratio					
C2.	The company keeps substantially high amounts of cash and near-cash to cover its liabilities					
C3	The cash ratio is one of the key considerations in decision-making on loaning					

	Inflation Indicators	**1**	**2**	**3**	**4**	
D. D1.	**Interest Rates** This bank has the lowest (most competitive) interest rate in the market					
D2.	Potential loan takers greatly consider interest rate as the key factor in their decision					
D3	In this bank, interest rate is stable over a reasonably long period					
E E1.	**Lending Rates** Fixed lending rates in this bank has been our reason of our level of loan performance					
E2.	Customers values and makes their decisions based on our adjustable lending rates					
E3.	Lending rates adopted by our bank are quite competitive in the market					
F. **F1.**	**Treasury Bills** Movement in treasury bills rates in this bank leads to a significant movement in loans					
F2.	Treasury bills rates in this bank are competitive in the market					
F3.	Fluctuations in treasury bills rates have a great influence on loan portfolio					

	Bank market niche	1	**2**	**3**	**4**	**5**
G. G1.	The quality of a loan given depend on the size on the market segment (corporate, SME or retail)					
G2.	Segmenting customers improves quality of our loans					
G3.	Corporate loans are of higher quality than those of SME and retail enterprises					
H. **H1.**	Small and Medium Enterprises loans are of high quality than corporate or retail loans					
H2.	Retail loans are of high quality than SME or corporate					
H3	Rate of loan default depend on the market segment of the customer					
I. **I1**	The retail enterprises' clients are more than SME or corporate clients					
I2	The loan repayment pattern influences loan repayment performance					
I3	The frequency of loan default by retail enterprises has a great influence on loan portfolio performance.					

8.2 Please state any other factors not listed above but relevant to your institution market niche that affects loan portfolio performance

……
……
……

9.0: Bank Conditionality

9.1 Please indicate the extent to which bank conditionality affects loan portfolio performance.

	Bank loan conditionality	**1**	**2**	**3**	**4**	**5**
J J1.	**Loan security** The collateral security policies are strictly adhered to in this bank					
J2.	Collateral requirement reduced loan default cases					
J3.	Unsecured loans have a high-risk default.					
K. K1.	**Loan volume** Big loan size attracts high returns to the bank					
K2.	In this bank loan size lending policies significantly influences loan repayment					
K3.	The bigger the loan the higher the chances of default.					
L. L1.	**Credit assessment** There are effective customer credit analysis mechanisms in this bank					
L2.	There is regular review and classification of loans in this bank					
L3	Credit worthiness of potential customers in this bank is a key determinant of quality of loan.					

9.2 Please list any other important factors relating to your bank's policy that affects loan portfolio performance which are not listed above

……

……

……

10: Operating Cost

10.1 Please indicate the extent to which operational costs affects loan portfolio performance.

	Operating Costs	1	2	3	4	5
M. M1.	**Loan initiation costs** There are training cost on detailed procedure					
M2.	The is increase of loan initiation costs in this bank					
M3.	There are substantial training expenses on loaning in this bank					
N1.	**Loan monitoring costs** The loan monitoring expenses are adequately provided for in the budget					
N2.	Significant loan monitoring expenses are always incurred by the bank.					
N3.	Loan monitoring costs reduces the level of default risk					
O. O1.	**Loan recovery costs** In this bank, legal expenses on loan issues is adequately provided for					
O2.	The Underwriting costs have been effective on loan issues					
O3.	The loan recovery expenses are effectively utilized					

10.2 Please list any other important factors contributing to your bank's total costs which affect loan portfolio performance and are not listed above

……

……

……

11.0: Loan Portfolio Performance

11.1 Please rate the following measures of loan portfolio performance and indicate to what extent each has affected Loan portfolio performance.

	Measures of loan portfolio performance	**1**	**2**	**3**	**4**	**5**
P1	The bank has low proportion of loan default cases					
P2	There is adequate loan portfolio growth in this bank					
P3	There is effective loan repayment mechanism in place					
P4	There is low non-performing loans in this bank					
	Loans are key drivers of the bank's growth plan					
P5	There is substantial returns arising from selling loans					

Appendix III: List of Commercial Banks

1.African Banking Corporation Ltd.	23. First Community Bank Ltd
2.Bank of Africa Kenya Ltd.	24.Giro Commercial Bank Ltd.
3.Bank of Baroda(K) Ltd.	25. Guardian Bank Ltd.
4.Bank of India	26.Gulf African Bank Ltd.
5.Barclays Bank Kenya Ltd.	27.Habib Bank A.G Zurich
6.CFC Stanbic Bank Ltd.	28.Habib Bank Ltd.
7.Charterhouse Bank Ltd.	39.Imperial Bank Ltd.
8.Chase Bank(K) Ltd.	30.I&M Bank Ltd.
9.Citibank N.A Kenya	31.Jamii Bora Bank Ltd.
10.Commercial Bank of Africa Ltd.	32. Kenya Commercial Bank Ltd.
11.Consolidated Bank of Kenya Ltd.	33. K-Rep Bank Ltd.
12.Co-operative Bank of Kenya Ltd.	34. Middle East Bank(K) Ltd.
13.Credit Bank Ltd.	35.National Bank of Kenya Ltd.
14.Development Bank of Kenya Ltd.	36.NIC Bank Ltd.
15.Diamond Trust Bank Kenya Ltd.	37. Oriental Commercial Bank Ltd.
16.Dubai Bank Kenya Ltd.	38. Paramount Universal Bank Ltd.
17.Ecobank Kenya Ltd.	39. Prime Bank Ltd.
18.Equatorial Commercial Bank Ltd.	40. Standard Chartered Kenya Ltd.
19. Equity Bank Ltd.	41.Trans-National Bank Ltd.
20. Family Bank Limited.	42.UBA Kenya Bank Ltd.
21. Fidelity Commercial Bank Limited	43.Victoria Commercial Bank Ltd.
22. Fina Bank Ltd.	44 Housing Finance Ltd.

(Source: Central Bank of Kenya, 2015)

Appendix IV: Commercial Banks Listed in NSE

1.Barclays Bank Ltd

2.CFC Stanbic Holdings Ltd

3.I&M Holdings Ltd

4.Diamond Trust Bank Kenya Ltd

5.Housing Finance Co Ltd

6.Kenya Commercial Bank Ltd

7.National Bank of Kenya Ltd

8.NIC Bank Ltd

9.Standard Chartered Bank Ltd

10.Equity Bank Ltd

11.The Co-operative Bank of Kenya Ltd

(Source, CMA)

Appendix V: Loan Portfolio Performance Measures

ROI

	2012	2013	2014	2015	2016
BARCLAYS	1.564393	2.047822	1.525573	1.269567	5.101316
CFC BANK	14.35601	11.10893	15.56232	10.07145	8.349236
DTB	9.564327	12.34216	14.45971	11.94523	13.45218
EQUITY	27.6232	29.16532	30.72319	13.07777	17.72222
HFCK	1.347629	1.231544	1.548796	1.546783	1.453279
I & M	16.36722	21.43765	24.64959	18.89466	27.34828
KCB	12.84958	17.94386	23.54632	34.73256	16.43277
NBK	23.8675	21.56483	23.76855	28.91284	34.87464
NIC	13.45673	23.7564	23.87966	35.74645	23.78643
STANDARD	34.87563	36.87563	37.98747	21.86743	23.86745
CO-OP	21.4	27.4	20	25	22.7

ROA

	2012	2013	2014	2015	2016
BARCLAYS	0.013781	0.017895	0.016027	0.019678	0.017682
CFC BANK	0.031828	0.04002	0.042543	0.035305	0.020584
DTB	0.030031	0.031412	0.026985	0.024299	0.045367
EQUITY	0.071635	0.068426	0.064904	0.055968	0.056342
HFCK	0.022161	0.031238	0.022976	0.02447	0.034521
I & M	0.039611	0.051401	0.046638	0.053033	0.076542
KCB	0.04684	0.045404	0.045605	0.042008	0.045124
NBK	0.017227	0.019579	0.010587	-0.01306	0.015474
NIC	0.041698	0.04138	0.04274	0.038587	0.034654
STANDARD	0.059156	0.060597	0.064478	0.039151	0.04679
CO-OP	0.049773	0.047023	0.038249	0.044914	0.037

Appendix VI: Liquidity Ratios

Current Ratio

	2012	2013	2014	2015	2016
BARCLAYS	1.041302	1.049973	1.051053	1.062481	1.062504
CFC BANK	1.234893	1.218966	1.256032	1.22556	1.229979
DTB	1.15943	1.166305	1.179966	1.164187	1.143548
EQUITY	1.21431	1.227948	1.227125	1.202672	1.334259
HFCK	1.143421	1.141091	1.120561	1.174037	1.17649
I & M	1.154946	1.201476	1.189448	1.213423	1.326901
KCB	1.16985	1.193452	1.182379	1.1704	1.182756
NBK	1.184287	1.147376	1.110257	1.096633	1.347567
NIC	1.166708	1.169758	1.190727	1.18894	1.143569
STANDARD	1.186834	1.196577	1.223596	1.214057	1.436853
CO-OP	1.171515	1.187966	1.176799	1.168158	1.16544

Quick Ratio

	2012	2013	2014	2015	2016
BARCLAYS	0.11106	0.107404	0.097342	0.132788	0.1451
CFC BANK	0.309559	0.36884	0.194638	0.286336	0.303234
DTB	0.252894	0.210568	0.215924	0.256032	0.175835
EQUITY	0.225467	0.347521	0.699303	0.233365	0.284224
HFCK	0.376521	0.325487	0.376497	0.653902	0.432804
I & M	0.032799	0.019284	0.082375	0.063473	0.083275
KCB	0.034279	0.054673	0.034522	0.012365	0.027365
NBK	0.065749	0.076452	0.076489	0.076435	0.089543
NIC	0.067435	0.086532	0.074626	0.047263	0.054362
STANDARD	0.04539	0.023186	0.016438	0.045362	0.054633
CO-OP	0.358	0.326	0.338	0.361	0.332

Cash Ratio

	2012	2013	2014	2015	2016
BARCLAYS	0.059345	0.035702	0.030725	0.047158	0.089645
CFC BANK	0.201486	0.063919	0.055523	0.286336	0.303234
DTB	0.02099	0.023975	0.067231	0.095747	0.018972
EQUITY	0.231877	0.116855	0.193119	0.234157	0.234188
HFCK	0.675899	0.456721	0.432675	0.542378	0.345901
I & M	0.782319	0.567429	0.564389	0.437269	0.657493
KCB	0.786098	0.456391	0.348729	0.45219	0.345276
NBK	0.456321	0.456327	0.453872	0.345217	0.345219
NIC	0.864521	0.654984	0.231974	0.654339	0.564347
STANDARD	0.456437	0.453236	0.376532	0.345241	0.234167
CO-OP	0.73	0.71	0.75	0.72	0.78

Appendix VII: Authority to Collect Data

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
JKUAT MOMBASA CAMPUS

Telegrams "Thika"
Tel: 041 2006404, 0735628272
Email: jkuat.ac.ke

OFFICE OF THE DIRECTOR
MOMBASA CAMPUS
P. O. BOX 81310-80100
MOMBASA

28th June, 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: PERMISSION TO COLLECT DATA -STEPHEN MUNYOKI MWANZIA HD433-C005-2448/2010.

The above mentioned is a student at this Campus undertaking Doctor of Philosophy in Business Administration (Finance Option). MWANZIA is expected to do a research on the title "THE EFFECT OF DETERMINANTS OF INTEREST RATE SPREAD ON LOAN PORTFOLIO PERFORMANCE AMONGST LISTED COMMERCIAL BANKS IN KENYA."

Any assistance given to him will be highly appreciated.

Thank you.

Yours Sincerely,

Dr. Fridah Simba
DIRECTOR.

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