

DETERMINANTS OF INTEREST RATE EXPOSURE OF COMMERCIAL BANKS IN
KENYA

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DECLARATION

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DEDICATION

To my wife Sarah, son Shawn and daughter Leslie who supported me during the study period and my late father Joseph Moguche who was an inspiration throughout the study period.

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ABSTRACT

Interest rate exposure represents one of the key forms of financial risk faced by banks. It has given rise to an extensive body of research, mainly focused on the estimation of sensitivity of bank stock returns to changes in interest rates. However, the analysis of the sources of bank interest rate risk has received much less attention in the literature. Studies that empirically investigate the determinants of bank interest rate exposure have traditionally used asset-liability maturity or duration gap as the key factor explaining banks' interest rate exposure. However, this approach presents serious drawbacks given the well-known limitations of static gap indicators, together with the difficulties to obtain precise year-by-year gap measures for most of banks. For this reason, an alternative was to examine the association between each bank's estimated interest rate exposure and a set of readily observable specific characteristics that might have a potentially relevant role in explaining that exposure. The aim of this research was to investigate the main determinants of the interest rate exposure of commercial banks by focusing on how total assets, off balance sheet items, bank's deposit and loan composition affect interest rate exposure. The research involved use of both primary and secondary data methodology. Secondary data was obtained from CBK. Primary data was collected via questionnaires from ALCO members. The research population comprised the 43 CBs operating in Kenya with a sample size of 65 respondents. The response rate for the questionnaires which were distributed was 77%. Data was analyzed using descriptive statistical approach. Data analysis was conducted through Statistical Package for Social Science (SPSS). The result was presented using charts and tables. It was established from the research findings that indeed banks total assets, customer deposits and loan composition are key determinants of bank interest rate exposure. However, there was lack of information on the off balance sheet items and thus their effect on interest rate exposure. The research recommends that CBs should in addition to traditional considerations of asset – liability maturity period take into account total assets, loan composition and customer deposits level in determining interest rates exposure. The ALCO should also encourage policies that increase savings deposits that provide cheap financing and shield the bank against interest rate exposure. The banks should ensure information and benefits of the off balance sheet income is disseminated within the banks and increase use of off balance sheet income hedge against the interest rate exposure. The commercial banks should reduce dependency on corporate deposits that attract high interest rates.

OPERATIONAL DEFINITION OF TERMS

Asset and Liability Committees: Mandatory committees in CBs responsible for evaluating CBs risks.

Cash Reserve Ratio: The ratio set by CBK setting the minimum cash reserve held by CBs MPC, (2011)

Central Bank Rate: The minimum rate of interest CBK lends to commercial banks MPC, (2011)

Equity Capital Ratio: The proportion of equity with respect to total assets of the bank

Interest rate exposure: The risk that its income and/or market value will be adversely affected by interest rate movements Laura, (2009).

Inter Bank Lending Rates: The rate at which CBs borrow and lend among themselves MPC, (2011)

Intermediation Costs: Cost associated with the management of customer deposits and borrowings. Quaden, (2004).

Liquidity Ratio: This ratio measures the value of liquid assets that a CB has as a percentage of liabilities to the public.

Monetary Policy Committee: The committee in charge of monetary policy at CBK MPC, (2011)

ABBREVIATION AND ACRONYMS

- IRR: Interest Rate Risk
- CBK: Central Bank of Kenya
- MPC: Monetary Policy Committee
- CBR: Central Bank Rate
- CRR: Cash Reserve Ratio
- CBs: Commercial Banks
- ALCO: Asset and Liability Committees
- IRS: Interest Rate Spreads
- OMO: Open Market Operation
- REPO: Repurchase Agreements
- CAP: Equity Capital Ratio
- SPSS: Statistical Package for Social Science
- NPL: Non Performing Loans

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

For a bank, interest rate exposure can be defined as the risk that its income and/or market value will be adversely affected by interest rate movements. This risk stems from the peculiar nature of the banking business and it can be predominantly attributed to the following reasons. On the one hand, banking institutions hold primarily in their balance sheets financial assets and liabilities fixed in nominal (non-inflation adjusted) terms, hence especially sensitive to interest rate fluctuations. Interest rate exposure represents one of the key forms of financial risk that banks face in their role as financial intermediaries. This role refers to the process performed by banks of taking funds from a depositor and then lending them out to a borrower. The banking business thrives on the financial intermediation ability of financial institutions that allow them to lend out money at relatively high rates of interest while receiving money on deposit at relatively low rates of interest.

On the other hand, banks traditionally perform a maturity transformation function using short-term deposits to finance long-term loans. The resulting mismatch between the maturity (or time to repricing) of the assets and liabilities exposes banks to repricing risk, which is often seen as the major source of the interest rate sensitivity of the banking system. Apart from repricing risk, banking firms are also subject to other types of sources of IRR. Basic risk arises from imperfect correlation in the adjustment of the rates earned and paid due to the use of different base rates; yield curve risk is associated to changes in the shape of the yield curve with an adverse impact on a bank's value; and optionality risk has its origin in the presence of option features within certain assets, liabilities, and off-balance sheet items. Additionally, IRR may also influence banks indirectly by altering the expected future cash flows from loan and credits. As a consequence, the banking sector has been typically viewed as one of the industries with greater interest rate sensitivity and a large part of the literature on interest rate exposure has focused on banks in detriment of nonfinancial firms.

The recent financial crisis has sent a shock in the economy and a wake up call to the regulator, Central Bank of Kenya (CBK) on how and when it is prudent to review monetary policies as the sole regulator to avoid uncontrolled inflation and foreign exchange rates instability MPC, (2011). In the last three months of the year 2011 depreciating Kenyan Shilling against the dollar has made CBK for the first time to publicly declare that they had underestimated the crisis. The Monetary Policy Committee MPC, (2011) of CBK examined a broad array of available information and analyses that showed these developments are a threat to economic recovery and macroeconomic stability. The Country economic growth rate had declined to 4.1% at the end of the second quarter. The Shilling has also lost 26% of its value this year, reaching a record low of Shs. 104 to the dollar in the quarter to join the world worst performing currencies during the period MPC, (2011). Economic analyst argued that traditional source of dollar for Kenya has been agricultural cash crops such as coffee, tea and horticulture. But these had been affected by the drought which had hit hard the country during the earlier period of the year, leading to low production. At the same time the shortage of rains led to importation of staple food, maize, pilling more pressure on the currency.

In a move seen to push up cost of bank loans, CBK has been reviewing its policy rates since the beginning of the third quarter with the first being in September, 2011 raising its base lending rate by 4 percent points to 11 percent and most recent in December, 2011 increasing Central Bank Rate (CBR) by 550 basis points to 16.5% and the Cash Reserve Ratio (CRR) by 50 basis points to 5.25% in a bid to tame inflation currently at 19% and stabilizing the shilling. The committee considered an enhanced tightening of the monetary policy stance was required at this time but observed that this needs to be complemented by the ongoing actions on the supply side with respect to food, fuel and energy. Fixing CBR rate at 16.5% means that the MPC is setting the economy up for a much tighter monetary environment that should result in some measure of macroeconomic stability but also sets the stage for a painful rise in lending rates and a further slow down in business growth. This has affected both borrowers who are already pressed hard with the adjusted banks' base lending rates and commercial banks who are now being tossed between high cost of funds being demanded by their depositors and already hiked inter bank lending rates MPC, (2011).

The Commercial Banks (CBs) have been left with one main problem: how to determine its optimal interest rate exposure in order to retain its lenders (customers), sustain its operational cost, maintain CBK policy rates and ensure business growth in line with set targets at the beginning of the year. This has sent commercial banks' Asset and Liability Committees (ALCO) to an intense analysis of its lending rate determinants with the current prevailing economic challenges coming from both customers and the regulator. Therefore, this study seeks to establish and analyze determinants of interest rate exposure of commercial banks in Kenya in order to provide affordable financial service and the same time ensures business growth is in line with the organization set objectives.

1.2 Statement of the problem

Banks traditionally perform a maturity transformation function using short-term deposits to finance long-term loans. The resulting mismatch between the maturity (or time to repricing) of the assets and liabilities exposes banks to repricing risk, which is often seen as the major source of the interest rate sensitivity of the banking system. Apart from repricing risk, banking firms are also subject to other types of sources of interest rate exposure. Basis risk arises from imperfect correlation in the adjustment of the rates earned and paid due to the use of different base rates; yield curve risk is associated to changes in the shape of the yield curve with an adverse impact on a bank's value; and optionality risk has its origin in the presence of option features within certain assets, liabilities, and off-balance sheet items. Additionally, interest rate exposure may also influence banks indirectly by altering the expected future cash flows from loan and credits. As a consequence, the banking sector has been typically viewed as one of the industries with greater interest rate sensitivity and a large part of the literature on interest rate exposure has focused on banks in detriment of nonfinancial firms. Studies that empirically investigate the determinants of bank interest rate exposure have traditionally used asset-liability maturity or duration gap as the key factor explaining banks' interest rate exposure. However, this approach presents serious drawbacks given the well-known limitations of static gap indicators, together with the difficulties to obtain precise year-by-year gap measures for most of banks. For this reason, an interesting alternative, which however has received sparse attention in the literature, is to examine the association between each bank's estimated interest rate exposure and a set of readily observable specific characteristics that might have a potentially relevant role in explaining that exposure, such as bank size, equity capital, balance sheet composition, or off-balance sheet activities Laura, (2009). The prevailing margin between deposit-lending rates, the

interest rate spreads (IRS) in an economy has important implications for the growth and development of such economy, as numerous authors suggest, a critical link between the efficiency of bank intermediation and economic growth. Quaden, (2004), for example, argues that a more efficient banking system benefits the real economy by allowing ‘higher expected returns for savers with a financial surplus, and lower borrowing costs for investing in new projects that need external finance.’ Therefore, if the banking sector’s interest rate spread is large it discourages potential savers due to low returns on deposits and thus limits financing for potential borrowers (Ndung’u and Ngugi, 2000). This paper attempts to fill this gap in the Kenyan case by undertaking a comprehensive study addressed to identify the most important sources of interest rate exposure of commercial banks. This paper differs from previous studies in three ways. First, to the authors’ knowledge, this is the first work to specifically tackle this issue for the Kenyan banking sector. Second, a panel data approach will be used in order to analyze whether some bank characteristics can contribute significantly to explain bank interest rate exposure. Third, the present study considers a group of bank variables larger than those usually employed in the extant studies about this topic, taking into account both traditional on-balance and off-balance sheet activities.

1.3 Objectives of the study

1.3.1 General objective:

The general objective of the study was to analyze the determinants of commercial banks interest rate exposure in Kenya.

1.3.2 Specific objectives of the study

- i. To determine how total assets affect interest rates exposure.
- ii. To determine the relationship between off balance sheet items and interest rate exposure.
- iii. To determine the extent to which bank’s deposit level affects its interest rate exposure.
- iv. To find out how loan composition affects interest rate exposure

1.4 Research Questions

The study was to seek information to address the following specific questions:

- i. How do banks total assets affect interest rate exposure?
- ii. What is the existing relationship between off balance sheet items and interest rate exposure?
- iii. To what extent does bank's deposit level affects its interest rate exposure?
- iv. What are the effects of loan composition on interest rate exposure?

1.5 Significance of the study

The prevailing margin between deposit-lending rates, the interest rate spreads (IRS) in an economy has important implications for the growth and development of such economy, as numerous authors suggest, a critical link between the efficiency of bank intermediation and economic growth. Quaden (2004), for example, argues that a more efficient banking system benefits the real economy by allowing 'higher expected returns for savers with a financial surplus, and lower borrowing costs for investing in new projects that need external finance.' Therefore, if the banking sector's interest rate spread is large it discourages potential savers due to low returns on deposits and thus limits financing for potential borrowers Ndung'u and Ngugi, (2000). Valverde et al (2004) elucidate by noting that because of the costs of intermediating between savers and borrowers, only a fraction of the savings mobilized by banks can be finally channeled into investments. An increase in the inefficiency of banks increases these intermediation costs, and thereby increases the fraction of savings that is 'lost' in the process of intermediation. This ultimately reduces lending, investment and economic growth.

Therefore, the outcome of this study will be used by various commercial banks' asset and liability management committee in reviewing their cost of funds and lending policies regarding interest rate exposure to avoid financial shocks due to both external and internal economic factors.

1.6 Scope of the Study

The study comprised of commercial banks in Kenya which are 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 Limitation of the Study

Negative CBs perception and attitude mainly influenced by persistent public concern over high interest rate charged on advances, time and financial constraints may limit the access to much needed information especially in CBs where interest rates are ranked high and no proper determination procedure has been factored in their lending policy.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Literature Review

Monetarists economists argued long time ago that central bank interest rate rules exacerbate microeconomic fluctuations, essentially by not allowing interest rate to respond promptly to shifts in supply and demand for loans. To support this critique, they pointed to the pro-cyclicality of the money stock. Yet, when there are real shocks and a real business cycle, modern macroeconomic models imply that some pro-cyclicality is desirable, to stabilize the price level. A simple interest rate rule illustrate that the monetarist critique can be valid within this model, since the rule exacerbates the real activity to real shocks. Other interest rates rules instead limit the macro economy's response to real shocks. But, while these interest rates rules have diverse effects on real activity, there is an important common implication: By smoothening the nominal interest rate in the short run, the rules all lead to increases in the long run variability in inflation and nominal interest rates Ngetich and Wanjau, (2011).

While the CBK's monetary policy strategy continued to be that of targeting monetary aggregates, there was a shift away from direct to indirect instruments of monetary control with clearly defined objectives and greater operational autonomy. A new institutional framework for conducting monetary policy was formalized with the amendment of the CBK Act in 1996. The principal objective of the CBK was stipulated as formulation and implementation of monetary policy directed to achieving and maintaining stability in the general level of prices. In addition, the Act provides for greater autonomy of the CBK in the conduct of monetary policy. Specifically, the Governor, the Deputy Governor and five other members of the Board of Directors are to be appointed by the President for a four-year term (renewable once). The Governor can be removed in the course of his term under a tribunal constituted to investigate his conduct. The Permanent Secretary of the Ministry of Finance and the Head of the Civil Service and Secretary to the Cabinet of the Office of the President are ex-officio members of the CBK Board of Governors H. Rotich, M. Kathanje and I. Maana, (2007).

With respect to accountability and communication, the law stipulates that the CBK, at intervals of not more than six months, submit to the Minister for Finance a monetary policy statement. The Statement specifies the policies and the means by which the Bank intends to achieve the policy targets; state the reasons for adopting such policies and means; and reviews the progress of the implementation by the Bank of monetary policy during the period to which the preceding policy statement relates. The Minister shall lay every statement submitted by the CBK before the appropriate committee of the National Assembly not later than the end of the subsequent session of Parliament after the statement is submitted.

In terms of instruments of monetary policy, the CBK initially managed monetary conditions in Kenya to obtain suitable growth in the money supply by engaging in primary auctions of government paper. The volume of paper sold was in principle determined by both budgetary financing needs and monetary policy considerations. In addition, the reserve requirement and foreign exchange operations were actively used to influence monetary conditions. Later in the second half of 1990s, further refinement was made in the monetary policy instruments with CBK engaging in open market operation (OMO) through repurchase agreements (REPO) and less reliance on reserve requirement. Reserve ratio requirement that was actively used before mid-1990s was gradually lowered to the current level of 6 percent from 20 percent in 1994. H. Rotich, M. Kathanje and I. Maana, (2007).

A further interesting aspect to highlight in relation to monetary policy making in Kenya in the post liberalization period is how the exchange rate has been organised. At the initial stages following liberalisation, there was virtually no intervention by CBK in the foreign exchange market. As result, Kenya was categorised among developed countries as a free floater. The stated exchange rate policy of the CBK has been and continues to be to pursue a market-determined exchange rate, intervening only to smooth out erratic movement, service external obligations and achieve targeted level of foreign exchange reserves. Nonetheless, there have been instances where intense lobbying from non-traditional exporters for a depreciated exchange rate putting pressure on the CBK to influence the market exchange rate in the short run.

There were also instances where depreciation pressures emanating from speculative tendencies occasioned by fragile donor relations and large food importation to mitigate adverse effects of drought could have led CBK to intervene in the foreign exchange market to reduce pressures on domestic inflation (Ibid).

One of the concerns raised by the business sector has been the lack of transparency in how the CBs determine prevailing lending base rates. This concern has also been accentuated by some of the CBs' preference for placing their loanable funds in government instruments. In response, CBs have argued that, lending base rates are largely influenced by the interplay of factors prevailing that are outside their control together with the need to remain profitable. In depth discussions with representatives of Commercial Banks indicates that there are a number of factors presently influencing their preference to higher base lending rates. The three most important contributory factors are: low private savings; lending risk; and, structure of regulatory ratios that are enforced by CBK and must be adhered to. Each of these are analyzed under empirical literature review in some detail below.

2.2 Empirical Literature Review

2.2.1 Customer Deposit Level and Cost

This is associated with the prevailing macroeconomic environment and pace at which the business sector is responding to liberalized markets. More specifically, In Kenya industrial productivity had slumped during post election violence in 2008 with a number of formal sector business closures thus, increasing unemployment levels in the country. This has also led to the increase in poverty levels (estimated at 80% of the total population). The overall effect of these factors has been to reduce domestic savings potential. Given the economic situation, especially high inflation and volatile exchange rate of the Kenya Shilling against the dollar, few savers are willing to place their funds in long-term deposit instruments.

This therefore means that the commercial banks cannot mobilize sufficient levels of retail savings to support needs of commercial borrowers.

On the other hand, Commercial Banks (CBs) are competing for limited private savings that are placed with them on short-term basis. It also means that they have to place such funds in secure lending activities whilst, minimizing risk. This has invariably created a mismatch between demand for credit and availability of funds that CBs are willing to lend that carry commercial risks.

CBs operate under increasing pressures to realize maximum returns on any such deposits that they can mobilize. This can also partially explain why CBs are reluctant to lend long-term. The inevitable outcome has been to place a price premium on the available funds that CBs can lend to support commercial and therefore risky ventures. This has also contributed to the cautious approach of CBs in assessing lending risk and loading of actual interest rates charged above what they publish as base rates ZAMTIE, (2003).

2.2.2 Lending Risk

Lending risk is the risk of loss due to a debtor's non-payment of asset or other line of credit (either the principal or interest or both). The default events include a delay in payment, restructure of borrower's payment and bankruptcy. Interest rate affects lending risk since the borrower might not be keen to pay cost of funding/credit or might find such assets expensive in the future. Low interest rates encourage ex-ante risk taking Kashyap and Stein, (2000).

Partly due to the factors indicated above, assessment of lending risk has become a critical part of CBs' management of credit. This emphasis has been instigated by a number of factors associated with the business environment. Firstly, business enterprises are operating under unstable parameters making it difficult for them to plan cash flows and meet debt service obligations when these fall due. Volatility in the movement of the exchange rate has been one of the major sources of this problem.

Another source of the problem has been the knock on effects of slow supplier payments, especially where the Government is involved at some stage in the cycle. For example, a supplier of goods to Government may have obtained inputs from a manufacturer who also borrowed from a CB to cover production costs.

Where the supplier is unable to collect dues from Government on time, thus making them default in meeting the credit terms agreed with the manufacturer. In turn, the manufacturer will not have received the sales proceeds to enable them meet service payments to the CB. This cycle of slow creditor payments is most prominent where the government is involved as a consumer of goods and/or services. Its track record of timely creditor payments is virtually non-existent. On the other hand it is the biggest consumer (both directly and indirectly) of goods and services in the economy ZAMTIE, (2003).

Secondly, the quality of borrowers in recent years has been dropping with the liberalization of markets and poor entrepreneurial discipline. In the past, borrowers operated in an environment of fixed interest rates, supported by price and import controls. The environment was largely one where sellers dominated terms due to the inward nature of the economy. The culture of defaulting on debt service payments was also prevalent largely due to political interference and static markets (Ibid).

Adjustment to the more liberalized market environment has therefore, been slow for a number of borrowers who also have to compete for the limited credit available from CBs. This factor has also meant that CBs have to make large provisions for loan losses thus making credit more expensive and subject of stringent collateral requirements ZAMTIE, (2003).

2.2.3 Central Bank Regulatory Ratios

CBK in its quest to regulate the financial markets has instituted monetary policy measures aimed at supporting stability in the exchange rate and striving for the principal goal of achieving low inflation. As part of the measures that it employs is the enforcement of minimum (or regulatory) liquidity and reserve ratios that CBs must adhere to. At present, two sets of regulatory ratios are enforced at the following levels: □ Liquidity Ratio. This ratio measures the value of liquid assets that a CB has as a percentage of liabilities to the public. The requirement by CBK is that 27% of a CB's public liabilities should be in liquid form and available on demand. This means that CBs must always ensure that, at least 27% of their total balance sheet assets are maintained as liquid funds or, near cash assets (equivalent assets); and, Reserve Ratio. Apart from the Liquidity ratio, CBs are also presently required to maintain 5.25% of both the Kenya Shilling and foreign denominated public liabilities in a sterile statutory reserve account with CBK. This means that

CBs must maintain with CBK, cash reserves of not less than 5.25% of their total public liabilities. Central Bank Rate (CBR) was also adjusted by 50 basis points to 16.25% effective 1st December, 2011, implying that CBs can only borrow funds from CBK at 16.25% which has a very narrow margin with what their customers are willing to borrow at. CBK, (2011)

CBs are amenable to severe penalty charges by CBK where they fail to adhere to the regulatory ratios at any one time. This has meant that CBs must always ensure that they retain sufficient liquidity to stay within the limits of the CBK regulations. It has thus been shown that when determining the cost of lending, commercial banks consider factors such as regulatory ratios, deposit rates and mismatch risk. It is therefore necessary to address these issues before the high cost of borrowing in the country can be brought under manageable levels ZAMTIE, (2003).

3.2.4 Commercial Banks and Central Bank lending rates

Interest rates increased sharply on all financial instruments following aggressive monetary policy tightening adopted by the Central Bank to address inflationary pressures and stabilize the exchange rate MPC, (2011).

The Central Bank Rate (CBR) was first reduced to 5.75 percent in January 2011 from 6.0 percent in December 2010. In subsequent reviews of domestic economic developments conditions by the Monetary Policy Committee (MPC), the CBK opted to tighten monetary policy stance by raising the CBR from 5.75 percent in January 2011 to 6 percent in March 2011. In the follow up meetings of July and September, the CBR was raised to 6.25 percent and 7 percent, respectively. The strength of monetary policy tightness made little impact on inflation and the exchange rate trends. Inflation continued to increase albeit at a decelerating rate while the Kenya Shilling exchange rate remained volatile and depreciating. Further action on the stance of monetary policy resulted in raising the CBR by an unprecedented 400 basis points to 11.0 percent in October 2011 and by 550 basis points and 150 basis points to 16.5 percent and 18.0 percent, respectively in November 2011 and December 2011. These measures were taken to also slow down private sector credit demand which had partly contributed to the deterioration of the current account balance MPC, (2011).

The increase in CBR rate raised short term interest rates, particularly the interbank rate. The average inter-bank lending rate increased from 1.18 percent in December 2010 to 21.75 percent in December 2011. The average 91- day Treasury Bills rate also increased steadily throughout the year from 2.28 percent to 18.30 percent. The average commercial bank lending rates and deposit rates maintained an upward trend between December 2010 and December 2011. Commercial banks average lending rate increased from 13.87 percent in December 2010 to 20.04 percent in December 2011, with an annual average of 15.05 percent. Over the same period, the average interest rate paid by banks on deposits increased from a 3.59 percent in December 2010 to 6.99 percent in December 2011. Consequently, the interest rate spread widened to 13.06 percent in December 2011 from 10.28 percent in December 2010 reflecting the increase in the lending rate CBK, (2011).

The depreciation of the Kenya Shilling against most traded world currencies was due to the Euro sovereign debt crisis that led to increased demand for US Dollars on account of “flight to safety” phenomenon. However, in the last two months of 2011 the Kenya shilling strengthened against the major world trading currencies as shown in Chart 6. This followed the aggressive monetary policy actions with the Monetary Policy Committee (MPC) raising the Central Bank Rate (CBR) by 1,100 basis points from 7 percent in September 2011 to 18 percent in December 2011, and the cash reserve ratio (CRR) by 50 basis points to a monthly average of 5.25 percent effective 15th December 2011. CBK also reduced commercial banks’ foreign exchange exposure limit from 20 percent of core capital to 10 percent CBK, (2011).

3.2.5 Determinants of interest rate

The choice of the particular bank-specific characteristics has been guided by economic priors and early empirical literature. The equity capital ratio (CAP), defined as the proportion of equity with respect to total assets of the bank, is as a measure of capital strength widely used as a potential determinant of bank’s interest rate exposure (e.g., Fraser et al., 2002; Saporoschenko, 2002; Reichert and Shyu, 2003; Au Yong et al., 2007). Fraser et al. (2002) point out, a large level of equity capital reduces the probability of financial distress and bankruptcy, therefore avoiding strong sell-off of bank stocks in response to negative shocks such as rising interest rates. Thus, a high level of capital can be viewed as a great cushion against abnormal increases in interest rates

and other adverse market shocks.

The bank size also constitutes a variable frequently considered in the literature as a potential explanatory factor of bank IRR (e.g., Fraser et al., 2002; Saporoschenko, 2002; Reichert and Shyu, 2003; Au Yong et al., 2007). Large banks may have greater interest rate exposure due to moral hazard behaviour, where banks that are too big to fail have an incentive to incur risks that are underwritten by the government deposit insurance system. Consequently, the sign of the relationship between size and bank IRR is theoretically ambiguous and it becomes an empirical question. Nevertheless, it can be noted that several studies, focused on the impact of IRR on bank stock portfolios constructed according to size criteria, have found a positive association between bank's size and interest rate exposure.

The loans to total assets ratio is a measure of the relative importance of loans into the bank's balance sheet and can be interpreted as an indicator of IRR as well. On average, the maturity (or duration) of bank loans is greater than the corresponding one of the rest of bank assets and liabilities. Accordingly, an increase in the proportion of loans entails an extension of the typical maturity mismatch between assets and liabilities, so increasing the bank's interest rate exposure. Therefore, it seems natural to expect a positive association between this ratio and the bank IRR Laura, (2009).

Similarly, the deposits to total assets ratio provides insight into the importance of deposits in the bank's balance sheet. The deposit base is usually viewed as a stable and relatively cheap source of funding for banks. Additionally, a large percentage of total deposits, basically demand deposits and savings deposits, show low interest rate sensitivity due to the fact that these kind of deposits are mainly for savings rather than investment. Therefore, a negative relationship is hypothesized between this ratio and the level of bank's interest rate exposure Gloria, (2009).

The net interest margin to total assets ratio captures the relative weight of the income obtained from traditional banking business (taking deposits and granting loans). In principle, banks with a larger portion of their total revenues derived from interest rate income should have greater interest rate dependence and, consequently, a higher degree of interest rate exposure. Accordingly, it is expected that this ratio to be positively related to the bank IRR Laura, (2009).

2.3 Knowledge Gaps

While a number of studies have investigated the effect of interest rate exposure, most of these studies have been done in developed countries with few being done in developing countries. In Kenya, Ngugi (2001) conducting a study on interest rate spread Kenya found that commercial banks incorporate charges on intermediation services offered under uncertainty, and set the interest rate levels for deposits and loans.

The approach used in much of the literature is to classify determinants of commercial banks' interest rate spreads according to whether they are bank-specific, industry (market) specific or macroeconomic in nature. Moore and Craigwell (2000), Brock and Rojas-Suarez (2000), Gelos (2006), Sologoub (2006), and Crowley (2007) note that the specific characteristics of commercial banks that are usually theorized to have an impact on their spreads include the size of the bank, ownership pattern, the quality of the loan portfolio, capital adequacy, overhead costs, operating expenses, and shares of liquid and fixed assets. Robinson (2002) further notes that the incidence of fraud, the ease with which bad credit risks survive due diligence, and the state of corporate governance within banks all lead to higher operating costs, asset deterioration and ultimately wider interest rate spreads. These studies all show that such bank-specific factors impact significantly on commercial banks' net interest margins. Notwithstanding this, Brock and Franken (2002) note that the results of many other studies suggest that individual bank characteristics are often not tightly correlated with interest rate spreads. It is asserted that this may be because spreads are largely determined at the industry level, thus making individual bank characteristics more relevant to other variables, such as bank profitability.

A similar argument, made to explain the failure of analysis of interest rate exposure in developing countries to converge to international levels even after financial liberalization, suggests that high interest rate risks in developing countries will persist if financial sector reforms 'do not significantly alter the structure within which banks operate' Chirwa and Mlachila, (2004). This structure refers to the market/industry and macroeconomic environment in developing countries. The market-specific determinants of commercial bank interest rate spreads highlighted in the literature typically include lack of adequate competition in the

banking sector and consequent market power of commercial banks, the degree of development of the banking sector, and explicit and implicit taxation - such as profit taxes and reserve requirements. Cross-country studies have also established that banking spreads tend to fall as institutional factors improve. Such factors include the efficiency of the legal system, contract enforcement, and decreased levels of corruption, which are all critical elements of the basic infrastructure needed to support efficient banking.

In Kenya the high inflation and lending interest rates witnessed in the year 2011 was a clear evidence that the country is still struggling with drafting stable monetary policies which can sustain its economic environment for progressive development. During the same year several business forums were able to identify: great market power of commercial banks poorly developed banking sector, high reserve requirements imposed by the regulator-CBK and inefficiency of the legal system and high corruption as some of the key drawbacks in addressing in controlling interest rate exposure among commercial banks in Kenya.

The researcher aims at addressing interest rate exposure through both internal factors of various commercial banks and the monetary policies implied by the regulator through statutory ratios. This is a paradigm shift from the wider perspective taken by the various past studies as highlighted above.

2.4 Conceptual Framework

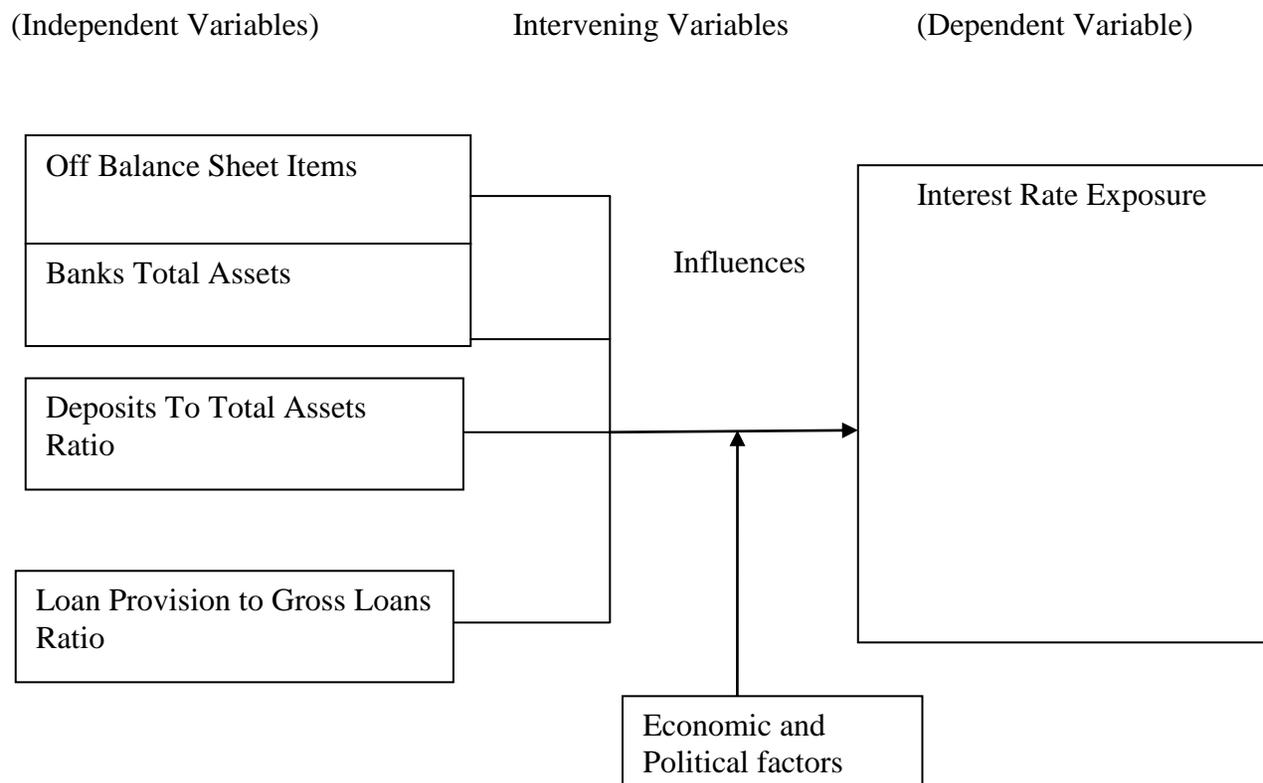


Figure 2.1 Conceptual frame work

Off Balance Sheet Items:

Since derivative activities carried out by banks are classified as off-balance sheet operations and there is not more specific information about banks' derivative positions in any of the commercial bank scope database, the ratio of off-balance sheet exposure to total assets (X_1) has been used as a proxy of derivative activities. Concerning to the sign of the relationship between this indicator and the degree of banks' interest rate exposure, two opposite situations can be distinguished depending on the basic motivation underlying to the use of derivatives. On the one hand, if banks employ derivatives primarily to reduce interest rate exposure arising from their other banking activities a negative coefficient on X_1 is expected because a greater extent of derivative activities would be associated with a lower level of interest rate exposure. On the other hand, a positive coefficient on X_1 would suggest that banks use predominantly derivative instruments to increase income (for speculation) since a greater use of derivatives implies in this case a greater risk exposure.

As it is not clear a priori which of these two alternatives is more likely, the contribution of derivatives to banks' interest rate exposure must be empirically determined.

Banks Total Assets:

The bank size also constitutes a variable frequently considered in the literature as a potential explanatory factor of bank interest rate exposure (Reichert and Shyu, 2003). In this study, the bank size variable (X_2), defined as the natural logarithm of total bank assets, is included to control for discrepancies in terms of interest rate exposure between small and large banks that might be caused by several factors. These operating advantages make that large banks may choose to pursue riskier activities, such as granting risky loans or taking speculative positions in derivatives, due to competitive pressures. In addition, large banks may have greater interest rate exposure due to moral hazard behaviour, where banks that are too big to fail have an incentive to incur risks that are underwritten by the government deposit insurance system.

Deposits to Total Assets Ratio:

The deposits to total assets ratio (X_3) provides insight into the importance of deposits in the bank's balance sheet. The deposit base is usually viewed as a stable and relatively cheap source of funding for banks. Additionally, a large percentage of total deposits, basically demand deposits and savings deposits, show low interest rate sensitivity due to the fact that these kind of deposits are mainly for savings rather than investment. Therefore, a negative relationship is hypothesized between this ratio and the level of bank's interest rate exposure.

Loans to Total Assets Ratio:

The loans to total assets ratio (X_4) is a measure of the relative importance of loans into the bank's balance sheet and can be interpreted as an indicator of interest rate exposure as well. On average, the maturity (or duration) of bank loans is greater than the corresponding one of the rest of bank assets and liabilities. Accordingly, an increase in the proportion of loans entails an extension of the typical maturity mismatch between assets and liabilities, so increasing the bank's interest rate exposure. Therefore, it seems natural to expect a positive association between this ratio and the bank interest rate exposure.

Loan Loss Provision to Gross Loans Ratio:

Finally, the loan loss reserves to gross loans ratio (X_5) constitutes an indicator of the quality of the bank's loan portfolio and, therefore, it can be seen as a proxy of credit risk. This variable is considered in the analysis in order to examine whether there exists a systematic relationship

between the levels of credit risk and interest rate exposure borne by Kenyan Commercial Banks.

Therefore, the model is given by:

$$\text{Interest rate exposure (Y)} = B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + E$$

Where B_1 , B_2 , B_3 , B_4 , B_5 are coefficients and E is the error term.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

The research process can be divided into qualitative and quantitative research. Most quantitative management research involves a questionnaire or a survey and always involves numerical analysis of data Partington, (2002). The quantitative approach is objective in its nature and focuses on measuring a phenomenon, whereas the qualitative approach tends to be subjective in nature and engages examination and reflection, which are based on perceptions. The same author explains that data in qualitative research is collected from words and observations instead of numbers. The basis for analysis is an interpretation of the data instead of statistical manipulation Parlington, (2002).

The research design used in this study is a survey design. The cross-sectional survey design will be used. This design entails the collection of data of more than one case and at a single point in time in order to collect a body of qualitative or quantifiable data in connection with several variables which are then examined to detect the patterns of association Bryman, (2001). Some theorists Sekaran, (2003) argue that case studies are not used often as a research technique within an organizational context, as it is not easy to identify an organization that would be similar in nature to the problem and the problem definition, as stated in the case study. However, according to Vin (2003), a case study is one of five different research strategies (the survey, experiment, the archival analysis, the history, case study) that the researcher can adopt when conducting a study. He defines case study in the following way: A case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, which are not clearly evident".

Furthermore, the author argues that there are three conditions, which have an influence on the choice of the research strategy, namely research question, role of the investigator and the focus of the study. Saunders et al (2000) believes that a case study is a valuable way of exploring contemporary theory.

3.2 Sampling Design

3.2.1 Target Population

The research population comprised the 43 commercial banks operating in Kenya and 172 individual persons (ALCO members) in year 2011. First, general information regarding the commercial banks interest rate exposure was examined by questions. The banks were classified into three peer group namely: large, medium and small. The second stage involved closed-ended questionnaires which were delivered to the respective members of the ALCO in the commercial banks.

The peer grouping was based on a weighted composite index comprising assets, deposits, capital size, number of deposit and loan accounts. Based on the weighted composite index, a large bank has a market share of 5% and above; medium bank between 1% and 5% and a small bank has less than 1% of the market share. Based on the peer grouping, there were 6 large banks, 15 medium banks and 22 small banks as at 31st December 2011 as shown in Table 1. Consequently, the large banks accounted for 56 percent of total assets, 55% of customer deposits, 57% of capital & reserves and 63% of the sector's profit before tax CBK, (2011).

Table 3.1: Categories of Target Population

Peer Group	Number of Institutions	Percentage (%)
Large	6	14.0
Medium	15	34.9
Small	22	51.1
TOTALS	43	100

Source; Researcher, 2013

For the purpose of the study, members of ALCO for each bank composed of one representative from each of the following departments: Treasury, Credit, Finance and Business Development. This makes a total of four members from each Institution.

Table 3.2: Target Population

Peer Group	Population Frequency	Percentage (%)
Large	24	14.0
Medium	60	34.9
Small	88	51.1
TOTALS	172	100

Source; Researcher, 2013

3.2.2 Sample Size

Most of the variables identified under this study are both continuous. Therefore, the researcher employed Cochran's (1977) formula for continuous variable with precision level of 0.05, a five point scale and level of error at 0.05 (95% confidence level) as shown below:

$$n_0 = \frac{(t)^2 * (s)^2}{(d)^2} = \frac{(1.96)^2(1.25)^2}{(5*0.05)^2} = 96.04$$

Where t = value for selected alpha level of .025 in each tail = 1.96 (the alpha level of .05 indicates the level of risk the researcher is willing to take that true margin of error may exceed the acceptable margin of error.)

Where s = estimate of standard deviation in the population = 1.25. (estimate of variance deviation for 5 point scale calculated by using 5 [inclusive range of scale] divided by 4 [number of standard deviations that include almost all (approximately 98%) of the possible values in the range]).

Where d = acceptable margin of error for mean being estimated = .25. (number of points on primary scale * acceptable margin of error; points on primary scale = 5; acceptable margin of error = .05 [error researcher is willing to except]).

Therefore, for a population of 172, the required sample size was 96. However, since this sample size exceeds 5% of the population (172*.05=8), Cochran's (1977) correction formula was used to calculate the final sample size. These calculations were as follows:

$$n = \frac{n_0}{(1 + n_0/\text{population})} = \frac{96}{(1 + 96/172)} = 61.61 = 62$$

Therefore, in this case, it was anticipated that a response rate of 95% would be achieved based on prior research experience. Given a required minimum sample size (corrected) of 62, the following calculations were used to determine the drawn sample size required to produce the minimum sample size:

Where anticipated return rate = 95%.

Where n_2 = sample size adjusted for response rate.

Where minimum sample size (corrected) = 62.

Therefore, $n_2 = 62/0.95 = 65$.

Stratified sample procedure was used for the preliminary sampling of the banks. (Olive M. Mugenda, Abel G.Mugenda, 2003), this procedure involves dividing the population in two or more groups using a certain criteria and then a given number of cases are selected from each population. Stratified random sampling helps the researcher achieve the desired representation of various sub-groups in the population (Mugenda, 2008). The stratified sampling was in three strata of large, medium and small peers as indicated in table 3.

Table 3.3: Selection of Samples

Respondents Category	Stratum Size ($N_i = \dots$)	Sample Size ($n_i = \dots$)
Large	24	09
Medium	60	23
Small	88	33
TOTAL	172	65

Source: Researcher, 2013

The study sample size was determined by the formulae below to provide a sample that is representative of the study population.

$$n_i = (n \cdot N_i) / N$$

Where; $i=1, 2, 3$

n_i = computed proportional sample size from peer i

n = desired sample size from the entire population

N_i = the estimated population of stratum (peer) i

N = the estimate of the population size.

3.3 Research Instruments

The main instrument used in the collection of data for the study was the structured questionnaire which was used to collect primary data. Data was collected using a semi-structured questionnaire served on respondents through drop and pick method.

The method was preferred because of time and cost. The exercise intended to obtain core information and supplementary information through further probing of the respondents and by reading relevant publications of other institutions in the industry.

Open-ended questionnaires were used because of the following advantages: Created freedom of expression, No bias due to limited response ranges. In addition, closed ended questions were also used where the response types were predetermined and organized into a likert scale. Likert scales later become handy during data organization in preparation for analysis.

3.4 Pre-testing

Babbie (2001: 250) indicates that, no matter how carefully a data collection instrument is designed, there is always the certainty of possible error, and the surest protection against such error is through pre-testing the instrument. Five questionnaires were distributed to individual ALCO members through their email addresses to comment on the questionnaire content. This was advantageous in identifying different modifications required and how well the questions were understood by the informants before the main survey.

3.4.1 Validity

The pilot study checked the content validity of the questionnaire among individuals working in commercial banks in Kenya, preceding the major study. Questions which were not understood were corrected and revised to include a wider variety of options for the informants. The individual respondent participating in pilot study were not included in the final data collection exercise.

3.4.2 Reliability

A research instrument is pretty much anything that you use to get the data that you're going to analyse Hoftsee, (2006). According to Welman and Kruger, (2001) reliability refers to the extent to which the obtained scores may be generalised to different measuring occasions, measurement. The instruments used in this study were questionnaires which covered information related to interest rate exposure and different issues affecting its determination.

These questionnaires were based on previous research done on interest rate exposure and its determinants among commercial banks in Kenya. To enhance reliability of the instrument a pilot study was conducted in two commercial banks which were not used in the final analysis. The reason behind the pre-testing was to establish the degree to which the results could be achieved with a repeated measure of accuracy of the same concept. As Orodho, (1998) asserts in test-retest, one expects that scores obtained by each respondent on the first and the second test were quite close. The developed questionnaire was given to two ALCO members in two banks and they were scored manually. After a week the same questionnaire was be administered again to the same banks and scored manually. A comparison of the two tests was done and a Pearson's product moment formula was used to compute the correlation coefficient in order to establish the extent to which the contents of the questionnaire were consistent in eliciting the same responses every time the instrument was administered. A correlation coefficient of 0.86 was established and was considered high enough to judge the instrument as reliable for the study. This facilitated

clarity of the questionnaire items so that those items found to be inadequate or vague were either discarded or modified to improve the quality of the research instrument thus increasing its reliability.

3.5 Data Analysis

All the data collected, was cleaned in order to determine inaccurate, incomplete, or unreasonable data and then improve the quality through correction of detected errors and omissions. After data cleaning, the data was coded and entered in the computer for analysis. Data analysis procedures employed involved quantitative procedures. Quantitative data was analysed using descriptive statistics such as frequency counts and percentages. Quantitative data analysis was done in Statistical Package for Social Sciences (SPSS). The result of data analysis was presented using frequency distribution tables, bar graphs and pie charts.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.0 Introduction

This study aimed at analyzing the determinants of commercial banks interest rate exposure in Kenya. The study sample for this study was 65 respondents in commercial banks in Kenya. The response rate for the questionnaires which were distributed was 77%. Analysis was done using the descriptive statistics and tabulations in Statistical Package for Social Sciences (SPSS). This chapter presents and analyses the findings of the study. The contents of the findings are presented in form of tables and charts.

4.1 Characteristics of banks in the study.

The study stratified the banks in into large, medium, and small peer groups as presented in Table 4.1 below.

Table 4.1: Commercial bank's peer group

Peer group	Frequency	Percentage
Large	9	17.1
Medium	20	39.0
Small	23	43.9
Total	52	100.0

Source; Researcher, 2013

From the information collected, the majority of the banks which responded were of small peers group (43.9%). Medium peer group was represented by 39.0% while 17.1% were of large peer group.

Further the researcher aimed to determine the respondents departments for the commercial banks under this study. The findings were as presented in Table 4.2 below.

Table 4.2 Departments of Respondents

Departments	Number of banks	Percentage
Treasury	16	31.7
Credit	18	34.1
Finance	14	26.8
Business development	4	7.3
Total	52	100.0

Source; Researcher, 2013

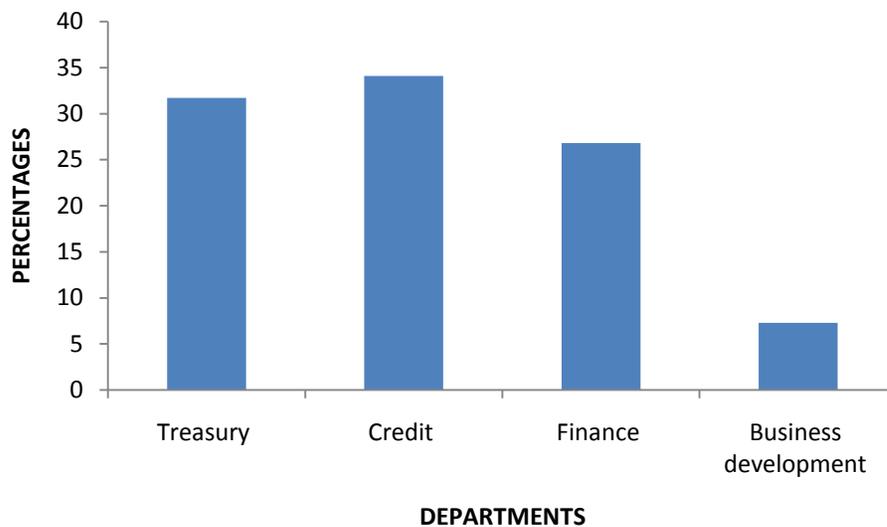


Figure 4.1 Departments of Respondents

From Table 4.2 and Figure 4.1 above, it was found that 34.1% of the respondents in the study belong to credit department, 31.7% belong to treasury, 26.8% belong to finance while only 7.3% belong to business development.

The researcher also sought to know whether the banks had properly constituted ALCO. From the data collected it was established that majority of the banks (90.2%) had a properly constituted ALCO. Only 9.8% of the banks reported otherwise as presented in Table 4.3 below.

Table 4.3 Availability of ALCO

Availability	Number of banks	Percentage
Yes	47	90.2
No	5	9.8
Total	52	100.0

Source; Researcher, 2013

Further the researcher wanted to investigate whether the availability of ALCO is independent of the peer group of the bank. Cross tabulation was performed and the result presented in Table 4.4 below.

Table 4.4. Availability of ALCO per peer group

Availability of ALCM	Peer group					
	Large		Medium		Small	
	Freq.	%	Freq.	%	Freq.	%
Yes	9	100	20	100	23	77.8
No	0	0.0	0	0.0	4	22.2
Total	9	100	20	100.0	23	100.0

Source; Researcher, 2013

It was established that of the banks which responded that they had no ALCO, all belonged to small peer group. However 77.8% of the small peer group banks had a properly constituted ALCO. All the banks belonging to large and medium peer group had a properly constituted ALCO.

The base lending rates in the banks under this study were also sought by the researcher. It was established that majority of the banks (78.0%) had a base lending rate of between 16.25-18.25%. No bank had a base lending rate of above 22.25% as tabulated in Table 4.5 and Figure 4.2 below.

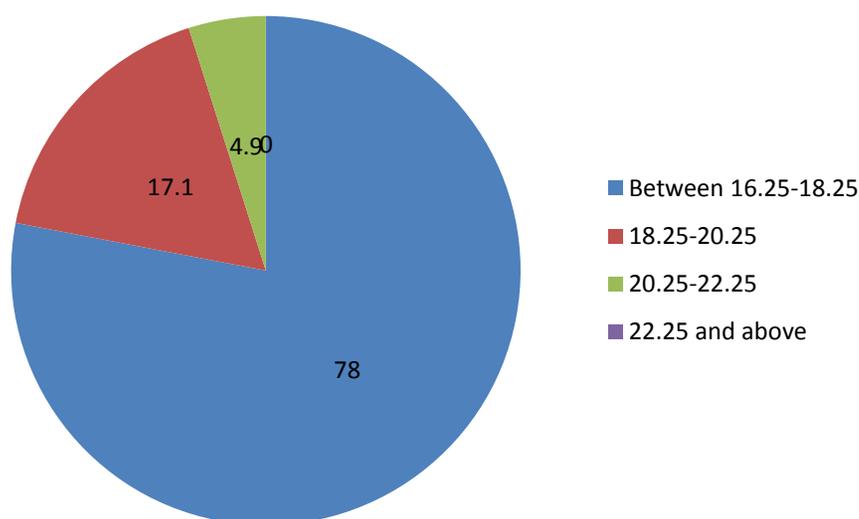


Figure 4.2 Base Lending rates in percentage.

Table 4.5 Base Lending rates in percentage

Lending rates	Number of banks	Percentage
Between 16.25-18.25	40	78.0
18.25-20.25	9	17.1
20.25-22.25	3	4.9
22.25 and above	0	0.0
Total	52	100.0

Source; Researcher, 2013

4.2 Effects of cost of deposits on base lending rate

Table 4.6 Commercial Banks Cost of deposits effects on base lending rate

Statement	Strongly disagree		Disagree		Don't know		Agree		Strongly Agree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Costs of funds have significant impact on the base lending rate of commercial bank	0	0.0	0	0.0	0	0.0	5	9.8	47	90.2
Low cost of deposits encourages savers which in turn increase bank's deposit level	48	92.7	3	4.9	1	2.4	0	0.0	0	0.0
Increase in interbank lending rates has made banks to pay more interest on customers' deposits	0	0.0	0	0.0	25	14.6	19	36.6	8	48.8
High cost of deposits has increased interest rate margin spread to cater for the other cost of funds	0	0.0	1	2.4	19.5	32	10	61.0	9	17.1

Source; Researcher, 2013

The researcher sought to determine the effects of commercial banks deposits on the base lending rate of the banks under study. Majority of the respondents (92.7%) strongly disagreed that low cost of deposits encourages savers which in turn increase bank's deposits. Also all the respondents agreed that costs of funds have a significant impact on the base lending rate of commercial banks with (90.2%) agreeing strongly. Also 61% of the respondents agreed that high cost of deposits has increased interest rate margin spread to cater for the other cost of funds.

However 19.5% of the respondents didn't know whether high cost of deposits has increased interest rate margin spread to cater for other cost of funds. 48.8% of the respondents strongly agreed and 36.6% agreed that increasing interbank lending rates has made banks to pay more for customer deposits.

4.3 Effects loans, assets and off balance sheet income on interest rate exposure

Table 4.7 Effects loans, assets and off balance sheet income on interest rate exposure

Statement	Strongly disagree		Disagree		Don't know		Agree		Strongly Agree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
The ratio of total bank loans to total assets significantly affects banks interest rate exposure	0	0.0	0	0.0	18	34.1	3	4.9	31	61.0
The collateral securities held by the bank against its loan book usually determines how low it can go in interest rates on loans	0	0.0	7	15	3	5.0	21	40.0	21	40.0
The ratio of nonperforming loans to total loan book usually determine the overall exposure of a given bank in terms of its loan book assets	0	0.0	0	0.0	0	0.0	21	40.0	31	60.0
The intended rate of return on loan book influences banks interest rate exposure level	29	56.1	3	4.9	1	2.4	19	36.6	0	0.0
Off balance sheet income more often than not dictates how exposed the bank can go in its lending interest rate exposure	22	41.5	6	12.2	23	43.9	1	2.4	0	0.0

Source; Researcher, 2013

Table 4.7 presents the findings on the lending risk effects on interest exposure. It was established that 61.0% of the respondents strongly agreed that the ratio of total bank loans to total assets significantly affects banks interest rate exposure while 34.1% of the respondents didn't know the effect of the same on banks interest rate exposure. Also 40% of the respondents strongly agreed and 40%

agreed that the collateral securities held by the banks against its loan book usually determine how low it can go in interest rates on loans. 60% of the respondents strongly agreed that the ratio of nonperforming loans to total loan book usually determines the overall exposure of a given bank in terms of its loan book assets while 40.0% agreed it does. Also 56.1% strongly disagreed that the intended rate of return on loan book influences bank interest rate exposure level. However 36.6% agreed that the intended rate of return on loan book influences banks interest rate exposure level. The study also sought to establish whether off balance sheet income dictates how exposed the bank can go in its interest rate exposure. Most of the respondents (43.9%) didn't know the effect while 41.5% strongly disagreed that off balance sheet income dictates how exposed the bank can go in its lending rate exposure.

4.4 The effects of bank size and deposit base on interest rate exposure

Table 4.8 The effects of bank size and deposit base on interest rate exposure

Statement	Strongly disagree		Disagree		Don't know		Agree		Strongly Agree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Equity capital ratio is a potential measure of a bank's interest rate exposure	19	36.6	12	22.0	20	39.0	1	2.4	0	0.0
The size of the bank significantly determines interest rate exposure strategic approaches	0	0.0	1	2.4	12	22.0	16	31.7	23	43.9
Total loans to total assets ratio is key indicator of a given commercial bank interest rate exposure	0	0.0	0	0.0	16	31.7	35	65.9	1	2.4
The deposit base is usually viewed by commercial banks as stable and relatively cheap source of funding	0	0.0	0	0.0	0	0.0	4	7.3	48	92.7
Banks with larger portion of their total revenue derived from interest income have higher interest rate exposure	0	0.0	0	0.0	5	10	38	72.5	9	17.5

Source; Researcher, 2013

The researcher also sought to establish the effects of interest rate exposure for commercial banks. It was established that majority of the

respondents (92.7%) strongly agreed that the deposit base is usually viewed by commercial banks as stable and relatively cheap source of funding. On the other hand, (72.5%) of the respondents agreed that banks with larger portion of their total revenue derived from interest income have higher interest rate exposure. It was further established that 39.0% didn't know whether equity capital is a potential measure of a bank's interest rate exposure.

It was established that 43.9% strongly agreed and 31.7% agreed that the size of the bank significantly determine interest rate exposure strategic approaches. Meanwhile 22% of the respondents didn't know whether the size of the bank significantly determines interest rate exposure strategic approaches.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter gives out briefly the findings, conclusions and suggestions of the analysis of the determinants of commercial banks interest rate exposure in Kenya.

5.1 Summary of the research findings

5.1.1 Total assets effects on interest rates exposure.

From the research it was established that 65.9% of the respondents agreed that banks total assets ratio is a key indicator of a given commercial bank interest rate exposure. Similarly the size of the bank significantly determines interest rate exposure strategic approaches as can be seen from the findings whereby 75.6% of the respondents agreed to this.

5.1.2 Relationship between off balance sheet items and interest rate exposure.

From the research findings it was established that there is lack of information on the effect of off balance sheet income on interest rate exposure as 41.5% of the respondents disagreed while 43.9% did not know the effect.

5.1.3 Bank's deposit level effects on interest rate exposure.

Costs of funds have significant impact on the base lending rate of commercial banks with 90.2% of the respondents strongly agreed and 9.8% agreed on the same. Also from the findings 61% of the respondents agreed that high cost of deposits increases interest rate margin spread to cater for

the other cost of funds. Similarly 72.5% of the respondents agreed that increase in interbank lending rates makes banks to pay more interest on customers' deposits.

5.1.4 Effects of loan composition on interest rate exposure

From the findings 58.5% of the respondents strongly agreed and 39% of the respondents agreed that the ratio of nonperforming loans to total loan book usually determine the overall exposure of a given bank in terms of its loan book assets. Similarly 48.8% of the respondents strongly agreed and 29.3% agreed that the collateral securities held by the bank against its loan book usually determines how low it can go in interest rates on loans

5.2 Conclusion

From the foregoing the study concludes that total assets, loan composition and deposits levels are key determinants of interest rate exposure in commercial banks which the Assets and Liabilities Committees should take into account in managing the interest rate exposure. It is also concludes that there is discrete information on the off balance sheet items and their effects on interest rate exposure in commercial banks.

5.3 Recommendations

The Assets and Liabilities Committees of the commercial banks should in addition to traditional considerations of maturity periods take into account total assets, loan composition and customer deposits level in determining interest paid to deposits and interest charged on loans. The Assets and Liabilities Committees should encourage policies that increase savings deposits which provide a source of cheap financing and shield the bank against interest rate exposure. The banks should ensure information and benefits of the off balance sheet income is disseminated within the banks and increase use of off balance sheet income hedge against the interest rate exposure. The commercial banks should reduce dependency on corporate deposits that attract high interest rates.

5.4 Recommendation for further research

Contribution of off balance sheet income to banks' interest rate exposure in commercial banks in Kenya.

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Appendix A

Letter to the respondent

MOGUCHE N. EDWIN,

P.O BOX 23189-00100,

NAIROBI.

16TH APRIL 2013.

Dear sir/madam,

RE:REQUEST FOR FILLING THE ATTACHED QUESTIONNAIRE

I am Edwin Nyamasege Moguche, currently undertaking a Masters of Business Administration degree at Kenyatta University.

My research is on “Determinants of interest rate exposure of commercial banks in Kenya”. The purpose of this letter is to request you to respond to the questionnaire attached as objectively as possible. I hereby further assure you that your responses will only be used for the purpose of this research and will be treated with a lot of confidentiality.

Thanks in advance.

Yours faithfully,

E. N. Moguche (D53/CTY/PT/20797/2010)

Appendix A1

The Questionnaire

Instructions: Please put a tick (✓) when answering the questions in the appropriate box for each variable

I) BACKGROUND INFORMATION

a) Which of the following commercial banks' peer groups does your bank belong to?

Large Medium Small

b) Which of the following ranges of base lending rates (%) does your bank use?

16.25-18.25 18.25-20.25 20.25-22.25 Above 22.25

c) Which of the following departments do you belong to?

Treasury Credit Finance Business Development

c) Do you have a properly constituted Asset and Liability Management Committee?

Yes No

II) DEPOSIT COST AND LEVEL

a) Please indicate your degree of agreement with the following statements on Commercial Banks

cost of deposits effects on base lending rate. Kindly, use the following criteria; **1. Strongly**

Disagree 2. Disagree 3. Neither Disagree nor Agree 4. Agree 5. Strongly Agree

	Statements	1	2	3	4	5
	Costs of funds have significant impact on the base lending rate of a commercial bank.					
	Low cost of deposits encourages savers which in turn increase bank's deposit level.					
	Increase in interbank lending rates has made banks to pay more interest on customers' deposits.					
	High cost of deposits has increased interest rate margin spread to cater for the other cost of funds.					

III) LENDING RISK

a) Please indicate your degree of agreement with the following statements on lending risk effects on interest exposure. Kindly, use the following criteria; **1. Strongly Disagree 2. Disagree 3.**

Neither Disagree nor Agree 4. Agree 5. Strongly Agree

	Statements	1	2	3	4	5
	The ratio of total bank loans to total assets significantly affects banks interest rate exposure.					
	The collateral securities held by the bank against its loan book usually determine how low it can go in interest rates on loans.					
	The ratio of non performing loans to total loan book usually determine the overall exposure of a given bank in terms of its loan book assets.					
	The intended rate of return on loan book influences banks interest rate exposure level.					
	Off balance sheet income more often than not dictates how exposed the bank can go in its lending interest rate exposure.					

IV) CBK REGULATORY RATIOS

a) Which of the following regulatory ratios mainly affects your bank’s interest rate exposure?

Liquidity Cash Reserve Ratio CBR Ratio

b) Please indicate your bank’s current average figures for the following regulatory ratios.

Regulatory Ratio	Average Ratio
Liquidity Ratio	
Cash Reserve Ratio	
CBR Ratio	

IV) INTEREST RATE EXPOSURE

a) Please indicate your degree of agreement with the following statements on interest rate exposure for commercial banks. Kindly, use the following criteria: **1. Strongly Disagree 2. Disagree 3. Neither Disagree nor Agree 4. Agree 5. Strongly Agree**

	Statements	1	2	3	4	5
	Equity capital ratio is a potential measure of a banks interest rate exposure.					
	The size of the bank significantly determines interest rate exposure strategic approaches.					
	Total loans to total assets ratio is key indicator of a given commercial bank interest rate exposure.					
	The deposit base is usually viewed by commercial banks as stable and relatively cheap source of funding.					
	Banks with larger portion of their total revenue derived from interest income have higher interest rate exposure.					

b) Please suggest four ways in which interest rate exposure among commercial banks can be best managed by ALCO members.

i. _____

ii. _____

iii. _____

iv. _____

THANK YOU

Appendix B: Work Plan

Schedule Of activities

Activity	Time in Weeks
Pilot study	1
Adjustments	2
Data collection	2
Data Coding	2
Data analysis	2
Report compiling and submission	2

Activity	Week					
	1	2	3	4	5	6
Pilot Study						
Adjustments						
Data collection						
Data Coding						
Data analysis						
Report compiling and submission						

Appendix C: Budget

Item	No. of Units	Cost Per Unit Kshs.	Total Kshs.
Travel from Kampala to KU	4 trips	30,000	120,000
Stationery	4 reams of paper	500	2,000
	2 dozen of pens	250	500
Research Assistants	5 persons (Subsistence)	2000	10,000
Report Writing and Production	6 copies + binding	3,000	18,000
Contingencies	Miscellaneous expenses	-	10,000
	Total		160,500

Appendix D: Commercial Banks in Kenya (2011)

Equity Bank	Development Bank of Kenya
Bank of Africa	Commercial Bank of Africa
Barclays Bank	Citibank
NIC Bank	Chase Bank (Kenya)
Standard Chartered Bank	Bank of India
K-Rep Bank	Dubai Bank Kenya
Commercial Bank	Family Bank
Equatorial Commercial Bank	National Bank
Co-operative Bank	Consolidated Bank of Kenya
CFC Stanbic Bank	Fidelity Commercial Bank Ltd.
East Africa Development Bank	Fina Bank
Ecobank	First Community Bank
Diamond Trust Bank	Giro Commercial Bank Guardian
Bank	Habib Bank
ABC Bank	Habib Bank Ag Zurich
Bank of Baroda	Middle East Bank Kenya
Credit Bank	Imperial Bank Kenya
I&M BANK	Jamii Bora Bank
Oriental Commercial Bank	Paramount Universal Bank
Prime Bank Kenya	Transnational Bank Kenya
United Bank of Africa	Victoria C.B