

**DETERMINANTS OF LENDING VOLUME IN THE KENYAN BANKING
INDUSTRY: A SURVEY OF SELECTED COMMERCIAL BANKS IN NAIROBI
KENYA**

BY

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DECLARATION

DECLARATION BY STUDENT

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DEDICATION

This research is dedicated to all peace loving people that work hard to make Kenya a better place to live, study and work in.

ABSTRACT

Banking institutions play a major role in economic growth and development through provision of credit to execute economic activities. There is a broad body of literature that addresses issues of bank lending behavior. However, little effort has been devoted to explaining what determines within country variation of the supply side (banks) choices in their lending practices. This study, therefore sought to establish the determinants of lending within the country from the supply side. The study explored the effect of volume of deposit, interest rate and liquidity ratio on total loan advanced by selected commercial banks in Nairobi, Kenya. This research employed a descriptive correlation research design and was informed by theory of Money Supply. The population of study constituted all the ten banks that were listed at the Nairobi Securities Exchange (NSE) as at the year 2012. Purposeful sampling technique was used to constitute a sample size of nine commercial banks in this study. Co-operative Bank of Kenya was therefore excluded as it was listed in the NSE market in the year 2008. The study focused on a ten-year period analysis (2002-2011) of the comprehensive financial statements of all commercial banks listed by NSE. A data collection form was used to collect data through document analysis. The study used both descriptive and inferential statistics in the analysis. The study adopted an econometric approach to test the degree of correlation between the variables by employing the multiple regression analysis of the Ordinary Least Square (OLS) method. The findings indicated that lending interest rates are negatively related and significantly affect the total loans advanced. With regard to the liquidity, this study revealed that banks with more liquid assets extend more credit to borrowers. Further, volume of deposit in commercial banks has a significant and positive effect on the total loan advanced and that the liquidity ratio also positively and significantly affects the total loans advanced. This means that as the Central Bank lending rate to commercial banks increases, the Commercial Bank lending rate to the private sector increases and vice versa.

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ABBREVIATIONS AND ACRONYMS

ADF – Augmented Dickey and Fuller

BBK – Barclays Bank of Kenya

CBK – Central Bank of Kenya

CFC – Credit Finance Corporation

CO-OP – Co-operative Bank

DTB – Diamond Trust Bank

FSD – Financial Sector Deepening

HFCK – Housing Finance Company of Kenya

I & M Bank – Investment & Mortgage Bank

Ir: Average Interest Rate

KCB – Kenya Commercial Bank

LM – Liquidity Preference - Money Supply

LOA – Loans and advances

Lr: Liquidity Ratio

NBI – National Bank of India

NBK – National Bank of Kenya

NIC – National Industrial Credit Bank

NSE – Nairobi Securities Exchange

OLS – Ordinary Least Square

SCB – Standard Chartered Bank

SPSS – Statistical Package for Social Scientists

UK – United Kingdom

USA – United States of America

VIF – Variance Inflation Factors

Vd: Volume of Deposits

OPERATIONAL DEFINITION OF TERMS

Commercial Bank – A financial institution that offers a full range of retail and corporate banking products and services, such as accepting deposits, giving business loans and basic investment products

Credit risk – Potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms

Debt contracts – An agreement in which a borrower agrees to repay funds to a lender within a specified period of time

Hedging – Risk management strategy used in limiting or offsetting probability of loss from fluctuations in the prices of commodities, currencies or securities. It's the transfer of risk without buying insurance policies.

Lending – Allow (a person or organization) the use of (a sum of money) under an agreement to pay it back later, typically with an interest

Determinants of Lending – Identified factors that influence banks decision to lend

Long term credit – Lending with repayment periods of above one year

Market risk – Risk resulting from movement in market price, in particular changes in interest rates, foreign exchange rates and equity and commodity prices

Non-performing loans – A loan on which the borrower is not making interest payment or repaying any principal. At what point the loan is classified as none-performing by the bank, and when it becomes bad debt, depends on local regulations

Profit – A financial benefit that is realized when amount of revenue gained from a business activity exceeds the expenses

Risk Weighted Assets – Banks assets or off balance sheet exposures, weighted according to risk used for determining capital requirement for a financial institution

Solvency – Ability of a firm to meet its long term financial obligations

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter looks at the background, statement of the problem, purpose, objectives, hypothesis, significance and scope of the study.

1.2 Background to the Study

Kenya has a banking history that dates back to 1896 when the National Bank of India (NBI) opened a branch in this East African country (Ekwam, 2011). Currently there are over 50 commercial and investment banks in Kenya. Among these banks are; Kenya Commercial Bank (KCB), National Bank of Kenya (NBK), Barclays Bank of Kenya (BBK), Investment & Mortgage Bank (I&M Bank), Equity Bank, and Standard Chartered Bank (SCB), among others. The history of KCB dates back to 1896 when its predecessor, the NBI opened an outlet in Mombasa. Eight years later in 1904 the bank extended its operations to Nairobi, which had become the headquarters of the expanding railway line to Uganda. The next major change in the Bank's history came in 1958 when Grindlays Bank merged with NIB to form National Grindlays Bank. NBK Ltd was incorporated on the 19th June, 1968 and officially opened on 14th November, 1968. The main objective of forming the bank was to help Kenyans get access to credit and control their economy after independence. Equity Bank commenced business on registration in 1984. It has evolved from a Building Society, a Microfinance Institution, to now all inclusive Nairobi Securities Exchange and Uganda Securities Exchange public listed commercial bank with over 5.7 million accounts, accounting for over 57% of all bank accounts in Kenya. The first legislation to specifically govern

the registration of co-operatives – Co-operatives Societies Ordinance was enacted in 1931. Kenya Co-operative Creameries (KCC) became the first to be registered on 8th February, 1931. This resulted into the establishment of Co-operative bank in 1964 (Ekwam, 2011).

Bank loans are one of the most important long-term financing sources in many countries. Commercial banks are the most important savings mobilization and financial resource allocation institutions. Consequently, these roles make them an important phenomenon in economic growth and development. In performing this role, it must be realised that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments (Olokoyo, 2011). Olokoyo (2011) further notes that no matter the sources of the generation of income or the economic policies of the country, commercial banks would be interested in giving out loans and advances to their numerous customers bearing in mind, the three principles guiding their operations which are, profitability, liquidity and solvency.

In some developed countries like Japan, long term bank loans represent more than 70% of its total long-term debt. The recent cross-country evidence shows that banks in the emerging and developing countries' economies are reluctant to extend long-term credit to private businesses (Caprio & Demirguc-Kunt, 1998). The scarcity of long-term credit availability in developing market economies is recognized as an obstacle to their growth. The researchers further observe that non-financial firms in such markets consider the scarcity of long-term credit as one of the most important impediments to their operations. They show that firms that grew faster than predicted, exhibited higher levels of long-term debt to total assets. The long-term credit availability is also sensitive to the development level of a country's financial and legal institutions. If the legal

environment and the enforcement of debt contracts are weak then banks will mitigate potential credit risks by extending short-term rather than long-term loans (Diamond, 2004).

A lot has been reviewed in terms of lending activities of various commercial banks. Some opinions deliberated on the factors responsible for banks willingness to extend much credit to some sector of the economy, while some discussed effect of such extension of credits on productivity and output. Most of these earlier studies agreed on the fact that it is logical for banks to have some basic lending principles or consideration to act as a check in their lending activities (Olokoyo, 2011).

To appropriately form the lending decision, banks consider many relevant factors that are likely to determine the borrower's ability and willingness to repay. The main factors that they are considered are the risk of the borrower and the bank-borrower relationship. The risk factor could well be most important in that even if the borrower has a good relationship with the bank and the willingness to repay but lack the capacity to repay, the bank will not receive its interest or principal. Therefore, the risk of borrowers, i.e. the ability to meet future payment obligations, should be evaluated carefully as well.

However, one should not expect that banks consider only risk factors when granting loans since banks' lending decisions are also influenced by the past relationship with the borrowers. Past relationship can help banks to obtain more private information leading to a more accurate understanding of the borrower's business and financial situation. For example, as (Degryse, Masschelein and Mitchell, 2004) describe the importance of the bank-firm relationship factor, It is

through the temporal progression of a relationship that a bank can learn more than other banks about a firm's ability to meet future obligations, either through the monitoring of debt covenants and payment history or through other services offered to the firm by the bank.

From figure 1.1 below shows progressive growth over the years under review with Kenya Commercial Bank, Co-operative Bank and Barclays Bank of Kenya being the major players. This position is supported by annual reports by CBK which ranked KCB as the top player both by profit and asset base (CBK 2013).

Figure 1.1: Trends in loans advanced throughout the years.

Source: www.africanfinancials.com (2013)

1.1.1 Long Term Financing in Kenya

Lending institutions play 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 (Foluso, 1998) and this implies that the engagement between lenders and borrower is accompanied by certain level of risk. In the Kenyan banking sector for instance, while market risk is a great business concern for all institutions, credit risk is cited as a major concern by 95 per cent of the banking institutions (CBK, 2011). The overall observation of risks facing the banking sector is that while market risk can be easily managed through hedging activities, credit risk has emerged as a new management challenge to financial institutions. Credit constitutes the largest single income-earning asset in the portfolio of most banks, this explains why banks spend enormous resources to estimate, monitor and manage credit

quality (Nwankwo, 2000). This is understandably, a practice that impacts greatly on the lending decisions of banks as large resources are involved (Olokoyo, 2011)

According to a report by the Financial Sector Deepening (FSD, 2011), commercial banks in Kenya have continued their aggressive drive for new bank accounts. The total number of deposit accounts increased over the year from 11.8M to 14.4M, an increase of 22% in a year (FSD, 2011). Equity Bank with over 6.5M accounts as at the year end, accounted for 46% of the accounts in the banking system. In addition Co-operative Bank, KCB and BBK have passed the million account threshold with Family Bank close to this number. While a bank is irrevocably committed to pay interest on deposits it mobilizes from different sources, the ability to articulate loanable avenues where deposit funds could be placed to generate reasonable income maintain liquidity and ensure quality requires a high degree of pragmatic policy formulation and application.

1.2 Statement of the Problem

According to Adedoyin and Sobodun (1996) lending is undoubtedly the heart of banking business. Therefore, its administration requires considerable skill and dexterity on the part of the bank management. According to Yannis and Spiliotis (1998), in the walrasian general equilibrium framework, there is no room for money, that is, money is neutral. Money can appear only as a result of injection of some high powered money by the monetary authorities and/or because some economic units (usually households) intend to modify their portfolios. Money is predominantly seen as an asset, as a stock that can be augmented or reduced according to those households. It is held by households despite its low or nonexistent yield, because of its usefulness in trade. Neoclassical and Monetary theorists' emphasize this portfolio approach because it sets money in

the usual neoclassical static framework (Yannis and Spiliotis, 1998). Within this framework most of previous studies on commercial bank lending have been based on demand modeling approach. Banks are assumed to behave as profit maximisers. Demand models were originally constructed by trying to determine the behaviour of risk averse wealth owners as price takers in competitive markets (Yannis and Spiliotis, 1998). They further note that Bank loans are considered a negative asset in the company sector's portfolio. Standard theoretical framework models predict that desired stock of financial assets depends on wealth, income, and the vector of relevant yields (consisting of the interest return and expected capital gains).

This study, however conceptually at least takes a quite different approach. The Kenyan Monetary institutional framework does fit in the neoclassical world (at least for the period under investigation, 2002-2011). It is rather a departure from a very strictly regulated financial system whereby funds are allocated at administratively set interest rates through a reserve/rebate system of bank credit and lower and upper limits of lending and deposit interest rates being imposed by authorities. Obviously, against this backdrop, demand approach cannot give adequate answers concerning driving forces of the outstanding lending activities. We have to go deeper to find the generating factors of the lending process in the Kenyan economy from the supply side point of view.

Although recent cross-country evidence shows that banks in the emerging and developing countries' economies are reluctant to extend credit to private businesses, the situation has been different in Kenya. Commercial banks have exponentially increased their total loans advanced over the period between 2002-2011 with a view to generate competitive profitability. Although there is a broad body of literature that addresses issues of bank's lending behaviour, it either focuses on the

demand side of debt (firms access to credit) or on the cross-country variation of bank lending behavior. Little effort has been devoted to explaining what determines within country variation of the supply side (banks) choices in their lending practices. This study therefore, sought to bridge the gap of inadequate knowledge as to what determines the lending volume within the country from the supply side by investigating the extent to which volume of deposit, liquidity ratio and interest rate determine total lending.

1.3 Objectives of the Study

The main objective of the study was to establish the determinants of lending behavior in selected commercial banks in Kenya from the supply side of credit. This study was guided by the following specific objectives:

- i) To establish the effect of volume of deposit on total loan advanced by selected commercial banks in Kenya.
- ii) To establish the effect of interest rate on total loan advanced by selected commercial banks in Kenya.
- iii) To establish the effect of liquidity ratio on total loan advanced by selected commercial banks in Kenya.

1.4 Hypotheses of the Study

The study was guided by the following null hypotheses:

H_{01} : The volume of deposit in commercial banks does not affect total loan advanced by commercial banks in Kenya.

Ho₂: Interest rate does not affect total loan advanced by commercial banks in Kenya.

Ho₃: Liquidity ratio does not affect total loan advanced by commercial banks in Kenya.

1.5 Significance of the Study

This study sheds some light on the lending decision behaviour of Kenyan commercial banks. It is quite important to understand the functioning of the banking system in emerging markets in general and Kenya in particular to know how banks deposits, lending rates and liquidity ratios factors are featured or reflected in loan terms. The study findings gives some insights about how to improve the lending process in considering deposits, lending rates and liquidity ratio among other factors so that banks may set loan terms such as loan collateral, tenure, turnover credit volume more appropriately.

The study may also help banks to identify possible weaknesses in their lending decisions and to improve the efficiency by leveraging on the strongest determining factor to improve on loan book quality. Regulators can benefit from having a better understanding of how Kenyan commercial banks actually leverage on deposits, interest rates and liquidity ratio making their lending decisions and design appropriate directives regarding relationship-based loans to prevent adverse connected lending that creates moral hazard behavior.

The findings help regulators to improve supervision of bank lending such as designing credit risk management guidelines for banks to govern their credit risk exposure such as risk-weighted assets, lending limits, concentration of lending and capital adequacy ratios. Government and policy

makers would know how to create an enabling environment in relation to the availability of credit facilities. The policy to promote healthy competition in the banking system would be improved by properly recognizing and addressing the loan pricing ability and possible monopoly power of banks. Finally, the findings of this study would be helpful reference material for future researchers on this subject.

1.6 Scope of the Study

This study, just like other similar studies carried out in different contexts was intended to address three sets of questions. First, how does the volume of deposit determine the total loans advanced? Secondly, does the bank interest rate affect a bank's total loans advanced? Finally does the liquidity ratio affect total loans advanced? The three items identified above constituted the independent variables, while the total loan advanced was used as the variable measuring lending behavior.

Volume of deposit was taken to constitute total customer's and other bank's deposits held by the particular bank in question. The Interest rate (Ir) was computed as commercial banks' weighted average interest rate for each particular year for the periods under consideration. Liquidity ratio was computed as the quotient of total assets against total liabilities. Finally total loans advanced was taken as total loan facilities extended to both customers and other financial institutions for every year under study.

Document analysis was employed to obtain the required data. The study focused on the Kenyan banks listed at the NSE, and the period of analysis spanned over 10 years between 2002 and 2011.

In document analysis, respective annual reports and financial statements for all the listed banks under review were obtained from Nairobi Securities Exchange (NSE). Data on total loans advanced, total deposits, total assets and total liabilities were then extracted from the financial position reports of each bank for the period under review. The respective bank's websites were also consulted for verification of the data. Data on interest rate was obtained from Central Bank of Kenya (CBK) website.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter discusses the theory of relationship banking as may be applied to banks long term lending decisions and the empirical review of literature on long term lending. The variables under consideration have been reviewed and a conceptual framework depicting linkage of the study variables developed.

2.2 Theoretical Framework

According to (Branson, 2004) in the theory of Money Supply, Reserve ratio changes are used by Federal Reserve System as an overt, well publicised move to change effective reserve in a major way, as opposed to the normal, more continuous changes generated by open market operations. Thus, changes in the reserve ratio signal a major shift in the Federal Reserve System monetary policy. Branson(2004) further notes that in general banks create deposits on which no interest is paid, in order to make loans on which interest is earned. The deposits are created in the process of making loans; a loan is credited to the borrower's account. Thus the incentive to increase deposits lies in the possibility of making profitable loans. When loan demand by potential borrowers fall off, banks may not create deposits up to the full limit that reserves would support. Thus, they may from time to time, have on hand excess reserves. On the other hand when loan demand is particularly strong, banks may borrow reserves at the discount window to support the additional deposit creation that accompanies the increase in loans. This degree of freedom that the banks have to hold excess reserves or to borrow reserves makes the money supply responsive, to certain extent, to loan demanded and the interest rate. When loan demand is strong and interest rates are high, the banks will squeeze excess reserves and increase borrowing at the discount window, increasing borrowing at the discount window, increasing the money supply supported by a given amount of unborrowed reserves supplied by Federal Reserve System. Thus the money supply itself will have a positive elasticity with respect to the interest rate, reducing the slope of Liquidity preference Money supply (LM) curve. This theory will therefore provide guidance in establishing how interest rate among other factors plays out in determining the supply of credit by the selected banks in Kenya.

2.3 Studies done on Lending

Banks perform the role of financial intermediation by mobilising savings from the public in form of deposits and then lend this on to borrowers, especially businesses. Therefore, banks act as an intermediary to channel credits on behalf of the depositors. Banks are supposed to do this job better than the public as they specialise in the lending business and should be experienced at assessing risk. Banks are active in information production and loan contracting to resolve problems due to asymmetric information.

Banks are well placed to appraise the potential performance of investment projects since they have considerable experience with similar projects that they have financed. Banks often have access to valuable statistical information that is not readily obtained by entrepreneurs. Also banks are expected to have considerable familiarity with the economic features of their locality and general economic trends. That is why banks should be in the project-evaluation business (Manove, Padilla and Pagano, 2000). Banks have to balance their goals between generating a certain amount of profit and managing the risk from their lending activities. Banks have to be careful in their lending decisions, not to extend loans to too many companies that may not have the ability or willingness to repay. In the long run, banks would not make profits or stay in the lending business if many of their borrowers do not repay.

Banks' terms of lending then may be driven by the desire to maintain a client with an aim to explore other business opportunities, e.g. to earn fee-based income. Therefore, the importance of relationship factors should not be overlooked as they provide inside information and have future economic benefits to the banks. It is then interesting to see how relationship factors, concurrently

with the risk factors are considered in the bank lending decisions. Using bank's return data from the USA, the UK, Japan and Germany, Boot (2000) found that relationship banks are more effective monitors than transactional banks.

The banking industry in Kenya is dominated by a few large banks most of which are foreign-owned, though some are partially locally owned. Six of the major commercial banks are listed on the Nairobi Securities Exchange. The banks have come together under the Kenya Bankers Association (KBA), which serves as a lobby for the banks' interests and addresses issues affecting member institutions. The commercial banks and non-banking financial institutions traditionally offered corporate and retail banking services, lately most offer other services including investment banking (CBK Annual Report, 2009). The banking sector plays a significant role in the implementation of government monetary policies. One of the key services rendered by banks is offering credit to the members of public.

The rate at which members of the public are able to access loans and the amounts available for banks to lend are highly guided the CBK regulations. The banks also participate in purchase of government securities for example treasury bills and bonds which are aimed at raising funds for the government and maintaining low inflation levels. CBK also acts as a lender of last resort for commercial banks and hence the rate at which banks access credit influences the rate at which they offer credit to the members of the public. The five most profitable banks in Kenya are KCB, Equity, Barclays, Standard Chartered bank and Cooperative Bank (CBK Annual Report, 2009). In the year 2009, Barclays bank topped the list of the most profitable banks with pre-tax profits of 9.002 billion, followed by Standard Chartered Bank at Ksh 6.726 billion, Kenya Commercial Bank with Ksh 6.426 billion was third while Equity with Ksh.5.57 billion and Co-operative Banks with

Ksh 3.727 billion took fourth and fifth position respectively, (CBK, 2010). The pretax profits for these banks in the financial year 2011 are as follows. KCB 15.1 billion (a 54% increase from the previous year), Equity bank pre-tax profit Ksh 12.83 billion (42% increase from the previous year), Barclays bank rose to Ksh 12.01 billion (11% increase from the previous year), Standard Chartered Ksh 8.3 billion (8.7% increase) and cooperative bank 6.3 billion (10% increase) (CBK, 2012). KCB topped the list of most profitable in the year 2013 (CBK, 2013). With lending being core line of business for these banks, the impressive results are a consequence of net interest income from loans made available from cheaper customer deposits and strong capital base.

2.4 Review of the Variables

2.4.1 Interest Rate

Loan pricing or interest rate is one of the most important terms in the lending decision process. Banks cannot charge loan rates that are too low because the revenue from the interest income will not be enough to cover the cost of deposits, general expenses and the loss of revenue from non performing loan portfolio. They cannot charge too high loan rates because they will not be able to keep the banking relationship with the borrowers.

Banks should consider the problems of adverse selection and moral hazard since it is very difficult to forecast the borrower type at the start of the banking relationship (Stiglitz and Weiss, 2001). If banks set interest rates too high, they may induce adverse selection problems because high-risk borrowers are willing to accept these high rates. Once these borrowers receive the loans, they may develop moral hazard behaviour or so called borrower moral hazard since they are likely to take on highly risky projects or investments (Chodechai, 2004). From the reasoning of (Stiglitz and Weiss,

2001), it is usual that in some cases we may not find that the interest rate set by banks is commensurate with the risk of the borrowers.

A model of the neoclassical credit market postulates that the terms of credits clear the market. If collateral and other restrictions (covenants) remain constant, the interest rate is the only price mechanism. With an increasing demand for credit and a given customer supply, the interest rate rises, and vice versa. It is thus believed that the higher the failure risks of the borrower, the higher the interest premium (Ewert, Szczesmy & Schenk, 2000). The increase in demand for credit brought about by low interest rates eventually may lead to depreciation of currency. Central bank therefore must adjust the interest rate to increase the cost of borrowing. Commercial banks in their turn must increase their rates and therefore lending is lowered as credit becomes expensive.

Low interest rate lowers the cost of borrowing, which results in higher investment activity and the purchase of consumer durables. The expectation that economic activity will strengthen may also prompt banks to ease lending policy, which in turn enables businesses and households to boost spending. In a low interest-rate environment, shares become a more attractive buy, raising households' financial assets. This may also contribute to higher consumer spending, and makes companies' investment projects more attractive. Lower interest rates also tend to cause currencies to depreciate. Therefore, the central bank has to counter the depreciation by adjusting the Central Bank Rate (CBR) up to make the cost of borrowing high and thus make the loans unattractive (Crowley, 2007). Still, a major concern for the empirical analysis is the fact that banks respond quite heterogeneously to monetary policy changes and this may also have implications for their risk-taking and profitability, as in the case of lending. The heterogeneous behavior of banks

originates from their different balance sheet characteristics. Theory on the bank lending channel identifies incentive mechanisms that work through the capital structure of banks, their liquidity levels and/or their size and argues that these mechanisms may play an important role in altering bank lending when there is a change in policy interest rates (Diamond and Rajan, 2006; Bolton and Freixas, 2006).

According to Kenneth and Collins (2011), Interest rate is the rate of return on investment and the cost of borrowing funds. It is determined by the supply and demand for money. Long-term interest rates are paid to a borrower of flawless solvency for a loan of indefinite duration. In Kenya, these are reflected by interest rates for long-term bonds. Short-term interest rates on the other hand are indicated by the treasury bills. The short-term rates are averaged lower than long-term rates but have higher fluctuations.

Darryl (1969), also describes interest rates as a price for the use of funds and if rapid monetary expansion contributes to excessive demand and inflation, it also contributes to rising interest rates. Central Bank's role under the interest rate instrument is to set a short-term official rate of interest, which indicates the price at which it will make liquidity available to the banking system as a lender of last resort. In Kenya, this rate is called the Central Bank Rate. This rate is reflected in the CBK overdraft rates Kenneth and Collins (2011).

CBK regulates interest rates charged by banks through interest rate ceiling (81.5%). The banks' interest rates policies are enforced by board of directors, managing directors and credit risk management committees who formulate interest rate policies Kenneth and Collins (2011). The interest rate policies and regulations are relevant in mitigating interest rates, moral hazards and loan defaults. On the cost of loans, different types of loans affect their cost differently, therefore,

the type of interest rates adopted by banks influences the non-performing assets. For instance, fixed interest rate contribute more to None Performing Assets (NPA) since the cost interval is high making the borrower pay more at the end of the loan period than he/she should have under floating interest rates as fixed interest rates are loaded upfront (52%). Floating interest rates interrupts borrowers' budget are interrupted hence they are unable to repay loans as planned given the unanticipated interest in business growth, vary throughout the year, interest doubles in case of default (37%). In cognizance of this, the findings showed that majority of the commercial banks adopt both fixed and floating interest management, therefore, directly influences the level of asset nonperformance in commercial banks, Kenneth and Collins (2011).

The benchmark interest rate in Kenya was last recorded at 8.50 percent in August 2013. Interest Rate in Kenya averaged 14.67 Percent from 1991 until 2014, reaching an all time high of 84.67 Percent in July of 1993 and a record low of 0.83 Percent in September of 2003, interest rates decisions are taken by The Monetary Policy Committee (MPC) of the Central Bank of Kenya. The official interest rate since August 2005 is the Central Bank Rate (CBR), which replaced the 91-day Treasury Bill (TB) rate (CBK, 2014).

2.4.2 Liquidity Ratio

Liquidity is another factor that determines the level of bank performance. Liquidity refers to the ability of the bank to fulfill its obligations, mainly of depositors. According to Dang (2011) adequate level of liquidity is positively related with bank profitability. The most common financial ratios that reflect the liquidity position of a bank according to the above author are customer deposit to total asset and total loan to customer deposits. Other scholars use different financial ratio to measure liquidity. For instance Ilhomovich (2009) used cash to deposit ratio to measure the

liquidity level of banks in Malaysia. However, the study conducted in China and Malaysia found that liquidity level of banks has no relationship with the performances of banks (Said and Tumin, 2011).

According to Kothari (2010), liquidity ratios indicate the liquid position of any business concern. They, in fact, measure the ability of the firm to meet its maturing obligations. Through these ratios, the firm's solvency is reflected. Important liquidity ratios are:

- i) Current Ratio; this signifies the relationship between the current assets and the current liabilities. It indicates whether the concern has instant ability to pay off the current liabilities as they mature and whether it can face unforeseen reverse by the strength of its liquid position.
- ii) Quick Ratio or Liquid Ratio; this signifies the relationship between quick assets and the current liabilities, where Quick assets = (Current Assets – Closing Stock). An ideal quick ratio is generally taken as 1:1
- iii) Acid - test Ratio; this is the ratio of very quick assets to current liabilities. Very quick assets are current assets minus closing stock and debtors. In other words very quick assets and its equivalents. An ideal quick ratio is generally taken as 1:1

According to CBK (2007) liquidity is measured by the ratio of net liquid assets to net deposits and short term liabilities and reflects an institution's ability to meet its maturing obligations as they fall due. Liquidity of the banking sector remained strong as in the previous years. The high liquidity is a reflection of the sector's preference for liquid assets notably risk free government securities.

Commercial banks maintained an average liquidity ratio of 41.0 per cent, well above the minimum requirement of 20 per cent.

Managing liquidity is a daily process requiring bankers to monitor and project cash flows to ensure adequate liquidity is maintained. Maintaining balance between short term assets and short term liabilities is critical. For an individual bank, clients deposits are its primary liabilities (in the sense that the bank is meant to give back all client deposits on demand), where as reserves and loans are its primary assets (in the sense that loans are owed to the bank, not by the bank). The investment portfolio represents a smaller portion of assets, and serves as the primary source of liquidity. Investment securities can be liquidated to satisfy deposit withdrawals and increased loan demand. Banks have several additional options for generating liquidity, such as selling loans, borrowing from other banks and central bank and raising additional capital. In a worst case scenario, depositors may demand their funds when the bank is unable to generate adequate cash without incurring substantial losses. In severe cases, this may result in bank run. Most banks are subject to legally-mandated requirements intended to help banks avoid a liquidity crisis. Banks can generally maintain as much liquidity as desired because bank deposits are insured by governments in most developed countries. In Kenya such is taken care of by the Deposit Protection Fund. According to HFCK, (2011), a bank is exposed to daily calls on its available cash resources from overnight deposits, current accounts, maturing deposits, and calls on cash settled contingencies. The bank does not maintain cash resources to meet all of these needs as experience shows that a minimum level of reinvestment of maturing funds can be predicted with a high level of certainty. The Asset and Liability Committee (ALCO) sets limits on the minimum proportion of maturing funds available to meet such calls and on the minimum level of inter-bank and other borrowing facilities

that should be in place to cover withdrawals at unexpected levels of demand. A lack of liquidity can be remedied by raising deposit rates and effectively marketing deposit products. However, an important measure of banks value and success is the cost of liquidity. A bank can attract significant liquid funds. Lower costs generate stronger profits, more stability, and more confidence among depositors, investors, and regulators.

2.4.3 Volume of Deposit

Bank deposits refer to money placed into a banking institution for safekeeping. Bank deposits are made to deposit accounts at a banking institution, such as savings accounts, current accounts and money market accounts. The account holder has the right to withdraw any deposited funds, as set forth in the terms and conditions of the account. The "deposit" itself is a liability owed by the bank to the depositor (the person or entity that made the deposit), and refers to this liability rather than to the actual funds that are deposited.

According to Diamond and Dybvig (2008), acceptance of demand and fixed deposits is the most important bank services associated with the liability side of a bank balance sheet. Traditionally, macroeconomists have focused on liability services because of the linkage between demand deposits and the money supply. Money market funds, brokers' asset management accounts, and credit cards have competed more or less directly with the banks in the market for provision of secure and liquid stores of funds and in the market for clearing transactions. These changes in the payments technology have weakened the link between the money supply and bank deposits. This fact has two types of implications for macroeconomics. One is that banks need not be so important to macroeconomics as they were before since close substitutes exist in the provision of payment

and other liability services. The other (antithetical) implication is a potential policy goal of trying to repair the money supply linkage by tightening bank regulation and keeping nonbanks out of the liability service businesses. The important observation is that, even if banks were no longer needed for liability services and if they were constrained from performing their role in controlling the money supply, then important policy questions concerning banks would still arise since banks provide other important services. In other words, the banking system is an important part of the infrastructure in any economy.

Ongore and Kusa (2013), explain that through their intermediation function in accepting deposits, banks play a vital role in the efficient allocation of resources of countries by mobilizing resources for productive activities. They transfer funds from those who don't have productive use of it to those with productive venture. In addition to resource allocation good bank performance rewards the shareholders with sufficient return for their investment. When there is return there shall be an investment which, in turn, brings about economic growth. On the other hand, poor banking performance has a negative repercussion on the economic growth and development. Poor performance can lead to runs, failures and crises. Banking crisis could entail financial crisis which in turn brings the economic meltdown as happened in USA in 2007 (Marshall, 2009.) That is why governments regulate the banking sector through their central banks to foster a sound and healthy banking system which avoid banking crisis and protect the depositors and the economy (Heffernan, 1996; Shekhar and Shekhar, 2007.)

The Deposit Protection Fund Board (DPFB) was established in 1985 following a banking crisis in Kenya. It was established through an amendment to the Banking Act which provided for the setting up of the Deposit Protection Fund to provide deposit insurance to depositors of DPFB

member institutions and consequently restore confidence and stability in the banking sector. The Act further states that the Central Bank of Kenya would appoint DPFB as liquidator of insolvent commercial banks and non bank financial institutions (DPFB, 2009).

Financial institutions have been in the process of significant transformation. The force behind the transformation of these institutions is innovation in information technology. Information and communication technology is at the Centre of this global change curve of mobile and internet banking in Kenya. Rapid development of information technology has made banking tasks more efficient and cheaper (Okiro and Ndungu, 2013).

Mobile Money Transfer Service *M-PESA* offered by *Safaricom* Limited has opened the eyes of the world to the potential of mobile money and mobile payments, creating what would easily pass as a financial services revolution and competition to the banks in terms of deposit accumulation and money transfer services (Obera, 2012). *M-PESA* deposits funds are however deposited in several commercial banks, which are prudentially regulated in Kenya. In addition, the funds are held by a Trust and are therefore out of reach from *Safaricom*, which cannot access or use them. In the unfortunate event of *Safaricom* going bankrupt, the creditors of *Safaricom* would not have access to the *M-PESA* funds. This is a requirement from the Central Bank of Kenya which oversees *M-PESA*. The funds remain at all times the property of *M-PESA* users. The accumulated balance of all the *M-PESA* accounts represents just 0.2% of bank deposits by value. *M-PESA* is far from exerting a systemic risk. In June 2010, *M-PESA* transactions amounted to about 70% of the volume of electronic transactions in the country but were only 2.3% in value (Alexandre and Jack, 2010). *M-PESA's* success means there is a real need for small electronic transactions and storage

of value. It was designed with limits on how much can be transacted (no more than 70,000Ksh leaving the account daily) and stored (maximum account balance is 50,000Ksh). Cash-in, cash-out and person to person transfers are limited to 35,000Ksh per transaction (Alexandre and Jack, 2010).

Olokoyo (2011) found out in his study on Nigerian banking behaviour that volume of deposit has the highest impact and influence on the lending behaviour of commercial banks and a change in it will yield the highest change in banks' loans and advances. Therefore banks should strive hard to manage their deposits efficiently so that their objective of profitability can be achieved and the multiplier effects maintained to the maximum. This implies that generation of more deposits is tangent to the survival of Nigerian banks as a whole. Caprio and Demirguc-Kunt (1997) by using a sample of Russian banks, found that the median banks assign only 0.5 percent of its total assets in terms of long-term loans to business and there is large cross-sectional disparity in this ratio among banks. They argued that the bank's capacity to expand long-term business loans depends on various factors including its capitalization, size and the availability of long-term liabilities. However, the ownership of banks did not matter. They also concluded that the banks hesitated to issue business loans with more than three years maturity. Their results exhibit that the banks with lower level of capital have lower funding for long term loans and banks in most competitive areas are reluctant to supply long term loans

2.5 Critique of the Reviewed Literature

Most empirical work has been done in developed countries to study the aspect of long-term relationships between banks and borrowers. For the USA, empirical studies on relationship lending

focus on effects of transactional variables such as the duration of relationship the firm has with the bank or the number of banks from which it borrows (Petersen and Rajan, 1994; Berger and Udell, 1994). For Germany, there is growing interest and evidence about the role of the House bank status (Harhoff and Korting, 1998). There are also studies from Italy (Angelini et al 1998) and from Belgium (Degryse and Van Cayseele, 2000). All these empirical studies have focused on how different characteristics of borrowers and their relationship with banks affect their terms of credit extension in order to explain why small and medium sized firms received different treatment in terms of availability of credit, cost of borrowing, and requirement of collateral and frequency of monitoring.

However, inadequate research has been done to scrutinize the rationale of banks' lending behaviour especially their risk and relationship consideration. As a result, most of the above mentioned works offer insufficient empirical results for the interest of this study since these authors target the impact to the borrowers or what the results mean to the borrowers rather than the impact to the banks or what the results mean to the bank and the banking system as a whole. Moreover, there is insufficient insight on how bank lending is determined in emerging markets, how similar or different it is to the theory of lending in developed economies and how much risk and relationship factors play a role in lending decisions and how they affect the banking system as a whole. So far, there has been little empirical work on bank lending behaviour looking at terms of lending verses borrowers risk and relationship factors in developing countries. This study therefore filled this gap and found evidence of pertinent determinants considered in the bank lending behavior in commercial banks in Kenya.

2.6 Conceptual Framework

This conceptual framework illustrates the linkage between the various study variables considered in the study. It is modeled based on the theory of money supply. Branson (2004) demonstrates that the amount of money supply in the economy is greatly determined by reserve ratio requirements, excess reserves (volume of deposits) and interest rates. These determinants put together would determine the availability of loanable funds.

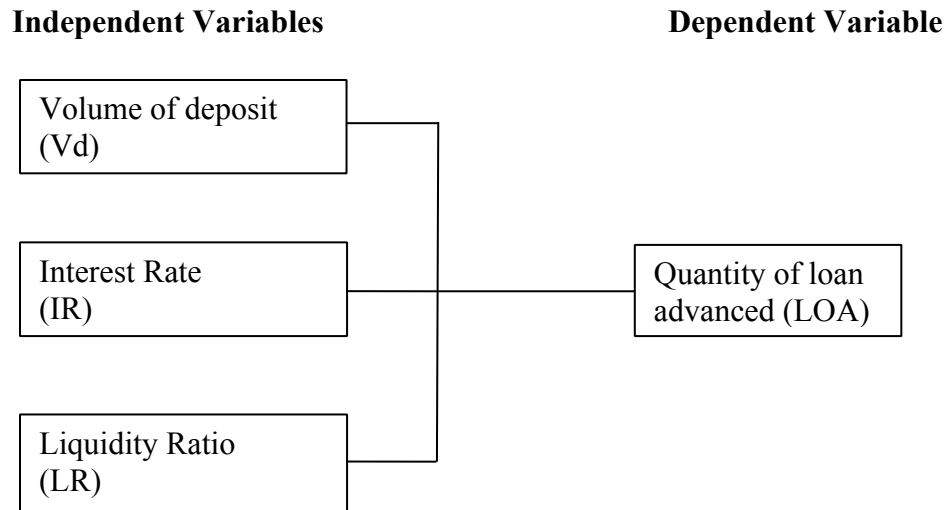


Figure 2.1: Conceptual Framework

Source: Branson, 2004

The determinants of lending behavior of commercial banks are conceptualized to include:

- (i) The volume of deposits by the commercial bank
- (ii) The lending interest rate chargeable by the commercial bank
- (iii) The liquidity ratio of the commercial bank

The volume of deposit is conceptualized to mean the total amount of money mobilized by the commercial banks through deposit accounts and available for lending at a return. The lending interest rate was operationalised to mean the interest rate charged on the loan advanced by the lending institution. Liquidity ratio was operationalised to mean that ratio used to measure a firm's ability to meet its short-term financial obligations on time, such as the *ratio* of current assets to current liabilities. These variables are operationalised to have a relationship with the total loan amounts advanced by lending institutions thereby explaining their lending behavior.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter outlines the study area, the research design, the target population, sampling method, sample size, research instruments, theoretical framework and data analysis model derivation. This is where the conceptual framework was idealized into the study.

3.2 The Study Area

The study focused on factors that determine lending in the banking industry. Kenya was the geographical area of study. Locally owned commercial banks and multinational banks such as Barclays Bank of Kenya (BBK), Standard Chartered Bank (SCB), and Credit Finance Corporation Stanbic Bank (CFC) - Kenyan chapters were considered for the study. The Kenyan economy is generally driven by high growth of the banking industry within and beyond its borders.

3.3 Research Design

This research employed a descriptive correlation research design. A correlational study is a quantitative method of research in which there are two or more quantitative variables from the same group, for which an evaluation is being made to establish whether there exists a relationship (or co-variation) between the variables (Waters, 2005). A multiple regression model was used to establish the relationship between the loan and advances of commercial banks and each of the other explanatory variables identified through literature and theory i.e. volume of deposits, interest

rate and liquidity ratio.

3.4 Target Population

The population of study constituted all the 10 banks that were listed in at the Nairobi Securities Exchange (NSE) as at the year 2012 as indicated in table 3.1 below.

Table 3.1: Listed Commercial Banks in Kenya

No	NAME OF BANK	YEAR OF LISTING
1	Barclays Bank	1986
2	CFC Stanbic Holdings	1970
3	Diamond Trust Bank	1972
4	Equity Bank	2006
5	Housing Finance	1992
6	KCB	2004
7	NBK	1994
8	NIC Bank	1971
9	Standard Chartered	1988
10	Co-op Bank of Kenya	2008

Source: Nairobi Securities Exchange (NSE) and Capital Markets Authority (CMA), 2012

Data on total loans advanced by these banks can be easily accessed via the NSE data base and respective banks' websites.

3.5 Sampling Method

The study focused on a ten-year period of analysis (2002-2011) of the comprehensive financial statements of all commercial banks listed by 2002. Co-operative Bank of Kenya was therefore excluded as it was listed in the NSE market in the year 2008. This criterion maintained a uniform representation to the analysis of the lending behavior of the banks under consideration as the major

players in the sector were captured. Purposeful sampling technique was therefore used to constitute the sample size of 9 commercial banks in this study with Co-operative Bank being an exception.

3.6 Research Instruments

A data collection form was used to collect data through document analysis. The data was obtained from the individual banks' comprehensive income statement and statement of financial position. The source of these financial statements was the Nairobi Securities Exchange where the information is availed to the public at a fee and respective banks websites and annual reports. In addition, current sources of information like books, journals, newspapers, magazines and the internet were also consulted. The information obtained was valuable in understanding concepts, definitions, theories and empirical literature. Data collection was done by the researcher assisted by two trained research assistants and verified by the researcher.

3.7 Data Analysis Techniques

The study used both descriptive and inferential statistics in the analysis. Trend analysis was established to determine the behavior of the variables over the ten year time period. The means of the variables were generated and correlations established using t-test at 95% confidence interval. The study then adopted an econometric approach to test the degree of correlation between the variables by employing the multiple regression analysis of the Ordinary Least Squares (OLS) method with SPSS 17.0 package.

3.8 The Model of Data Analysis

The main objective of this study was an investigation of the relationship that exists between the loan and advances of commercial banks and each of the other explanatory variables that have been identified through literature and theory i.e. volume of deposits, interest rate, and liquidity ratio. There are other factors not explicitly included in the model that are policy instruments for regulation of banks operation like government control and monetary authorities' guidelines and past relationship with customers. These are captured by the error term in the model. The model adopted assumes an underlying relationship between the variables expressed in a functional form and banks' loans and advances. The belief was informed by Usman (1999) that banks lending should vary from time to time with the variables expressed.

The model is specified implicitly below:

$$\text{LOA} = f(\text{Vd}, \text{Ir}, \text{Lr}, \mu) \dots \text{eq. (3.1)}$$

The explicit form of equation (3.1) above is represented as follows:

$$\text{LOA} = \alpha_0 + \alpha_1 \text{Vd} + \alpha_2 \text{Ir} + \alpha_3 \text{Lr} + \mu \dots \text{eq. (3.2)}$$

Where:

LOA: Loans and Advances

Vd: Volume of Deposits

Ir: Average Interest Rate

Lr: Liquidity Ratio

μ : Stochastic term (contains other variables not explicitly included in the model)

α_0 : intercept of the regression line

$\alpha_1, \alpha_2, \alpha_3, > 0$: Regression coefficients to be estimated

The model specified above, was used to empirically achieve the objective of the study. Coefficient of determination (R^2) was used to test goodness of fit/explanatory power of the model.

3.8.1 Stationarity Test

Stationary process is one whose statistical properties do not change over time. More formally, a strictly stationary stochastic process is one where given t_1, \dots, t_ℓ the joint statistical distribution of $X_{t_1}, \dots, X_{t_\ell}$ is the same as the joint statistical distribution of $X_{t_1+\tau}, \dots, X_{t_\ell+\tau}$ for all ℓ and τ .

Normally non stationary data are taken to be unpredictable and cannot be modeled or forecasted

The results obtained by using non-stationary time series may be false in that they may indicate a relationship between two variables where none exist. Therefore in order to obtain consistent, reliable results the non-stationary data needs to be transformed into stationary data. In contrast to the non-stationary process that has a variable variance and a mean that does not converge, or returns to a long-run mean over time, the stationary process reverts around a constant long-term mean and has a constant variance independent of time.

Economic variables such as total loans advanced typically exhibit a random walk. A random walk is loosely known as a unit root process in time series literature. A stochastic variable Y is said to follow a random walk without a drift if its value at time t can be mathematically expressed as the sum of its value at time $t-1$ and a random shock, or white noise, ε (with zero mean and constant variance, σ^2):

$X_t = X_{t-1} + \varepsilon_t$, where ρ is a constant. If $\rho = 1$, the random walk model gives rise to a unit root process (Gujarati, 2004). The Dickey and Fuller (1979) and the Augmented Dickey and Fuller (ADF) methodologies are popular methods of testing for the presence of a unit root (that is,

absence of stationary). To see the logic behind these two tests, consider the following first order autoregressive process, AR (1):

$$X_t = \rho Y_{t-1} + \varepsilon_t \quad -1 \leq \rho \leq 1 \dots \text{eq. (3.3)}$$

Subtracting the term Y_{t-1} from both sides of equation (3.3) gives the first difference form of the random walk model:

$$X_t - X_{t-1} = \rho X_{t-1} + \varepsilon_t - X_{t-1}$$

$$\Delta X_t = (\rho - 1) X_{t-1} + \varepsilon_t = \alpha X_{t-1} + \varepsilon_t \dots \text{eq. (3.4)}$$

Where $\Delta X_t = X_t - X_{t-1}$ is the first difference of the random variable X at time t ; $\alpha = \rho - 1$ and ε_t is the white noise term at time t . Equation 3.4 is restricted in the sense that it ignores the possible presence of a constant term that may cause the series Y_t to drift away from the origin. Introducing a constant term gives random walk model with a drift:

$$\Delta X_t = \beta_1 + \alpha X_{t-1} + \varepsilon_t \dots \text{eq. (3.5)}$$

Finally, the model can be presented in a manner that allows for a drift around a trend as follows:

$$\Delta X_t = \beta_1 + \beta_2 t + \alpha X_{t-1} + \varepsilon_t \dots \text{eq. (3.6)}$$

For each of the three equations (3.4, 3.5, and 3.6), the standard Dickey-Fuller procedure tests the null hypothesis that $\alpha = 0$, that is $\rho = 1$ against the alternative that $\alpha < 0$, that is $\rho < 1$. Rejection of the null hypothesis implies that the series is stationary. If the null hypothesis is not rejected, one concludes that the series has a unit root, meaning that it is non-stationary. The τ (tau) statistic, whose critical values were developed by Dickey and Fuller (1979), is used to test the null

hypothesis. Therefore, Dickey-Fuller test was used to test for non-stationarity in this study.

3.8.2 Diagnostic Tests

Regression diagnostics play a vital role in finding and validating a good predictive relationship between the dependent and independent variables. The following diagnostic tests were undertaken: autocorrelation, heteroscedasticity, multicollinearity, correlation statistics and the statistical test for normality.

a) Autocorrelation Test

Autocorrelation refers to a situation whereby two or more consecutive errors are related. It is a common problem in time series data. Durbin Watson test was used to test for the presence of autocorrelation. Montgomery *et al* (2001) notes that because most regression problems involving time series data exhibit positive autocorrelation, the hypothesis usually considered in the Durbin-Watson test are:

$$H_0: \rho = 0$$

$$H_1: \rho > 0$$

b) Heteroscedasticity Test

For the linear regression model to hold, the variance of the error term should be constant. If the error terms do not have constant variance, they are said to be heteroscedastic. Breusch – Pagan/Cook Weisberg and Breusch-Godfrey LM test was used to test for the presence of heteroscedasticity.

Since each case of heteroscedasticity is somewhat different, there is no general rule or method correcting for it. However, if X_t is related to the variance, then generally we can simply transform the regression. For example, if the variance is inversely related to X_t then we can simply multiply both sides of the regression by X_t or its square root. If X_t is positively related to the variance, then we can consider dividing both sides of the regression by X_t or its square root. If the variance is related to time, then we can do the same using time, t .

c) Multicollinearity Test

Multicollinearity occurs when two or more predictors in the model are correlated and provide redundant information about the response. Variance inflation factors (VIF) was used to measure how much the variance of the estimated coefficients is increased over the case of no collinearity among the independent variables. If no two independent variables are correlated, all the VIFs should be 1. If VIF for one of the variables is around or greater than 5, there is collinearity associated with that variable. If there are two or more variables that will have VIF around or greater than 5, one of these variables was removed from the regression model.

d) Correlation Statistics

Pearson Correlation analysis was used to determine existence of significant correlation between the predictors and dependent variable. Findings would provide enough evidence to suggest if there was linear relationship between volume of deposit, average interest rate and liquidity ratio with quantity of loan.

e) Statistical test for normality

The study tested the normality of the regression model to determine whether the assumption of normality of distribution was attained. The Kolmogorov-Smirnov statistic was used to test for significance at ($p>0.05$) to ascertain if the distribution was normal. In addition, Shapiro Wilk test was also used to test for significance at ($p>0.05$).

CHAPTER FOUR

EMPERICAL RESULTS DISCUSSION

4.1 Introduction

This chapter presents results of this study based on the formulated objectives and hypotheses. The chapter analyses the variables involved in the study and estimate the conceptual model described in chapter two. In the first two sections, data description and analysis is presented. The model estimation and the analysis of the results are then interpreted. Hypotheses are also tested with the study accepting or failing to accept them depending on the p and t test values.

4.2 Descriptive Statistical Analysis for all the years

The study analysed the descriptive statistical measures of the data to determine the average figures. Results indicated that banks' had average quantity of loan at 42,482.23. Further, analysis showed that the mean volume of deposits was Ksh 56,592. Additionally, mean interest rate was recorded at 18.5%. Finally, mean liquidity ratio was recorded at 41.1401. The liquidity ratio was spread over a maximum of 93.82 and a minimum of 7.94 for all the years. The standard deviations are less than the means reflecting a small coefficient of variation. The range of variation between maximum and minimum is also reasonable.

Quantity of loan, liquidity ratio, volume of deposit and interest rate analysis was carried out to determine the direction of movements graphically as below

Figure 4.1: Loans Advance & Volume of Deposit trend throughout the years

Source; survey data (2014)

Figure 4.1 shows that volume of deposit and quantity of loan exhibited an upward trend from the base year 2002 to 2011. The trend could be attributed to banks channeling credits on behalf of the depositors while assessing the risks at hand.

Figure 4.2: Interest Rate & Liquidity Ratio trend throughout the years

Source; survey data (2014)

Liquidity ratio and average interest rate exhibited a more rigid trend as compared to quantity of loan and volume of deposit as shown in figure 4.2 above.

4.3 Statistical test for normality

The study tested for the normality of the data. The Kolmogorov-Smirnov statistic was not significant ($p > 0.05$) and therefore the distribution is normal. In addition, Shapiro-Wilk was not significant ($p > 0.05$) indicating that the distribution of the data was normal.

4.4 Test of autocorrelation

The regression results showed that the multiple regression model had a coefficient of determination (R^2) of abo

4.5 Test for Multicollinearity

The study tested for the Multicollinearity of the data to determine whether the assumption of Multicollinearity of distribution was attained. Results indicated that the values of tolerance were greater than 0.2 rule and those of Variance Inflation Factors (VIF) were less than 4. This shows lack of multicollinearity among independent variables. Therefore, omitting variables with insignificant regression coefficients would be inappropriate.

4.6 Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for Heteroscedasticity had a Chi square of 0.15 with a P value of 0.6978 implying the rejection of the alternative hypothesis of Heteroscedasticity. This means that variance of the error term is constant. The LM test for Autoregressive Conditional Heteroscedasticity (ARCH) reported a Chi Square of 0.512 with a P value of 0.4743 implying the acceptance of the null hypothesis of no Auto-Regressive Conditional Heteroscedasticity. Breusch-Godfrey LM test for autocorrelation reports a Chi Square of 9.565 with a P value of 0.0084 implying the acceptance of the null hypothesis of the first order serial autocorrelation. Since the first order serial autocorrelation is present in the data, the robust standard errors which account for the presence of autocorrelation is used. Thus, the normality of the distribution is ensured in the study.

4.7 Test for Stationarity

The Unit root test for all the variables using the Augmented Dickey Fuller (ADF) test showed that Liquidity R

4.8 Correlation Statistics

Correlation statistics test to establish evidence to suggest that the variables exhibited linear relationship was performed. Pearson Correlations results in table 4.6 showed that volume of deposit was most highly positively and significantly correlated to quantity of loan ($r=0.585$, $\rho<0.05$). Thus volume of deposit had 58.5% positive relationship with quantity of loan. Liquidity ratio was weakly associated with quantity of loan ($r = 0.243$, $\rho<0.05$) an indication that liquidity ratio had 24.3% significantly positive relationship with quantity of loan. Similarly, average interest rate was also weakly associated with quantity of loan ($r = -0.217$, $\rho<0.05$) an indication that interest rate had 21.7% significantly negative relationship with quantity of loan. Findings provided enough evidence to suggest that there was linear relationship between volume of deposit, average interest rate and liquidity ratio with quantity of loan.

4.9 Model Summary

Table 4.17 illustrates the model summary of multiple regression models. The model summary results showed that the three predictors (liquidity ratio, volume of deposit and average interest rate) explained 49.1 percent variation of quantity of loan. This showed that considering the three independent variables, there is a probability of predicting quantity of loan by 49.1% ($R^2 = 0.491$).

Table 4.1 Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.701a	0.491	0.473	20473.77

a Predictors: (Constant), Liquidity Ratio, Volume of Deposit, Average Interest Rate
Source; Survey data 2014

4.10 ANOVA Model

Analysis of Variance (ANOVA) model was analysed to establish if coefficient of determination R^2 was significant to enable reliable prediction of quantity loan using liquidity ratio, volume of deposit and average interest rate

Table 4.2 ANOVA Model

	Sum of Squares
Regression	34756369886
Residual	36049074720
Total	70805444606

a Dependent Variable: Quantity of Loan

b Predictors: (Constant), Liquidity Ratio, Volume of Deposit, Average Interest Rate

Source; Survey data 2014

From the Analysis of Variance (ANOVA) model table 4.8, F ratio of 27.639 with p value 0.000 < 0.05 (level of

4.11 Hypothesis Testing

Table 4.3 Estimated Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	24590.123	8770.226		2.804	0.006
Volume of Deposit	0.384	0.047	0.635	8.189	0.000

Average Interest Rate	-1540.674	519.917	-0.230	-2.963	0.004
Liquidity Ratio	348.037	95.757	0.284	3.635	0.000

a Dependent Variable: Quantity of Loan

Source; Survey data 2014

From Figure 4.9, research findings showed that volume of deposit had an estimated coefficient which was significant ($\beta_1 = 0.635$, P-value = 0.000 which is less than $\alpha = 0.05$) implying rejection of the null hypothesis stating that there is no significant relationship between volume of deposit and quantity of loan. This indicates that for each unit increase in volume of deposit, there is 0.635 units increase in quantity of loan. Furthermore, the effect of volume of deposit was stated by the t-test value = 8.189 which implies that the standard error associated with the parameter is less than the effect of the parameter.

Findings also showed that average interest rate had an estimated coefficient which was significant ($\beta_2 = -0.230$, p-value = 0.004 which is less than $\alpha = 0.05$) which indicates that we reject the null hypothesis stating that there is no significant relationship between average interest rate and quantity of loan. This implies that an increase in average interest rate by 1 unit would lead to -0.230 unit decrease in quantity of loans advanced. Also the effect of average interest rate is shown by the t-test value of -2.963 which implies that the effect of average interest rate surpasses that of the error. Finally, findings showed that liquidity ratio had an estimated coefficient which was significant ($\beta_3 = 0.284$ p-value = 0.000 which is less than $\alpha = 0.05$) implying that we reject the null hypothesis stating that there is no significant relationship between liquidity ratio and quantity of loan. This indicates that an increase in liquidity ratio by 1 unit would lead to 0.284 units increase

in quantity of loan. The effect of liquidity ratio is stated by the t-test value = 3.635 which indicates that the effect of liquidity ratio is over 3 times that of the error associated with it.

CHAPTER FIVE

SUMMARY, CONCLUSION, LIMITATIONS AND POLICY IMPLICATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusions based on the results analyzed and limitations of the study. Recommendations are made based on the conclusions and the chapter ends with suggestions for further studies that are deemed important for the extension of this research.

5.2 Summary of the Study

The cognate purpose of this study was to establish the determinants of lending behavior in selected commercial banks in Kenya. The target population for the study was all the 10 banks that were listed at the Nairobi Securities Exchange (NSE) as at the year 2012 with a sample size of 9 banks listed at NSE by the year 2006. The study also made inference on the hypotheses that volume of deposit in commercial banks does not affect total loan advanced by commercial banks in Kenya; that average interest rate does not affect total loan advanced by commercial banks in Kenya, and that total loan advanced does not depend on liquidity ratio of commercial banks in Kenya.

From the study findings, it is evident that Interest Rate, the rate, at which a commercial bank lends money to the borrowers, had linear relationship with quantity of loan. From correlational statistics, average interest rate was negatively associated with quantity of loan ($r = -0.217$, $\rho < 0.05$). This indicated that interest rate had 21.7% negative relationship with quantity of loan. Therefore, lending interest rate affects total loan advanced by commercial banks in Kenya.

Liquidity refers to the ability of the bank to fulfill its obligations, mainly of depositors. According to Dang (2011) adequate level of liquidity is positively related with bank profitability. From the study findings, it is evident that Liquidity Ratio was positively associated with quantity of loan ($r = 0.243$, $\rho < 0.05$) an indication that liquidity ratio had 24.3% significant relationship with quantity of loan. This implied that liquidity ratio positively explained 24.3% of total loans advanced by commercial banks.

Volume of deposit in commercial banks has a significant effect on the total loan advanced by commercial banks. Pearson Correlations results in table 4.16 showed that volume of deposit was most highly positively and significantly correlated to quantity of loan ($r=0.585$, $\rho < 0.05$). Thus volume of deposit had 58.5% positive relationship with quantity of loan.

5.3 Conclusion

The study findings revealed that interest rate, a tool in monetary policy used in influencing the banks' lending behaviour has an inverse relationship with total loans advanced by commercial banks such that high interest rates discourage borrowing hence low lending activity by banks and vice versa. The findings were therefore in concurrence with Usman (1999) postulation that a major regulation affecting commercial banks lending in Nigeria is the restriction on the amount of

interest they are allowed to pay on deposits in an effort to attract additional depositors and the interest they charge on their fund based activities. Further, there was evidence of a very strong positive relationship between volume of deposit and quantity of loan advanced by commercial banks indicating that as the volume of deposits increases, the Commercial Bank propensity to supply credit to the private sector also increases. The research findings are therefore in agreement with Olokoyo (2011) in Nigerian banking behavior who asserted that, the volume of deposit has the highest impact and influence on the lending of commercial banks and a change in it will yield the highest change in banks' loans and advances.

Finally the study also revealed that liquidity ratio influences banks ability to extend credit when demanded. Bigger banks are in position to attract more investments in the form of deposit and this enhances their ability to extend credit. With regard to the liquidity, studies have shown that banks with more liquid assets extend more credit to borrowers.

5.4 Policy Implications

Based on the findings of the study, it was evidenced that interest rate has an immense effect on the total advanced loans by commercial banks. Thus, commercial banks must find other innovative ways of expanding their loan book in order to maximize on interest income. This can be achieved by differentiating loan products vide offering attractive packages within appropriate risk management framework. Commercial banks should also try as much as possible to strike a balance in their loan pricing decisions. This will help them to be able to cover cost associated with lending and at the same time, maintain good banking relationship with their borrowers.

There should also be closer consultation and cooperation between commercial banks and the regulatory authorities so that the effect of regulatory measure on commercial banks is taken into account at the stage of policy formulation. Furthermore commercial banks could also increase profit by booking a larger volume of loans than they have done previously in order to make up for the short fall of the interest income in cases of a deep in rates. Since loans have to be met in cash in many cases, commercial banks, therefore, have to stock reasonable quantity of cash to meet customers' demands.

Study findings revealed that the volume of deposit in commercial banks has an effect on loans advanced by them. Therefore banks should strive hard to manage their non funded deposits efficiently so that their objective of profitability can be achieved and the multiplier effects maintained to the maximum.

5.5 Limitation of the Study

The data source for the study was CBK and respective bank websites and the NSE data base. Those banks that were not listed at the NSE at inception did not have the relevant data for the study; this limited the choice of sample size for the period under focus. Analysis of documents were on the annual report and financial statements which have drawn a lot of criticism because different banks may interpret differently the accounting principles and standards. This compromises the generalization of the data. Since Kenya uses interest rate policy as a tool of controlling inflation and which is generally volatile, the expected determinants of bank lending behavior may not be generalized to other economies that use different monetary instruments.

Others are funding and time constraints since the study was financed by the researcher while at the same time having to balance between work and the project.

5.6 Further Research Recommendations

This study established the determinants of lending behavior in selected commercial banks in Kenya. This study recommends that another study should be done to augment the findings in this study; it therefore recommends a study be done on the effect of monetary policies on borrowing behavior of the commercial banks. Further, a study may be done to determine the effect of monetary policy on borrowers' decision making.

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Appendix A

Table A1: Total Loans Advanced by Commercial Banks (Year 2002 - Year 2011)

Kshs (000)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
CFC	6,174	8,612	12,334	14,370	16,483	18,927	65,210	70,992	75,225	94,885
BBK	53,335	60,038	63,032	65,562	73,907	105,346	108,086	93,543	87,147	99,072
CO-OP	28,075	29,790	40,498	44,548	44,692	45,412	60,418	66,620	90,965	114,101
DTB	2,696	4,882	7,137	10,318	13,832	23,182	34,063	41,518	51,260	71,298
EQUITY	1,189	1,734	3,099	5,885	11,428	21,836	44,194	65,732	80,135	116,174
KCB	29,907	27,115	36,312	36,225	48,802	64,278	93,522	120,467	137,345	179,844
NBK	19,390	21,480	22,853	24,212	26,490	7,844	8,950	13,156	20,845	28,068
NIC	4,712	6,896	11,541	14,259	16,570	22,209	29,954	32,511	40,755	56,625
SCB	17,702	20,074	27,520	35,402	37,416	41,025	44,858	58,016	61,599	97,417
HFCK	7,669	7,099	6,583	6,444	6,345	7,746	10,415	14,495	19,503	25,223

Source; www.africanfinancials.com (2013)

Table A2: Data collection table

	Year 1 2002	Year 2 2003	Year 3 2004	Year 4 2005	Year 5 2006	Year 6 2007	Year 7 2008	Year 8 2009	Year 9 2010	Year 10 2011
Quantity of LOA										
Volume of Deposit (Vd)										
Interest Rate (lending) - IR										
Liquidity ratio (LR)										

Table A3: Descriptive statistics of the variables for all the years (2002-2011)

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Quantity of Loan	90	2696	198725	42482.23	36835.05	1.486	2.882
Volume of Deposit	90	4581	259309	56592.1	46684.15	1.469	3.359
Average Interest Rate	90	6.54	18.5	13.8322	2.60439	-0.693	1.225
Liquidity Ratio	90	7.94	93.82	41.1401	18.15085	1.058	1.026

Source; Survey data, 2014

Table A4: Statistical test for Normality

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Quantity of Loan	0.152	90	0.200*	0.86	90	0.711
Volume of Deposit	0.133	90	0.200*	0.877	90	0.657
Average Interest Rate	0.197	90	0.200*	0.902	90	0.01
Liquidity Ratio	0.183	90	0.200*	0.912	90	0.561

Source; survey data 2014

Table A5: Test of Multicollnilarity

Variable	Collinearity Statistics	
	Tolerance	VIF
Volume of Deposit	0.943	1.061
Average Interest Rate	0.982	1.019
Liquidity Ratio	0.960	1.042

Source; Survey data 2014

Table A6: Test for Heteroscedasticity

Test	Chi Square	Prob> Chi Square
Breusch-Pagan / Cook-Weisberg test	0.15	0.6978
Lagrange Multiplier (LM)	0.512	0.4743
Breusch-Godfrey LM test	9.565	0.0084

Source; Survey data 2014

Table A7: Test for Stationarity

Variables	Lag	Level		First difference	
		Intercept	Intercept + Trend	Intercept	Intercept + Trend
Quantity of loan	0	-6.906 ***	-7.313***	-10.694***	-10.539 ***
	1	-4.902***	-5.244 ***	-8.662***	-8.543 ***
Volume of Deposit	0	-2.303	-2.203	-6.701***	-6.721 ***
	1	-2.248	-2.169	-5.216***	-5.267**
Liquidity Ratio	0	-2.096	-2.337	-2.895**	-2.901
	1	-2.338	-2.721	-3.199 **	-3.180 ***
Average Interest Rate	0	2.152	0.256	-5.426***	-5.872***
	1	1.433	-0.266	-3.653**	-4.058**

(***), (**) and (*) denote 1%, 5% and 10% significance level respectively.

Source; Survey Data, 2014

Table A8: Correlation Statistics

Variables	Quantity of Loan	Volume of Deposit	Average Interest Rate	Liquidity Ratio
Quantity of Loan	1			
Volume of Deposit	.585**	1		
Average Interest Rate	-.217*	0.08	1	
Liquidity Ratio	.243*	-0.112	-0.131	1

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

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

Source; Survey data 2014