

**EFFECT OF INTEREST RATE ON LENDING LEVELS BY
COMMERCIAL BANKS IN KENYA**

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE
OF MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS,
UNIVERSITY OF NAIROBI**

NOVEMBER, 2018

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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This research project has been submitted for examination with my approval as the University Supervisor.

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ACKNOWLEDGEMENTS

I thank the Almighty God for His grace and Provision that has enabled me complete this research paper successfully.

I extend my sincere thanks to my supervisor, Dr. Cyrus Iraya for his guidance, support, objective criticisms and true advises without which I could not have come this far.

I would like to thank my family and friends, who were always willing to help and give their guidance and best suggestions when in need. My research would not have been possible without them.

DEDICATION

I dedicate this research project to my family for the love, patience and faith they had in me through the study period and the entire course.

To my wife Mercy and my children, Emmanuel, Peace and Eden who have remained a source of inspiration and always supportive.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
CAR	Cumulative Abnormal Returns
CBK	Central Bank of Kenya
CBR	Central Bank Rate
CMA	Capital Markets Authority
CPI	Consumer Price Index
EMH	Efficient Market Hypothesis
GDP	Gross Domestic Product
KBRR	Kenya Bankers Reference Rate
KNBS	Kenya National Bureau of Statistics
MPT	Modern Portfolio Theory
NPL	Non Performing Loans
NSE	Nairobi Securities Exchange
RWH	Random Walk Hypothesis
SPSS	Statistical Package for Social Sciences

ABSTRACT

The question of whether shifts in interest rates affect the lending levels have been widely examined in both academic and policy circles. Interest income on loans and advances still remain to be a major source of revenue to the banks income portfolio followed by investments in government securities. The loanable fund theory presupposes that the level of interest rates influence the demand and supply of loans hence equilibrium interest rate determines the amount of loanable funds commercial banks will advance. On the other hand, other researchers hold that there are other mechanisms that play an important role in influencing bank's lending activities despite change of policy on interest rate. This study sought to determine the effect of interest rates on lending levels by commercial banks in Kenya. The independent variable was interest rate as measured by quarterly CBK lending rate. The control variables are economic growth as measured by quarterly GDP growth rate and inflation rates as measured by quarterly CPI. Lending levels by commercial banks in Kenya were the dependent variable which the study sought to explain and they were measured by quarterly average loan book value in natural logarithm form. Secondary data was collected for a period of 10 years (January 2008 to December 2017) on a quarterly basis. The study employed a descriptive research design and a multiple linear regression model was used to analyze the relationship between the variables. Statistical package for social sciences version 21 was used for data analysis purposes. The results of the study produced R-square value of 0.848 which means that about 84.8 percent of the variation in lending levels by commercial banks in Kenya can be explained by the four selected independent variables while 15.2 percent in the variation was associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with lending levels by commercial banks in Kenya ($R=0.921$). ANOVA results show that the F statistic was significant at 5% level with an F statistic of 67.049. Therefore the model was fit to explain lending levels by commercial banks in Kenya. The results further revealed that individually economic growth is not a significant determiner of lending levels by commercial banks in Kenya while interest rate and inflation rate are significant determiners of lending levels by commercial banks in Kenya. This study recommends that there is need for policy makers to regulate interest rate levels prevailing in the country bearing in mind that they significantly influence lending levels by commercial banks in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Lending is a major service rendered by banks which contributes immensely to their revenue generation. The loans can either be in short term, medium and/or long term form basis depending on the type of need being addressed. Lending is therefore a major driver in aiding the economic activities of households, firms and governments which has a bearing on the economic growth and development of any nation. Thus, economic growth is generated through banks' lending activities which provide resources for real investment (Mckinnon, 2005). Loan pricing or interest rate is one of the most important factors considered by both the borrower and the lending institution in the process of lending decision. Banks cannot levy loan charges that are too low which will not be adequate to compensate the cost of deposit paid to depositors, general expenses and revenue loss from non-performing loan book. Likewise, they cannot levy too high charges that will not allow them to maintain relationship with their clients (Stiglitz & Weiss, 2001).

This study will be based on three theories, namely; the loanable funds theory of interest rates, the classical theory and the financial repression theory. Loanable funds theory argues that determination of the interest rates spread is founded on the market forces of demand and supply of the loanable funds. The interest rates are determined as the level at which demand and supply for loanable funds are equal and this goes against interest rate capping. Classical theory posits that the economy is viewed as being able to regulate itself. As a result, it applies savings and investments to establish the equilibrium interest rate obtainable from the point where the investments and the savings curves intersect

(Oost, 2002). The study is also based on theory of rational expectations which uses statistical tools to show that businesses and workers shape the economy by updating and interpreting information regarding the future of the economy. Therefore, government monetary policies can be anticipated which affects those policies' outcomes (Chandra, 2008).

In Kenya, interest rates have been fluctuating over the last few years with the effect of fluctuations remaining unknown (Otuori, 2013). On 24th August 2016, the bill to cap interest rates was assented to law. This move in regulating interest rates saw the introduction of interest rate capping on lending rates at 4.0% above the Central Bank Rate (CBR) and a floor on the deposit rates at 70% of the CBR (CMA, 2016). There have been arguments that interest rate restrictions could result in alternative lending by the financial institutions such as lending to government and or absolute withdrawal from specific locales such as rural areas or expensive market segments or rural areas when the capping becomes unprofitable. The current study will investigate whether the prevailing interest rate levels has an effect on the lending levels of commercial banks in Kenya.

1.1.1 Interest Rate

Interest rate is the cost incurred by a borrower for using money borrowed from financial institution or lender (Chovancova, 2001). Devereux and Yetman (2002) define interest rates as the costs incurred by a borrower for using money or capital not owned by them. Interest rates are normally determined by the supply and demand function of capital. In addition, the monetary policy of a country in any given economy determines the interest rates. When there is a high demand for capital the interest rates go up. On the other hand, low demand for capital will lead to lower levels of interest rates. However, the

government in its monetary policy can seek to increase or reduce the interest rates with the aim of achieving set macro-economic targets. For example in times of high inflation, the government may raise the interest rate to reduce money supply (Syed & Anwar, 2012).

Interest rate is a proxy for financial prices for credit and affects resource allocation, production levels, prices and profitability (Uddin & Alam, 2009). Rate of interest has an advance effect on the market because a rise of rate of interest makes investors change their financial decisions on investments. Their decision may favor investment in fixed income securities other than in capital markets (Syed & Anwar, 2012). High interest risk will either push the lenders out of business or borrowers will be unable to pay (Ariemba, Kiweu & Riro, 2015).

Interest rates operate like other prices as market clearing mechanism, they ration the amount of credit available (Culbertson, 1977). Interest rates are determined in the credit markets, or the debt markets just the same way as stock prices are determined in the NSE (Kasemo, 2015). In Kenya, interest rate is usually measured using the average lending levels in an economy or the central bank's lending rate. In this study, the central bank lending rate will be used as a measure of interest rates.

1.1.2 Lending Levels

Lending level represents the total value of all the loans held by a financial institution (Barnor, 2014). It can also be defined as the loans that a lender is owed, and is usually listed as an asset on the lender's statement of financial position (Khan & Sattar, 2014). Credits are among the most noteworthy yielding resources a bank can add to its asset report and they give the biggest part of income. In this regard, the banks are confronted

with liquidity hazard since advances are progressed from assets saved by clients (Kithinji, 2010). Hamisu (2011) takes note that credit creation includes tremendous dangers to both the moneylender and the borrower. The danger of the counterparty not satisfying his or her commitment according to the agreement on due date or at whatever time can enormously endanger the smooth working of bank's business. Then again, managing an account with high credit chance has high liquidation hazard that puts contributors' assets in danger.

The total loans and advances are perceived to be the assets for the bank. As such the increased lending to the public by banks directly implies the growth in the balance sheet for the bank and ultimately improved financial performance via increased interest income on the loans and advances by the bank. On the other hand, increased bank lending to the public implies welfare to the public via increased access to loans and advance that in turn increases their personal household consumption. As such the size of the bank, amount of demand deposits, the level of non – performing loans and the level of the bank's capitalization all have a bearing in influencing resources available for lending to the public (Loderer, 2009).

There are no specific measures of a bank's lending level however going by the changes that occurs in the financial statements these are the financial position statement and comprehensive income statement, one can determine whether the firm bank loan levels are increasing or not. The key indicators to establish the growth of credit level is increase in total assets which is given by increase in loans, advances and interest income (Loderer, 2009). This study will measure lending level using loan book value in a given period.

1.1.3 Interest Rate and Lending Levels

Stiglitz and Weiss (2001) posit that loan pricing or interest rate is one of the most important factors considered by both the borrower and the lending institution in the process of lending decision. Banks cannot levy loan charges that are too low which will not be adequate to compensate the cost of deposit paid to depositors, general expenses and revenue loss from non-performing loan book. Likewise, they cannot levy too high charges that will not allow them to maintain relationship with their clients. The pricing model should factor the adverse selection and a moral hazard incidence from setting in since it is extremely difficult to gauge the behaviour of individuals and firms from the onset of the relationship.

Diamond and Rajan (2006) holds that the cost of borrowing is reduced by low interest rate, which in turn drives the investment activities and high consumer durables purchase. Banks may also ease lending policy given an expectation that economic activities will strengthen, thereby boosting spending power by businesses and households. Low interest rate may trigger investing into stocks, raising households' financial assets. The impact of this may be increased consumer spending, making firms' investment projects more attractive. The main concern for the empirical analysis arises from the fact that banks heterogeneously react to changes in monetary policy. These varied responses by commercial banks emanate from their diverse balance sheet dynamics. There are therefore other mechanisms that play an important role in influencing bank's lending activities despite change of policy on interest rate such as liquidity levels and bank size (Bolton & Freixas, 2006).

McKinnon (1973) theory argues that macro-economic variables for instance real interest rates, exchange rates and inflation should be monitored as they influence the diverse economic fundamentals and hence economic status. McKinnon posits that holding interest rates below market equilibrium leads to an increase in investment' demand but the real investment may remain unaffected. However, according to market efficiency theory the prices of all variables should not be influenced by other factors apart from demand and supply (Fama, 2000).

According to Ariemba, Kiweu and Riro (2015) higher demand for money puts upward pressure on interest rates throughout the economy. With less competition for money, interest rates are pushed downward and for prospective borrowers, lower interest rates during periods of low economic growth can help decrease the long-term cost of borrowing. The loanable fund theory presupposes that the level of interest rates influence the demand and supply of loans hence equilibrium interest rate determines the amount of loanable funds commercial banks will advance (Sen, 2015). Thus, the rise or fall of interest rates will affect loan uptake by borrowers (Mbogha, 2015).

1.1.4 Commercial Banks in Kenya

According to CBK's directory, there are forty-two commercial banks in the country some of which are internationally based. The headquarters of these banks are in Nairobi and they serve both retail and corporate customers. The banks in the country perform the following function: creation of money, community savings, ensure smooth support of payment mechanisms, ensure smooth flow of international transactions, storage of valuable goods and provision of credit services. The Central Banks of Kenya which falls under the Treasury docket is accountable for the formulation and execution of monetary

policy and foster of liquidity and proper operations of Kenyan commercial banks. This policy formulation and implementation also include financial performance and financial risk management of the commercial banks (CBK, 2015). Out of the 42 banks, 30 are owned by locals and 12 by foreigners while 11 are listed on the Nairobi Securities Exchange (CBK, 2017).

In Kenya, Interest rates have been fluctuating over the last few years until recently when interest rate capping was assented into law on 24th August 2016 and this led to a cap on lending rates at 4.0% above the Central Bank Rate (CBR) and a floor on the deposit rates at 70% of the CBR. In the past, the Banking industry in Kenya has grown exponentially in terms of lending levels. The growth can be attributed to several valid factors such as resilience by banks to reduce their rates following the introduction of the KBRR (Cytton, 2016). The current study will seek to investigate whether indeed prevailing interest rates have an effect on lending levels of commercial banks in Kenya.

Over the last decade, Kenya has faced a rapid growth of banks products as a result of the adoption of new technology and financial innovation. This has led to the introduction of new products and services which has increased accessibility, flexibility and convenience of banking products and services. Financial liberalization has promoted competition in the banking sector through fair and equitable banking practices with a strong emphasis on access to banking services. The increase in the channels of lending have resulted to an increase in lending levels overtime (Muronya, 2013). However, with the introduction of interest rate capping in September 2016 which regulated the rate at which banks can charge for loans and the amount they can pay for customer deposits and many analysts have argued that this might affect the lending levels of banks in Kenya

1.2 Research Problem

The question of whether shifts in interest rates affect the lending levels have been widely examined in both academic and policy circles. Interest income on loans and advances still remain to be a major source of revenue to the banks income portfolio followed by investments in government securities. Obviously, any major changes in the lending rates consequently influences the interest income earned by a bank hence a shift in the bank's income statement. The loanable fund theory presupposes that the level of interest rates influence the demand and supply of loans hence equilibrium interest rate determines the amount of loanable funds commercial banks will advance (Sen, 2015). On the other hand, Bolton and Freixas (2006) hold that there are other mechanisms that play an important role in influencing bank's lending activities despite change of policy on interest rate such as liquidity levels and bank size.

Over the last decade, Kenya has faced a rapid growth of banks loan levels as a result of the adoption of new technology and financial innovation. This has led to the introduction of new products and services which has increased accessibility, flexibility and convenience of banking products and services. Financial liberalization has promoted competition in the banking sector through fair and equitable banking practices with a strong emphasis on access to banking services. However, the variation in interest rates in addition to the introduction of interest rate capping in September 2016 that regulated the rate at which banks can charge for loans and the amount they can pay for customer deposits might affect the loan levels of commercial banks in Kenya and that is what the current study seeks to investigate.

Several studies have documented the effect of interest rates commercial bank performance without necessary focusing on lending levels. Robinson (2010) established in his study that bank earnings are affected by unanticipated changes in lending interest rates. Nkwoma (2014) noted that interest rates' deregulation in the Nigerian banking sector increased bank lending, which meant a high-profit margin for the banks. However, NKwoma (2014) and Zaman et al., (2013) also cautioned against the lack of regulation to prevent banks from engaging in very risky ventures that might affect their liquidity. Malik (2014) research tried to solely determine the consequence of interest rates on Bank's profitability. Sattar and Khan (2014) confirmed the relationship between interest rate variation and banks' financial performance in Pakistan.

In Kenya, Mburu (2011) in his study looked at interest rates and their resultant effects on the financial performance of Kenyan commercial banks. Mwaura (2014) studied the effects of the Kenya Banks Reference Rate (KBRR) on the financial performance of Kenya Commercial Banks. Nyakundi (2015) studied the effect of interest rates on mortgage uptake concluded that interest rate negatively affects mortgage uptake and an increase in interest rate will lead to a decrease in mortgage uptake in financial institutions in Kenya. Othigo (2017) carried out a study on the impact of interest rate capping announcement on the stock returns of listed commercial banks in Kenya. The study found that interest rate capping has a significant negative effect on share returns. From the foregoing, it is notable that there is no consensus on the effect of interest on lending levels among commercial banks. In addition, the studies conducted locally have concentrated on banks financial performance leaving a gap on the lending levels. The

current study sought to answer the research question: What is the effect of interest rates on lending levels of commercial banks in Kenya?

1.3 Research Objective

This study sought to determine the effect of interest rates on lending levels by commercial banks in Kenya.

1.4 Value of the Study

Potential investors as well as the existing ones in the banking industry will find this study useful in their investment undertakings. They shall be in a position to better appraise their investment targets and or portfolios; and so proceed to make appropriate decisions. Fund managers and financial analysts could also draw insights from the study for similar reasons as the investors as well as in making appropriate client advises or recommendations.

The study's findings will be used for future reference by researchers, students and scholars who seek to undertake studies on a similar or correlated field. The study will also benefit researchers and scholars in the identification of other fields of research by highlighting related topics that require further research and reviewing the empirical studies to determine study gaps. The study greatly contributes to the banking sector's financial performance.

To government and organizations such as the Capital Markets Authority and the Central Bank, in the formulation and implementation of policies and regulations governing monetary policies and interest rates to ensure stable rates so as to promote economic

growth and reduce its spiral effects on the economy. This will contribute to the advancement of monetary development and improvement the economy.

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CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The aim of this chapter is to review theories that form the foundation of this study. In addition, previous empirical studies that have been carried before on this research topic and related areas are also discussed. The other sections of this chapter include determinants of lending levels, conceptual framework showing the relationship between study variables and a literature review summary.

2.2 Theoretical Framework

Theoretical framework provides a foundation for understanding the theoretically expected relationship among the study variables and in this case interest rate and lending levels. The theories selected for this study are the loanable funds theory of interest rates, classical theory and rational expectations theory.

2.2.1 Loanable Funds Theory of Interest Rates

This theory was developed by Fry (1995) and it argues that in the theory of the loanable funds, there is an assumption that the interest rates charged usually are subject to determination by two market forces which are the supply of loanable funds and demand for credit. This theory focuses more on interest rates determination and long term interest rates explanation.

Loanable fund is the money the investors and entities in the economy have saved and intend to lend it to the potential borrowers. By the use of market demand and supply for loanable funds, the theory explains the interest rates on loans in the market. The supply for the loanable funds comes from the economic entities, government and individuals

who opt not to spend but to save money for investing. Investors lending at an interest rate here is one way of investing. The demand for the loanable funds comes from the individuals and business who wants to finance their businesses and investments such as purchase of assets that increase in value with time e.g. Land. As a result, borrower's choice to finance their investments through acquiring the credit facilities creates the demand for the loanable fund (Rocha, 1986).

As per the theory, determination of the interest rates spread is founded on the market forces of demand and supply of the loanable funds. The interest rates are determined as the level at which demand and supply for loanable funds are equal. According to research by Claeys and Vander (2008), loanable funds theory explains the determinants of interest rate spread, this is because if people do not save with the banks, there is insufficient supply of the loanable funds and the banks will not be able to lend or give credit facilities to the borrowers. As a result, there will be higher demand for the credit facilities than the supply of the loanable funds. This high demand leads to banks charging high interest rates. This has a resultant effect of widened interest rate spread. The loanable funds theory assumes that there is existence of a perfect competition within the market such that, neither a borrower nor the lender can determine the prices of the securities. Also, it assumes there exist free mobility of the funds in the market.

2.2.2 Classical Theory

The classical theory of the interest rates determination significantly relate to the classical theory of the economics. According to the classical theory, the economy is viewed as being able to regulate itself. As a result, it applies savings and investments to establish

the equilibrium interest rate obtainable from the point where the investments and the savings curves intersect (Oost, 2002).

In the economy, individuals with surplus cash save their money in the banks as savings. This fund is available for borrowing by the economic entities that use the fund to invest in order to generate more income that will be saved in the banks as savings. If the savings exceed investments, it implies there is excess savings of the money than the investments. As a result, the interest rates drop until the borrowers can access the fund cheaper. Conversely, if the level of savings is less than the investments, the level of the interest rates will rise until it reaches the equilibrium point which is the point where the savers find the incentive or the reward to keep their money in the bank (Gelos, 2006).

When the interest rates increase, the savings in the economy increases due to the reward associated with the increased interest rate on savings. Additionally, as the rate of interest charged decreases, the cost that is carried in the borrowing also increases leading to investments. When the savings increases, the lending rates decline which lead to increased investments from the ease of access of the money at a lower interest rate (Grenade, 2007).

2.2.3 Rational Expectations Theory

The theory of rational expectations by Lucas (1970) applied arithmetical techniques to demonstrate the ways in which enterprises can maneuver their business strategies on the improvement their financial stability through the interpretation of figures to predict the future economic trend. Since governments policies are prone to changes within the short time possible, the prediction of the future economic outcome can be anticipated. Lucas

applied the rational expectations theory to dismiss a number of orthodox financial statements of the 1970s, particularly the theories of British economist John Maynard Keynes and the efficiency of government involvement in the financial system. It could consist of the money in form of short term investments, the coins and notes currency, safe assets, cash and bank balance held in the savings and currents accounts. The economy of a country is affected by the money in supply and therefore the monetary authority has to regulate the amount in circulation through the monetary policies. This difference the idea that government rule manipulates the resolution of people in the financial system (Madura, 2010).

According to Lucas study, the rational expectations theory has two main parts; the old hypothesis that depression is self-corrective. The moment people starts hoarding money, it becomes very difficult to know that the recession has occurred. Immediately the individuals recognizes this recession, they intend to fear and the market quickly gain strengths. At this scenario, the manufacturers intend to lower prices to enhance a larger market share, and the workers also reduce their wages to please the employer, making the purchasing power of the shilling to grow. The part is that, the government involvement can only vary from ineffectualness to damage. This then means, that no change that the government can make if the businesses have not cut prices of their commodities to let the economy to take its corrections. Keynesians are then robbed of the argument that may be the central bank may be helpful in speeding upturn, but not making it happen (Madura, 2010). This theory is related to this study as it explains how government policies such as monetary policy are ineffectual in influencing business growth and lending levels.

2.3 Determinants of Lending Levels

Factors that influence a bank's lending levels can either be external or internal to the firms that define the level of output. The internal factors are different for each bank and determine its lending levels. These factors accrue due to managerial decisions with the board. External factors include; interest rates, exchange rate volatility, inflation, economic growth, money supply among others. The internal factors include corporate governance, firm size, financial leverage, liquidity, management efficiency, capital, market power among others (Athanasoglou, Brissimis & Delis, 2005).

2.3.1 Interest Rates

Interest rate indirectly affects lending levels of banks through impacting economy. According to Khan and Sattar (2014) interest rate affects lending levels either positively or negatively depending on its movement. A decrease in interest rate to the depositors and an increase in spread discourage savings. Increase in interest rate to the depositor adversely affects the investment. Banking sector is the most sensitive to changes in interest rate as compared to other sectors because the largest proportion of banks' revenue comes from the differences in the interest rate that banks charge and pays to depositors.

Interest rate variation largely determines the performance of a bank since, investors' decision to borrow is influenced by the prevailing interest rates. When interest rates are low, investors will increase their borrowings and the reverse is true; when the rates rise borrowing from investors will reduce (Thomas, 2006). Diamond and Rajan (2006) holds that the cost of borrowing is reduced by low interest rate, which in turn drives the investment activities and high consumer durables purchase. Banks may also ease lending

policy given an expectation that economic activities will strengthen, thereby boosting spending power by businesses and households.

2.3.2 Inflation

Inflation affects lending levels of a bank positively or negatively depends on the ability of a bank to anticipate it. When a country anticipates inflation, banks adjust the rate of interest to ensure that revenues generated are higher than the cost of operation. Banks that do not anticipate an inflation fails to make proper adjustment and as a result the cost of operations increases at a higher rate than revenue generated. An increase in interest rates as a result of inflation is expected to discourage borrowers from borrowing funds and this is likely to reduce the lending levels. Boyd, Levine and Smith (2001) reported a negative relationship between inflation and lending levels. However Ameer (2015) asserts that most studies have found a positive impact of inflation on lending levels.

2.3.3 Economic Growth

A growing economy exhibits positive GDP which raises demand for loans (Osoro & Ogeto, 2014). Any rise in economic output may raise expected cash flows and, hence, trigger a rise in the lending levels of banks with the reverse impact during recession being justified (Kirui et al., 2014). Existing empirical evidence indicate that the financial systems of advanced nations are more efficient (Beck et al., 2003). Banking sector development is also positively related to economic stability and monetary and fiscal policies. Countries with higher income have more advanced banking sectors compared to countries with low income (Cull, 1998).

Investors are mainly concerned with GDP reports since the overall economic health could be established through its measurement. The long run implication of healthy economic growth is higher corporate profits and improvement of bank lending levels leading to long term growth while the short term implication is unpredictable market trends even during positive economic growth seasons (Beck et al., 2003).

2.3.4 Firm Specific Factors

Firm specific factors also have an effect on their financial performance as reviewed hereunder. Capital Adequacy Ratio (CAR) determines the ability of the firm to overcome situations that may threaten profits. According to Kamande (2017) the level of capital adequacy directly affects bank's lending levels by determining its ability to expand to risky areas. The higher the CAR, the lower the risk and the higher the profitability due to ability to absorb losses and minimize risk exposure. However, over reliance on the CAR might reduce bank profitability by reducing the need for deposits and other cheaper sources of capital leading to slowed lending levels. Banks therefore need to ensure they maintain a quality portfolio of these assets as it determines their lending levels (Dang, 2011).

Asset quality shows a bank's asset risk situation and financial strength. Asset quality forecasts the degree of credit risk among the dynamics which affects the health status of a bank. The value of assets controlled by a specific bank relies on the amount of credit risk, and the assets quality controlled through the bank also relies on liability to particular risks, tendencies on NPLs, and the cost-effectiveness of the debtors to the bank (Athanasoglou et al., 2005). Preferably, this ratio ought to be at a minimum. If the lending books are vulnerable to risk in a smoothly operated bank, this would be reflected

by advanced interest margins. On the other hand, if the ratio decreases it entails that the risk is not being appropriately recompensed by margins.

Management efficiency influence lending levels and can be determined through organizational discipline, and quality of staff. It can be cited from various financial ratios for instance loan growth rate, earnings growth rate and total asset growth (Kapaya & Raphael, 2016). It can also be determined by the ration of operating expense to income which shows the degree of inefficiency. A higher increase in the operating expense than total income indicates that the management is inefficient.

The viability in the future of a firm depends on its ability to earn adequate returns by using its assets. The ability of a firm to earn enables it to increase funds, expand capital and improve its competitive position. The earning capability can be represented by net interest rate margin which shows the difference between the cost of interest bank's borrowed capital and bank income of interest received on loans and securities (Owoputi, Kayode & Adeyefa, 2014).

Firm failures have been associated with insufficient liquidity. Holding liquid assets can help a firm to generate higher returns. Murerwa (2015) asserts that there is a positive correlation between the adequate level of bank liquidity and lending levels. Liquid asset protect firms against deposits that might require on demand payment and thus firm liquidity minimizes risk. However, liquid assets reduce the amount of funds for lending which in turn reduces bank profitability and in essence growth indicating negative relationship liquidity and lending levels.

Credit risks are the exposure faced by firms when customers fail to honor the debt obligations at maturity or due date. Banks are highly exposed to credit risk because the main purpose of bank existence is to grant credit facilities (Kapaya & Raphael, 2016). Thus adequate management of credit is critical for lending and survival of banks and failure to manage it may lead to financial distress. Magweva and Marime (2016) posit that credit risk significantly influences the return on assets of the firms by affecting the interest income they generate. Credit risk negatively affects the lending levels both in short and long run by reducing available funds for lending.

2.4 Empirical Review

Empirical studies have been carried out both internationally and locally on interest rates and commercial banks performance but these studies have focused on other measures of performance other than lending levels.

2.4.1 Global Studies

Zaman et al., (2013) conducted a study to determine the impact on interest rate on the profitability of commercial banks in Pakistan. A sample of 20 banks operating in Pakistan and listed in Karachi Stock formed the study. The study design was cross-sectional, and the data sources included the indexed Karachi stocks based on return, audited financial reports of the banks, publications of the State Bank of Pakistan, Press publications, and media reports. The outcome of the study confirmed that interest rate, deposit with the other banks, investment, and loans. It was established the interest rate (a key tool of monetary policy) has a significant impact on the profitability of banks. An increase in interest rates causes a higher lending rate more than the deposit rate, which results in

profit because the bank spread is high. A reduction in the interest rate causes the deposit rate to move faster than the lending rate, which keeps the bank spread low.

Kanwal and Nadeem (2013) also in a research study sought to establish the relationship that exists between macroeconomic variables (GDP, inflation rate, interest rate) and profitability (measured by return on assets, return on equity, and equity multiplier) of public commercial banks in Pakistan. The study covered a period 2001-2011 (ten years). Population comprised thirty-eight banks; a sample of twenty three listed banks was studied. Data was sourced from secondary sources and analysed using correlation analysis, descriptive statistics as well as pooled ordinary least squares regression analysis. The researchers find a strong positive association between profitability and interest rate, an insignificant positive association between GDP and profitability and a weak negative relationship between inflation rate and bank profitability. In summary the study concludes that there exists a weak association between macroeconomic variables and commercial banks earnings.

San and Heng (2013) the effect of macroeconomic conditions and bank specific characteristics affect the performance of Malaysian commercial banks. Period of study covered 2003 to 2009. Secondary data in this study was obtained and used by the study. 23 banks comprised the population; 20 banks were sampled (three banks had missing data, thus excluded). Data analysis was made via regression analysis and descriptive statistics. The study finds that return on assets ratio is the best measure for profitability. Macroeconomic variables such as gross domestic growth, interest rate and inflation are found not affecting profitability. Bank specific determinants however affect bank performance.

Owoputi, Kayode and Adeyefa (2014) investigated the impact of variables (bank-specific, industry specific and macroeconomic) on bank performance in Nigeria. The study obtained data from the central bank of Nigeria publications and financial statements of ten banks from 1998 to 2012. Three macroeconomic variables were analyzed in this study: interest rate, inflation rate, and GDP. After applying a random-effect model, the researchers found a significant and positive effect of bank size and capital adequacy on profitability. Liquidity ratio and credit risk have a negative correlation on banks financial performance. The study found that industry specific variables do not affect bank financial performance. Out of the three macroeconomic variables investigated in this study, the empirical results showed a significant and negative effect of interest rate and inflation rate on bank profitability while GDP growth has an insignificant relationship.

Osamwonji and Chijuka (2014) examined the effects of macroeconomic variables on profitability of commercial banks. The study was based on 1990 to 2013 secondary data obtained in Nigeria. The secondary data was obtained from central bank as well as firms annual reports and financials. Macroeconomic variables studied are GDP, inflation rate, and interest rate; the proxy for profitability being return on equity. Data analysis was by way of ordinary regression. The study finds a significant positive relationship between GDP and return on equity, a significant negative relationship between return on equity and interest rate, and an insignificant negative relation involving inflation rate. This study however fails to indicate neither the population of the study nor the sample used.

2.4.2 Local Studies

Ngugi (2013) carried a research on interest rate spread and financial intermediary's inefficiency. A survey design was used where all 43 banks were considered and primary

data collated through interview guides. The study revealed that a positive significant on the interest rate spread on efficiency of financial intermediaries. Recommendation on rates control policies by CBK and regulation guidelines to all banks in Kenya will lower the interest rate spread.

Simiyu and Ngile (2015) undertook a research study to analyze how macroeconomic variables affect profitability of listed Kenyan commercial banks. The census study used a population of ten commercial banks and obtained secondary data covering the period 2001 to 2012. Data obtained was analyzed using fixed effects panel data analysis. The macroeconomic variables studied were GDP, exchange rate, and interest rate; profitability was measured using return on assets. In this study, the researchers find an insignificant positive effect by GDP on profitability; also, the study finds a significant negative relationship between interest rate and profitability and a positive significant effect between exchange rate and profitability.

Kiseu (2017) conducted a study on the effect of interest rate capping on the amount of credit issued by commercial banks in Kenya. The study period covered three quarters before and after the capping law came into effect. Descriptive and inferential statistics was employed in the study. The findings were that the interest rate control did not significantly affect how the commercial banks issued their loans. Although the study did find that some banks contracted their loans books after the law came into effect, such were not enough to shift the ground for the whole industry. However, it was also found that the growth of the credit was not drastic as the policy makers would have projected and only grew by 0.2% more as compared to pre-capping period.

Murimi (2017) conducted a study on the effect of interest rate capping on retail credit growth on Kenya commercial banks. The population of the study was all the 43 banks in Kenya. A bivariate regression analysis was used to establish the link between retail credit growth and capping of interest rates. The findings of the study indicate that interest rate charged by commercial banks significantly affects credit growth. Introduction of interest rate capping interferes with the market and hinders financial institutions from offering loan products to those at the lower end of the market.

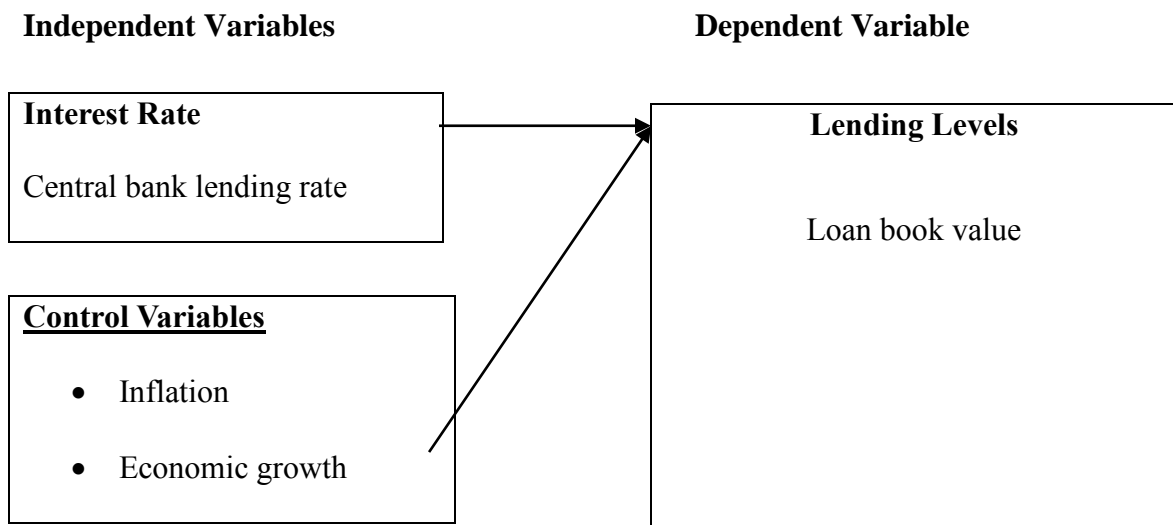
Mbua (2017) investigate the effects of the recent capping of interest rates by the CBK on the listed bank's shares at the NSE of Kenya. The study adopted an observational research design and checklists were used for data collection. The correlations between the various variables were established using inferential statistics. This study used a small population of eleven banks listed on the NSE and a census was conducted. Considering the lending rates made by investors on deciding whether to invest in bank shares, the study established that a negative correlation exists between lending rates and stock prices in third and fourth quarter of 2015 and a positive one between lending rates and stock prices in third and fourth quarter of 2016. Upon effecting interest rate cap, the banks' share prices significantly dropped and this shows that interest rates significantly influence the decision on whether to invest in bank shares or not.

2.5 Conceptual Framework

The expected relationship between the study variables is best explained using a conceptual model. The conceptual model developed below shows how interest rate and lending levels of commercial banks in Kenya are related. The independent variable is interest rate as measured by the average quarterly central bank lending rate while lending

levels of banks is the dependent variable which the study seeks to explain and it will be measured by the natural logarithm of loan book value on a quarterly basis. The control variables characterized here are inflation and economic growth.

Figure 2.1: Conceptual Model



Source: Researcher (2018)

2.6 Summary of the Literature Review

This chapter has focused on the theories that form the foundation for this study. The theories discussed here are namely; the loanable funds theory of interest rates, classical theory and rational expectations theory. The chapter has also focused on some of the factors that are expected to determine lending levels of commercial banks. There have been previous studies carried out either in this area and/or related areas and their findings have been discussed under empirical review. From the empirical review, it is notable that there is no consensus on the effect of interest on lending levels among commercial banks. In addition, the studies conducted locally have concentrated on banks financial performance leaving a gap on the lending levels. The current study sought to answer the

research question: What is the effect of interest rates on lending levels of commercial banks in Kenya?

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In order to determine the effect of interest rates on lending levels of commercial banks, a research methodology was necessary to outline how the research was carried out. This chapter has four sections namely; research design, data collection, diagnostic tests and data analysis.

3.2 Research Design

A descriptive research design was employed in this study to investigate the effect of interest rates on lending levels of commercial banks in Kenya. Descriptive design was utilized as the researcher is interested in finding out the state of affairs as they exist (Khan, 2008). This research design was appropriate for the study as the researcher was familiar with the phenomenon under investigation but want to know more in terms of the nature of relationships between the study variables. In addition, a descriptive research aims at providing a valid and accurate representation of the study variables and this helps in responding to the research question (Cooper & Schindler, 2008).

3.3 Data Collection

Data was exclusively collected from a secondary source. It is always a regulatory requirement for all banks to report their values annually to the Central Bank of Kenya. Quarterly data for ten years (January 2008 to December 2017) was collected and analyzed. Data for the independent variables; interest rates was obtained from the CBK while data for the control variables; inflation and economic growth was collected from

the KNBS. Data for the dependent variable; lending levels referenced by loan book value was obtained from CBK.

3.4 Diagnostic Tests

Multicollinearity is said to occur when there is a nearly exact or exact linear relation among two or more of the independent variables. This was tested by the determinant of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one while it is zero if there is a complete linear dependence between them and as it approaches to zero then the multicollinearity becomes more intense. Variance Inflation Factors (VIF) and tolerance levels were carried out to show the degree of multicollinearity (Burns & Burns, 2008).

Stationarity test is a process where the statistical properties such as mean, variance and autocorrelation structure do not change with time. Stationarity was obtained from the run sequence plot. Normality is a test for the assumption that the residual of the response variable are normally distributed around the mean. This was determined by Shapiro-walk test or Kolmogorov-Smirnov test. Autocorrelation is the measurement of the similarity between a certain time series and a lagged value of the same time series over successive time intervals. It was tested using Durbin-Watson statistic (Khan, 2008).

3.5 Data Analysis

The data collected from the different sources was organized in a manner that can help address the research objective. Statistical Package for Social Sciences (SPSS) version 22 was utilized for data analysis purposes. Both descriptive and regression analyses were carried out. In descriptive statistics, the minimum, maximum, mean, standard deviation,

skewness and kurtosis were computed for each variable. In inferential statistics, both regression and correlation analysis were carried out. Correlation analysis involved determining the extent of relationship between the study variables while regression analysis involved establishing the cause and effect between the independent and dependent variables. A multivariate regression analysis was employed to determine the association between the dependent variable (lending levels) and independent variables: interest rates, inflation rates and economic growth.

3.5.1 Analytical Model

The three determinants in the model were; interest rates, inflation rates and economic growth. To determine the relative significance of each of the explanatory variables with respect to lending levels of banking sector in Kenya, a multivariate regression model was applied.

The study employed the following multivariate regression model;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where:

Y was lending levels as measured by the natural logarithm of the sector's loan book value on a quarterly basis

β_0 was the regression constant (parameter of the function)

β_1 , β_2 and β_3 are the coefficients of independent variables,

X_1 was the average quarterly interest rates as measured by central bank lending rate

X_2 was the average quarterly inflation rates as measured by CPI

X_3 was the average quarterly economic growth as measured by GDP growth rate

ϵ was the error term

3.5.2 Tests of Significance

The researcher carried out parametric tests to establish the statistical significance of both the overall model and individual parameters. The F-test was used to determine the significance of the overall model and it was obtained from Analysis of Variance (ANOVA) while a t-test was used to establish statistical significance.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter represents the results and findings of the study based on the research objective. The chapter focused on the analysis of the collected data from CBK and KNBS to establish the relationship between interest rates and lending levels by commercial banks in Kenya. Using descriptive statistics, correlation analysis and regression analysis, the results of the study were presented in form of tables for easy interpretation.

4.2 Diagnostic Tests

The researcher carried out diagnostic tests on the collected data. The research assumed a 95 percent confidence interval or 5 percent significance level (both leading to identical conclusions) for the data used. These values helped to verify the truth or the falsity of the data. Thus, the closer to 100 percent the confidence interval (and thus, the closer to 0 percent the significance level), the higher the accuracy of the data used and analyzed is assumed to be. To test for normality, the null hypothesis for the test was that the secondary data was not normal. If the p-value recorded was more than 0.05, the researcher would reject it. The results of the test are as shown in Table 4.1.

Both Kolmogorov-Smirnova and Shapiro-Wilk tests recorded o-values greater than 0.05 which implies that the research data was normally distributed and therefore the null hypothesis was rejected. The data was therefore appropriate for use to conduct parametric tests such as Pearson's correlation, regression analysis and analysis of variance.

Table 4.1: Normality Test

Lending levels	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Interest rates	.178	40	.300	.881	40	.723
Inflation rates	.173	40	.300	.918	40	.822
Economic Growth	.176	40	.300	.892	40	.784
a. Lilliefors Significance Correction						

Source: Research Findings (2018)

A test of Multicollinearity was undertaken. Tolerance of the variable and the VIF value were used where values more than 0.2 for Tolerance and values less than 10 for VIF means that there is no Multicollinearity. For multiple regressions to be applicable there should not be strong relationship among variables. From the findings, the all the variables had a tolerance values >0.2 and VIF values <10 as shown in table 4.2 indicating that there is no Multicollinearity among the independent variables.

Table 4.2: Multicollinearity Test for Tolerance and VIF

Variable	Collinearity Statistics	
	Tolerance	VIF
Interest rates	0.340	1.326
Inflation rates	0.398	1.982
Economic growth	0.392	1.463

Source: Research Findings (2018)

4.3 Descriptive Analysis

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations in this study. Table 4.3 below shows the descriptive statistics for the variables applied in the study. An analysis of all the variables was obtained using SPSS software for the period of ten years (2008 to 2017) on a quarterly basis. Lending levels had a mean of 3.130 with a standard deviation of 0.2090. Interest rates recorded a mean of 15.8099 with a standard deviation of 1.9545. Economic growth resulted to a mean of 6.215 with a standard deviation of 3.488 while Inflation had a mean of 8.556 and standard deviation of 3.721.

Table 4.3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Lending levels	40	2.8	3.4	3.130	.2090
Interest rate	40	13.653	20.213	15.80990	1.954510
Inflation rate	40	4.030	16.830	8.55850	3.720589
Economic growth	40	.300	12.500	6.21500	3.487895
Valid N (listwise)	40				

Source: Research Findings (2018)

4.4 Correlation Analysis

Pearson correlation was employed to analyze the level of association between lending levels and the independent variables for this study (interest rates, economic growth and inflation rates). From correlation analysis, the study showed the existence of a strong

positive and significant correlation between interest rates and lending levels into the country ($p=.518$, $p<.005$). This goes to show that the level of interest rates in a country has a significant association with lending levels by commercial banks in the country.

Table 4.4: Correlation Analysis

		Lending levels	Interest rate	Inflation rate	Economic growth
Lending levels	Pearson Correlation	1	.518**	-.850**	.088
	Sig. (2-tailed)		.001	.000	.589
	N	40	40	40	40
Interest rate	Pearson Correlation	.518**	1	.201	.367*
	Sig. (2-tailed)	.001		.214	.020
	N	40	40	40	40
Inflation rate	Pearson Correlation	-.850**	.201	1	-.092
	Sig. (2-tailed)	.000	.214		.571
	N	40	40	40	40
Economic growth	Pearson Correlation	.088	.367*	-.092	1
	Sig. (2-tailed)	.589	.020	.571	
	N	40	40	40	40

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

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

Source: Research Findings (2018)

The relationship between economic growth and lending levels was found to be weak, positive and insignificant ($p=.088$, $p>0.005$). This implies that movement in economic growth is positively correlated to lending levels but not in a significant manner. The study also showed that the relationship between inflation and lending levels was strong, negative and significant ($p=-.850$, $p<0.005$). This implies that movement in the inflation rate is negatively correlated to Lending levels and in a significant manner.

4.5 Regression Analysis

Lending levels were regressed against three predictor variables; interest rates, economic growth and inflation rates. The study obtained the model summary statistics as shown in table 4.5 below.

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.921 ^a	.848	.836	.0848	1.572

a. Predictors: (Constant), Economic growth, Inflation rate, Interest rate

b. Dependent Variable: Lending levels

Source: Research Findings (2018)

From the outcome in table 4.5 above, the value of R square was 0.848, a discovery that 84.8 percent of the deviations in lending levels into the country are caused by changes in interest rates, economic growth and inflation rates. Other variables not included in the model justify for 15.2 percent of the variations in lending levels by commercial banks in Kenya. Also, the results revealed that there exists a strong relationship among the selected independent variables and lending levels as shown by the correlation coefficient

(R) equal to .921. A durbin-watson statistic of 1.572 indicated that the variable residuals were not serially correlated since the value was more than 1.5.

From the analysis of variance, the significance value is 0.000 which is less than $p=0.05$. This implies that the model was statistically significant in predicting how interest rates, economic growth and inflation rates affect lending levels by commercial banks in Kenya. Given 5% level of significance, critical value from the table is 2.74, table 4.5 above shows computed F value as 67.049. This confirms that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining how interest rates, economic growth and inflation rates affects lending levels by commercial banks in Kenya.

Table 4.6: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.445	3	.482	67.049	.000 ^b
Residual	.259	36	.007		
Total	1.704	39			

a. Dependent Variable: Lending levels

b. Predictors: (Constant), Economic growth, Inflation rate, Interest rate

Source: Research Findings (2018)

The study applied t-test to determine the significance of individual variables applied in this study as predictors of lending levels by commercial banks in Kenya. The p-value under sig. column was used as an indicator of the significance of the relationship between

the dependent and the independent variables. At 95% confidence level, a p-value of less than 0.05 was interpreted as a measure of statistical significance. As such, a p-value above 0.05 indicates a statistically insignificant relationship between the dependent and the independent variables. The results are as shown in table 4.7

Table 4.7: Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.152	.112		19.191	.000
1 Interest rate	.037	.008	.349	4.832	.000
Inflation rate	-.044	.004	-.782	-11.605	.000
Economic growth	.002	.004	.032	.453	.653

a. Dependent Variable: Lending levels

Source: Research Findings (2018)

From the above results, it is evident that interest rate produced positive and statistically significant values for this study as shown by a high t value and a p value less than 0.05. Inflation rate produced negative and statistically significant values for this study as shown by a high t value and a p value that was less than 0.05. This implies that inflation rate have a negative and statistically significant effect on lending levels by commercial

banks in Kenya while economic growth produced positive but statistically insignificant values for this study as shown by a p values greater than 0.05.

The following regression equation was estimated:

$$Y = 2.152 + 0.037X_1 - 0.044X_2$$

Where,

Y = Lending levels

X₁ = Interest rates

X₂ = Inflation rates

On the estimated regression model above, the constant = 2.152 shows that if selected dependent variables (interest rates, economic growth, foreign and inflation rate) were rated zero, lending levels would be 2.152. A unit increase in interest rates would lead to an increase in lending levels by commercial banks in Kenya by 0.037 while a unit increase in inflation would lead to a decrease in lending levels by commercial banks in Kenya by 0.044.

4.7 Discussion of Research Findings

The study sought to determine the effect of interest rates on lending levels by commercial banks in Kenya. The independent variable was interest rates as measured by central bank lending rate on a quarterly basis. The control variables were economic growth as measured by quarterly GDP growth rate and inflation rates as measured by quarterly CPI. Lending levels by commercial banks was the dependent variable which the study sought to explain and it was measured by quarterly average loan book value of commercial banks in Kenya in natural logarithm form. The effect of each of the independent variables on the dependent variable was analyzed in terms of strength and direction.

The Pearson correlation coefficients between the variables revealed existence of a strong positive and significant correlation between interest rates and lending levels by commercial banks in Kenya. The relationship between economic growth and lending levels was found to be weak, positive and insignificant. The relationship between inflation and lending levels was found to be strong and negative. This implies that movement in inflation rates is negatively correlated to lending levels and in a significant manner

The model summary revealed that the independent variables: interest rates, economic growth and inflation explains 84.8% of changes in the dependent variable as indicated by the value of R^2 which implies that there are other factors not included in this model that account for 15.2% of changes in lending levels by commercial banks in Kenya. The model was found to be fit at 95% level of confidence since the F-value of 67.049 is higher than the critical value. This implies that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining lending levels by commercial banks in Kenya.

The findings of this study are in agreement with Kanwal and Nadeem (2013) who in a research study sought to establish the relationship that exists between macroeconomic variables (GDP, inflation rate, interest rate) and profitability (measured by return on assets, return on equity, and equity multiplier) of public commercial banks in Pakistan. The study covered a period 2001-2011 (ten years). Population comprised thirty-eight banks; a sample of twenty three listed banks was studied. Data was sourced from secondary sources and analyzed using correlation analysis, descriptive statistics as well as pooled ordinary least squares regression analysis. The researchers find a strong positive

association between profitability and interest rate, an insignificant positive association between GDP and profitability and a weak negative relationship between inflation rate and bank profitability. In summary the study concludes that there exists a weak association between macroeconomic variables and commercial banks earnings.

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CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter shows the summary of research findings, the conclusions made from the results, and the recommendations for policy and practice. The chapter also discusses a few limitations encountered as well as suggestions for future research.

5.2 Summary of Findings

The study sought to investigate the effect of interest rates on lending levels by commercial banks in Kenya. The independent variables for the study were interest rates, economic growth and inflation. The study adopted a descriptive research design. Secondary data was obtained from CBK and KNBS and was analyzed using SPSS software version 21. The study used quarterly data covering a period of ten years from January 2008 to December 2017.

From the results of correlation analysis, a strong positive correlation was found to exist between interest rates and lending levels by commercial banks in Kenya and the correlation was significant as indicated by a p value less than 0.05. The relationship between the control variables inflation and lending levels by commercial banks in Kenya was found to be strong, negative and significant. Economic growth exhibited a weak positive and insignificant correlation with lending levels by commercial banks as shown by a p value that was more than 0.05.

The co-efficient of determination R-square value was 0.848 which means that about 84.8 percent of the variation in lending levels by commercial banks in Kenya can be explained

by the three selected independent variables while 15.2 percent in the variation of lending levels by commercial banks in Kenya is associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with lending levels by commercial banks in Kenya ($R=0.921$). ANOVA results show that the F statistic was significant at 5% level with a $p=67.049$. Therefore the model was fit to explain the relationship between the selected variables.

The regression results show that when all the selected dependent variables (interest rates, economic growth and inflation) are rated zero, lending levels by commercial banks in Kenya would be -2.152. A unit increase in interest rates would lead to an increase in lending levels by commercial banks in Kenya by 0.037 while a unit increase in inflation would lead to a decrease in lending levels by commercial banks in Kenya by 0.044.

5.3 Conclusion

From the study findings, the study concludes that lending levels by commercial banks in Kenya have a positive association with interest rates. The study therefore concludes that higher interest rates lead to improved lending levels by commercial banks in Kenya to a significant extent. Economic growth was also found to be positively related to Lending levels in the country and therefore an increase in economic growth leads to an increase in lending levels by commercial banks in Kenya though not to a significant extent. The study found that inflation rate had a negative and significant correlation with lending levels by commercial banks in Kenya in the country and we can therefore conclude that higher inflation rates tend to discourage lending levels by commercial banks in Kenya.

This study concludes that independent variables selected for the study interest rates, economic growth and inflation influence lending levels by commercial banks in Kenya to

a significant extent as they account for 84.8 percent of the changes in lending levels by commercial banks in Kenya. The fact that the three independent variables explain 84.8% of changes in lending levels by commercial banks in Kenya imply that the variables not included in the model explain 15.2% of changes in lending levels by commercial banks in Kenya. The overall model was found to be significant as explained by the F statistic. It is therefore sufficient to conclude that these variables significantly influence lending levels by commercial banks in Kenya as shown by the p-value in ANOVA summary.

This finding concurs with Kanwal and Nadeem (2013) who in a research study sought to establish the relationship that exists between macroeconomic variables (GDP, inflation rate, interest rate) and profitability (measured by return on assets, return on equity, and equity multiplier) of public commercial banks in Pakistan. The study covered a period 2001-2011 (ten years). Population comprised thirty-eight banks; a sample of twenty three listed banks was studied. Data was sourced from secondary sources and analyzed using correlation analysis, descriptive statistics as well as pooled ordinary least squares regression analysis. The researchers find a strong positive association between profitability and interest rate, an insignificant positive association between GDP and profitability and a weak negative relationship between inflation rate and bank profitability. In summary the study concludes that there exists a weak association between macroeconomic variables and commercial banks earnings.

5.4 Recommendations

The study established that there is a positive influence of interest rates on lending levels by commercial banks in Kenya, and the influence is statistically significant. This study recommends that there is need for policy makers to regulate the interest rate levels

prevailing in the country bearing in mind that they influence lending levels by commercial banks in Kenya. Economic growth was also found to have a positive effect on lending levels by commercial banks in Kenya and therefore this study recommends that policy makers should develop measures to boost economic growth as it attracts foreign direct investments.

The study found that inflation rates have a negative influence on lending levels by commercial banks in Kenya. This study recommends that policy makers should regulate prevailing inflation rates as high inflation rates may lead to decreased lending levels by commercial banks in Kenya. A decline in lending levels will in effect slow down the economic growth in the country which has spiral effects on development.

5.5 Limitations of the Study

The scope of this research was for ten years 2008-2017. It has not been determined if the results would hold for a longer study period. Furthermore it is uncertain whether similar findings would result beyond 2017. A longer study period is more reliable as it will take into account major economic conditions such as booms and recessions.

One of the limitations of the study is the quality of the data. It is difficult to conclude from this research whether the findings present the true facts about the situation. The data that has been used is only assumed to be accurate. The measures used may keep on varying from one year to another subject to prevailing condition. The study utilized secondary data, which had already been obtained and was in the public domain, unlike the primary data which is first-hand information. The study also considered selected determinants and not all factors affecting lending levels by commercial banks in Kenya mainly due to limitation of data availability.

For data analysis purposes, the researcher applied a multiple linear regression model. Due to the shortcomings involved when using regression models such as erroneous and misleading results when the variable values change, the researcher cannot be able to generalize the findings with certainty. If more and more data is added to the functional regression model, the hypothesized relationship between two or more variables may not hold.

5.6 Suggestions for Further Research

This study focused on interest rates and lending levels by commercial banks in Kenya and relied on secondary data. A research study where data collection relies on primary data i.e. in-depth questionnaires and interviews covering the different customers that receive bank loans is recommended so as to complement this research.

The study was not exhaustive of the independent variables lending levels by commercial banks in Kenya and this study recommends that further studies be conducted to incorporate other variables like unemployment rate, exchange rates, money supply, cost of labour, technological advancement, education levels, political stability and other macroeconomic variables. Establishing the effect of each variable on lending levels by commercial banks in Kenya will enable policy makers know what tool to use when controlling Lending levels.

The study concentrated on the last ten years since it was the most recent data available. Future studies may use a range of many years e.g. from 1970 to date and this can be helpful to confirm or disapprove the findings of this study. The study limited itself by focusing in Kenya. The recommendations of this study are that further studies be conducted on other contexts such as other East Africa countries. Finally, due to the

shortcomings of regression models, other models such as the Vector Error Correction Model (VECM) can be used to explain the various relationships between the variables.

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