

**THE EFFECT OF LENDING INTEREST RATE ON ECONOMIC GROWTH IN
KENYA**

BY

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D63/76111/2012

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTERS OF SCIENCE
IN FINANCE AT THE UNIVERSITY OF NAIROBI**

OCTOBER 2014

DECLARATION

STUDENT DECLARATION

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

Signature

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SUPERVISOR'S DECLARATION

This research project has been submitted with my approval as the university supervisor

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ACKNOWLEDGEMENT

I wish to acknowledge all the individuals who assisted in various ways towards completion of this research proposal. Many thanks go to my supervisor Mr Cyrus M Iraya for giving me the required guidelines all the way till i was through. My fellow classmates who assisted me in various ways cannot be forgotten since their contribution had a positive impact. I can't also forget the entire management of University of Nairobi for their cooperation towards providing library facilities where I accessed much needed information concerning this research study.

DEDICATION

I would like to dedicate my research project to my family for their love and support during this study.

ABSTRACT

According to economic theory the base rate is set by the banks to determine the interest rate and in Kenya it's the CBK rate. Darrat and Dickens (1999), argue that interest rate environment is important in the performance and the returns of any given investment. The CBK through the monetary policy and the bank rate has a very strong bearing on the performance of any sectors. Following interest rate liberalization, interest rates have fluctuated to respond to changes in demand and supply of loanable funds in the financial market. Various studies have been conducted but they have been sectoral in nature, however no known study that has dealt on the effects of interest rate on the general economic growth has been done. This study therefore seeks to fill the knowledge gap that currently exists. It aimed to establish the effect of lending interest rate on economic growth in Kenya and the empirical evidences that help answer the research objective. I collected data from the KNBS and from the Central bank of Kenya for a 10 year period starting 2003 to 2012 and the same was regressed quarterly to help answer the research question. The study established that there is a negative relationship between interest rate and the economic growth. Interest rate was not studied in isolation but there were other variables which were also studied i.e budget deficit, inflation rate, exchange rate and gross investment whose effect to the economic growth was also established. Since lending interest has a strong bearing on economic growth, it's imperative that the government puts policies in place to check the interest rate. It's the same thing for the other variables which were also studied namely; budget deficit, inflation rate, exchange rate and gross investment.

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LIST OF ABBREVIATIONS

CBK	Central Bank of Kenya
CBR	Central Bank Rate
CD	Certificate Of Deposit
FED	Federal Government
GDP	Gross Domestic Product
GNP	Gross National Product
LDC	Less Developed Countries
SACCO	Savings and Credit Cooperative Societies
SPSS	Statistical Package for Social Sciences

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Haron (2004), states that interest rate levels and volatility are used to assess the impact of financial liberalization on economic growth. According to the economic theory the base rate is the interest rate set by the banks to determine the interest rate and in Kenya it's the CBK rate. (Darrat and Dickens,1999), argue that interest rate environment is important in the performance and the returns of any given investment. The CBK through the monetary policy and the bank rate has a very strong bearing on the performance of any sectors.

The lending rates remained within the 12 to 16 percent through September 2011 causing a huge expansion in credit to the private sector, rising government debt appetite and growth in the economy (Mbotu, 2010).These pointers show that the importance of interest rate on economic growth can't be overemphasized and hence the study. With nominal interest ranging between 20-30%, the private sector is unable to borrow to finance long term investment. In addition the 11-18% point spread between the lending and the deposit rate is much higher than 5 point common in other developing countries (Economic report on Africa, 2002).

Following interest rate liberalization, interest rates have fluctuated to respond to changes in demand and supply of loanable funds in the financial market. Rapid liberalization in the country whose enterprises and financial institution lack experienced management could prove counterproductive and result in unsound financial sector (Leite and Sundarajan, 1999). Therefore the effect of interest rate on economic growth cannot be overemphasized.

1.1.1 Interest Rate

Interest rate defines the cost of credit in an economy. More specifically, it is the yearly price charged by a lender to a borrower in order to obtain a loan. This is usually expressed as a percentage of the total amount loaned (Fisher, 1930). It is the price that relates to present claims on resources relative to future claims on resources. The price a borrower pays in order to be able to consume resources now (Kwak, 2000).

The real interest rate-an interest rate adjusted for either realized or expected inflation-is the relative price of consuming now rather than later. As such it's a key variable in important theoretical models in finance and microeconomics- such as the consumption based asset pricing model (Lucas, 1978). According to Keynes (1936), interest rate represents the cost of borrowing capital for a given period of time. Due to the fact that borrowing is a significant source of finance for many firms, prevailing interest rate are of much concern to the firms due to the indexing of interest rate on borrowing arrangements of the firms ultimately affecting growth.

Changes in interest rate have profound impact in saving and consumption behaviors' of households, capital accumulation decisions of firms and on the portfolio allocation of domestic and foreign traders in the financial and exchange rate markets. It is generally agreed that these changes affect the aggregate demand and aggregate supply positions in an economy that may occur immediately or for a lag of up to two years. These changes also influence the expectations and plans of economic agents about their own future and the

perception about welfare and redistribution of income and about the prospects of the economy (Keynes, 1936).

If real interest rate is low then the cost of doing business, living and investing is low. This stimulates the economy because home loans and car loans are more affordable. Therefore there is the tendency to borrow more and spend more also. Interest rate also affects the inflation level. Interest rate influence financial inflows in the economy. The determination of Positive interest rate (lending in excess of inflation rate) is viewed as prerequisite for successful and sustainable finance (Buckler, 1999). When the central bank of Kenya changes the rate at which banks borrow money, this has a ripple effect across the entire economy. The interest rate does affect the economy as a whole, the stock and bond markets, inflation and recessions. Rising or falling interest rates also affect consumer and business psychology. When interest rates are rising, both businesses and consumers will cut back on spending. High interest rates have the negative effect of increasing the cost of borrowing and consequently limiting the level of aggregate investment and consumption and the overall economic growth in the country (Ng'etich & Wanjau, 2011).

Mishikin (1986), while noting that interest rate is the price lender charge on borrowed funds, further contended that the forces of demand and supply in the market would attain the market equilibrium interest rate. This position is in conformity with the classical economic theory. Interest rates are basically determined by the money supply, the rate of inflation, the time period of credit and the CBK's monetary policy (International monetary fund, 2012). According to Cargill (1991), there exist two approaches used to determine interest rate; the liquidity approach and the loanable funds approach. These approaches assume that the level

of income and employment determined in the real section of the economy are constant. A zero rate of inflation is assumed.

1.1.2 Economic Growth

According to Swan (1956), economic growth is the increase in the amount of goods and services produced in the economy over time. It is the expansion of the nation's income. According to Solow (1956), economic growth allows a nation to forecast long term business trends and compare different government policies. It indicates the direction of the economy. In addition Solow (1956), records that measurement of growth is the GDP rate. GDP is the total dollar amount of goods and services produced in a country, the sum of all money spent in the economy whether on consumption, investment, government spending and net exports. GDP rate is the percentage change of GDP over a certain period, usually one year. Adjustment for inflation, gives us the real GNP.

1.1.3 Effects of Interest Rate on Economic Growth

The current Central Bank of Kenya (CBK) rate tends to determine how investors will invest their money, as the returns on both CDs and T-bonds are affected by this rate. When the CBK's monetary policy committee raised the CBR from 7% to 18% in order to curb rising inflation in the country during the last half of 2011, evidence suggests that the real economic growth slowed by 1.6% to 3.5% in just four months to April 2012- even with the advent of rain, which is normally a catalyst to economic growth (Central Bank of Kenya, 2012). Rising or falling interest rates also affect consumer and business psychology. When interest rates are rising, both businesses and consumers will cut back on spending. This will cause earnings to fall and stock prices to drop. On the other hand, when interest rates have fallen significantly,

consumers and businesses will increase spending, causing stock prices to rise (Keynes, 1936).

Of importance is the impact that realistic interest rate have on investment and managerial decisions and the determination of the mix of the resources to be utilized. Artificially low interest rate tends to encourage the wasteful use of the capital goods. Interest is an important fact in the cost of capital goods and when the interest rates are kept artificially low the goods are priced below their true value. This frequently results in the excessive use of capital-intensive production techniques in countries where labour is cheap and underemployed. Changes in interest rate influence the performance and the decision making for the individual investors, businesses and the governments units alike (Saunders, 2010).

Moreover the capital goods may be underemployed themselves which would not be the case if the entrepreneur were to pay the true value of the capital goods. Realistic interest rate will rectify this situation. When the capital is properly priced countries with large labour will find that the entrepreneur has greater inducement to maximize on the use of labour. They will also find that the capital that is employed will be used more fully, more efficiently and will be better maintained. This will be an important stimulus to economic growth.

1.1.4 Interest Rate and Economic Growth in Kenya

Kenya's interest rates were fairly stable before 1990s due to the combination of the price controls and the banking controls in the country. Interest rate volatility quickly set in after the 1992 multi-party elections. Together with the runaway inflation sharp rise in interest rate were noted in most of 1993. Indeed the lending rate remained within the 12-16% through

September 2011 causing a huge expansion in credit to the private sector, rising government debt appetite and growth in the economy (Mbotu, 2010). Excessive interest rates in Kenya-finance sector have strongly discouraged long term investment and constraint Kenya's ability to grow. With nominal interest rate ranging between 20-30% the private sector is unable to borrow to finance long term investment. In addition the 5 point spread between the lending and the deposit rate is much higher than what is in other developing counties (Economic Report on Africa, 2002).

First review in the post-independence period was made in 1974, real interest rate were negative due to high inflation caused by first oil crisis. The spread of interest rate was reduced by 1%. in 1976/77. During the coffee boom, inflation came down but with expansionary financial policy, money supply went up. Interest rates offered by the government securities were low in order to cause a shift towards quality assets. The effect of this was felt in 1979 when the lending rates became positive in real terms. These reviews were made on the basis that interest rate have an important role as an instrument of monetary policy, adjustment were made to contain inflationary pressure. Nominal interest rates were pervasive actuated by the belief that the cost of credit had to be kept low to encourage investment and subsidize favored borrowers (Buckler, 1999).

1.2 Research Problem

The impact of the macro economic variables in Kenya especially interest rates have been a major concern to financial analysts and investors. Nyagena (1991), contends that a large and abrupt increase in general interest rates can have devastating effects on crucial variables

exerting enormous pressure on business entities and the economy as a whole. Actually, interest rates affect the core operation of an economy in terms of production and consumption through transmission mechanism of inflation, exchange rates amongst other monetary variables.

Ackley (1961), suggests that macro-economic theory implies that it's through the interest rate that the monetary policy actions are transmitted to the economy. Smith (1970), found out that when the interest rate are considered the monetary aggregates lost most of their explanatory powers suggesting that interest rate have a crucial role to play on the economic growth. Following interest rate liberalization, interest rates have fluctuated to respond to changes in demand and supply of loanable funds in the financial market. Rapid liberalization in a country whose enterprises and financial institution lack experience could prove counterproductive and result in unsound financial sector (Leite and Sundarajan, 1999).

A number of studies have been done on the effects of interest rate on specific areas. These studies include; Bett (2006), who studied the effects of lending interest rates on profitability of Saccos'. Studies have explored the relationship of interest rate and private sector investment, interest rates and mobilization of private savings as well as the effects of interest rates on firms' performance (Olweny & Chilwe, 2012). Effects of flexible interest rates on growth of mortgages in Kenya by Muguchia (2012). However no known study has dealt on the effects of interest rate on the general economic growth other than studies on various sectors of the economy. This study therefore seeks to fill the knowledge gap that currently exists and explore how interest rate affects economic growth in Kenya. The study therefore

seeks to answer the following question: What is the effect of the lending interest rate on economic growth in Kenya?

1.3 Objective of the Study

To establish the effect of the lending interest rate on economic growth in Kenya.

1.4 Value of the Study

The study on the relationship between interest rate and economic growth in Kenya will provide important insights towards achieving macroeconomic targets of Kenya vision 2030, the country's economic blue print for long term growth in the country. The study will assist the CBK in increasing the efficiency of its regulatory role. The conclusion made will inform CBK of prudent policies to adopt in balancing its role of monetary policy which are aimed at ensuring the stability of the Kenyan currency on one hand and accelerating growth through provision of affordable credit facilities on the other hand. The commercial banks that provide credit will find the study useful for maximizing profits from credit offering as they will modify their products to best suit their customers' needs. The interest rate will ultimately affect the bank's lending rate, their profitability and therefore they need to have this information to perform their functions better. The researchers and scholars will find the study a useful reference for future studies and a benchmark for making conclusion in related studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses other studies that have been conducted in the area of study. The areas covered include the theoretical review (theory of pricing, fisher effect, loanable funds theory Keynes liquidity preference theory and classical theory of interest rate) and the empirical reviews.

2.2 Theoretical Framework

Here various theoretical theories have been highlighted. They include; the theory of pricing, fisher effect, loanable funds theory, Keynes liquidity theory of interest rate and classical theory of interest rate.

2.2.1 Theory of Pricing

Marshall (1990), from the classical economic theory and early neoclassical economics' theory point of view asserted that equilibrium market-price would be determined by the forces of demand and supply under the perfect market competition model assumption. This position does not have any divergence from the classical value theory. Clarke (1982), defines price as the assigned numerical monetary value of a good, service or asset. If there is excess supply of money in the market, this will exert a downward pressure on prices and similarly if there is excess demand for money there will be a built up on the prices.

Mishkin (1986), while noting that interest rate is the price lender charge on borrowed funds, further contended that the forces of demand and supply in the market would attain the market equilibrium interest rate. This position is in conformity with the classical economic theory.

The supply side of this money market represents the supply of loanable funds while the demand side represents the demand for loanable funds. Therefore the interest rate determination is at equilibrium at the point of intersection of the supply and demand.

2.2.2 Fishers Theory

Suggest that changes in the short term interest rate occur principally because of the changes in expected rate of inflation. Going further we assume that the expectations held by the market agents about rate of inflation are broadly correct. A principle reason for the changes in the interest rate becomes changes in the rate of inflation. Thus we write $r=i-p$ where r is the real interest rate, I is the nominal interest rate and p is the rate of inflation (Mishkin, 2010).

Named after the American economist Fisher (1930), this is the most well-known theory and forms the basis of the standard recommendation on real interest rate. Argues that competitive financial markets would establish the nominal interest rate on deposits that, are positive in real terms, because savers must be induced to hold financial rather than real assets and on average real assets grow in nominal terms at the rate of inflation. Thus the nominal interest must equal the expected inflation rate plus a small underlying real rate. Lending rate will in turn be positive in real terms since they are based on the cost of deposits plus a small margin covering the cost of intermediation, cost of the reserve requirement, taxes and risk administration costs (Davies, 1986).

Consequently many economists recommend that inflation must be kept low if we want to keep nominal interest rates low. Main criticism of the fishers theory is that it has deficiency

because it has partial equilibrium theory that confines itself to the analysis of the capital markets and works with the assumption that the prices of goods and services are already determined (Mishkin, 2010).

2.2.3 Loanable Funds Theory of Real Interest Rate

Loanable funds theory of interest rate determination views the level of interest in the financial market as resulting from the factors that affect the supply and demand of loanable funds. (Saunders, 2010) interest rate in this theory is determined just like the demand and supply of goods is determined, supply of loanable funds increases as interest increases, other factors held constant. He goes further to explain that the demand for loanable funds is higher as interest rate fall, other factors held constant. Saunders (2010), identifies two factors among others causing demand curve for loanable funds to shift; economic conditions and the monetary expansion.

Refers to the sum of money offered for lending and demanded by consumers and investors during a given period. The interest rate model is determined by the interaction between potential borrowers and potential savers. According to the loanable funds theory, economic agents seek to make the best use of the resources available to them over their life time. One way of increasing future real income might be to borrow funds now in order to take advantage of investment opportunities in the economy. This will only work if the rate of return available from the investment were greater than the cost of borrowing. These borrowers would not be willing to pay higher real rate of interest than the rate of return available to capital. Savers are willing to save and lend only if there is a promise of real return on their savings that will allow them to consume more in future than they would

otherwise be able to do. The extent to which people are willing to postpone consumption depends upon their time preferences (Saunders and Cornet, 2011)

2.2.4 Keynes Liquidity Preference Theory of Interest Rate

According to the theory investors will always prefer short term securities to long term securities. In uncertain world, then saving and investment may be much influenced by expectations and exogenous shocks than by the underlying real forces. One possible response of the risk averse savers is to vary the form in which they hold their financial wealth depending on what they think is likely to happen to asset prices. They are likely to vary the average liquidity of their portfolios.

Keynes (1973), defined liquidity preference theory as the rate of interest set forth in the general theory of employment, interest and money. The rate of interest depends on the present supply of money and the demand schedule for the present claim on money in terms of a deferred claim. Says that, "The rate of interest depends on the demand and supply of money" (Keynes 1937, 1973). In Keynes view, the primary way that interest rates affect the level of aggregate output is through their effects on their planned investment spending. Profit seeking organizations make investments in physical capital (machines, factories and the raw materials) as long as they expect to earn more from the physical capital than the interest cost of a loan to finance investment.

Interest rates play a major role in the investment demand schedule. Keynes advocates government 'monetary policy directed at influencing the rate of interest "He however believes that the other factors that influence the investment demand schedule are too

powerful for such “monetary policy” alone to achieve levels of investment sufficient to maintain full employment. There is a well-recognized relationship between investment demand and interest rates. According to classical theory interest rates sensitively adjust to allocate all available funds for investment purposes.

With growth of consumer credit- already recognized factor in the 1920s- the investment demand is not the only major use of funds available for loans. Keynes omits the fact that interest rates allocate available funds not just for various investment purposes but also for consumption purposes as well. The availability of funds at low interest rate has to influence the propensity to consume. To Keynes, a relatively small monetary effort may be all that is required to move interest rates up or down as desired, because speculations will quickly enter to move the market in the expected direction and they will arbitrage subsequent interest rate fluctuations on the basis of the expected rate.

However in the nature of markets to maintain a desired level of interest rates below the market rate will inevitably require an increasing rate of monetary expansion over time. Moreover interest rates are the time cost of money. They dictate the investment patterns. They also influence the saving and consumption patterns. By fiddling with the interest rate, Keynes, “monetary policy “inevitably sends the wrong signals and screws up the economy. A substantial period of artificially low interest rates must leave an economic system increasingly unbalanced.

2.2.5 Classical Theory of Interest Rate

One of the oldest theories concerning; the determinants of pure or risk free rate. It was developed during the nineteenth and the twentieth centuries by a number of British economists and elaborated by the Irving Fisher (1930). It argues that the interest rate is determined by two forces; the supply of savings determined mainly from the household, demand for investment and capital mainly from the business sector.

Classical theories consider the payment of interest rate a reward for waiting the postponement of the current consumption in favour of greater consumption. Higher interest rate increase the attractiveness of the savings relative to consumption spending encouraging more individuals to substitute current savings for some quantity of current consumption. This so called the substitution effect calls for positive relationship between interest rate and the volume of savings.

Concluding, Dermirgut. K and Huizinga (1999), the interest rate fluctuates reflecting the substitution between debt and equity financing. As the equity market expands offering competitive returns, banks increase the deposit rate to compete for funds from the public. Expanded market also reduces the risk absorbed by the banking sector and the bank charge competitive lending rate thus reducing the interest rate margin.

2.3 Empirical Reviews

Alejando (1985), argues that financial liberalization can lead to instability and question the ability of the financial markets to allocate credit efficiently. He recommends a controlled interest rate regime by the government. This is because the financial markets in Kenya are characterized by severe market failures that can lead to a case of government intervention.

Fredrick (1986), explain that high liquidity preference requirement encourage the crowding out effect of the private sector and provides the government with the buffer of resources to finance her deficits. This leads to underdevelopment of the economy. Frederick (1986), contends that high interest rate is an effective tool for curbing high inflation.

Gibson,W.E and Kaufman,G.G (1968),explored the question of the relative importance of money versus income in influencing the treasury bill rate. The impacts of debt/ management and changes in total debt on interest rate have also been examined. Most of the studies have found limited evidence for the effectiveness of debt management and some have even found that changes in total debt have no direct effect on interest rate.

Giovanni (2012), argues that small economies are affected by conditions in large countries that is, high large country's interest rate have the concretionary effect on the annual real GDP growth in the domestic economy. But this effect is centered in countries with fixed exchange rates. The effects on interest rate in small countries are through direct monetary policy channel and the general capital market or trade effect. A demand shock leads to short term rise in the real interest rate.

Korir (2006), noted that high interest rate on lending by the financial institutions in the country have made the accessibility almost impossible to the poor and effectively negates on poverty alleviation. Korir (2006), contend that for the first time borrowers can confidently face their bankers and negotiate interest rates on their loans based on the new CBK rate.

McKinnon (1973) and Shaw (1973), contend that financial repression through a controlled interest rate regime has adverse effects on economic growth and development. The standard recommendation is that positive real interest rates must be established on deposits and loans by eliminating interest rates and credit ceilings, stopping selective credit allocation and lowering the reserve requirements. McKinnon (1973), argue in favor of financial deepening and high interest rates as they spur economic growth and development.

Mehran (1997), contend that an efficient financial system is critical not only for the domestic capital mobilization but also a vehicle for gaining competitive advantage in the global market. Financial reforms emphasize the abolition of interest rate and credit ceilings and the promotion of competitive environment with reduced government control and ownership. Although achieving competitiveness does not imply the non existence of an interest rate spread, it has been noted the size of the spread is much higher in a non competitive market. This also calls for strengthening of the regulatory and the legal framework to enhance the stability of the market. Bank interest rate spread could be interpreted as an indicator of the efficiency of the financial system. A well developed efficient banking system is prerequisite for saving and the investment decisions vital for rapid economic growth.

Montel (1995), recommended financial liberalization as it's expected to generate positive gains to economic growth and development. Financial liberalization leads to positive real interest rate as the nominal interest rate increase from the government set low levels. Real deposit rates were found to have a positive impact on the savings, which in turn affects the

level of investment positively. The financial system also gains efficiency in the intermediation process such that the interest spread between the lending and the deposit rate narrows.

Modigliani and Cohn (1979), interpret the negative relationship between changes in interest and stock returns to a misunderstanding of the relationship between interest rates and fundamentals: Investors, they maintain, do not appreciate the implications of inflation for equity value so misprice stocks when expectations of inflation (and thus nominal interest rates) change. The negative relationship between interest rate and the stock prices arises because of; interest rate can influence the level of corporate profits which in turn influence the price that the investors are willing to pay for the stock through expectation of higher future dividend payments. A reduction in interest rate reduces the cost of borrowing and thus serves as an incentive for expansions. This will have a positive effect on future expected returns for the firm. Secondly a substantial amount of stocks are purchased with borrowed money hence an increase in interest rate would make transaction more costly.

Mwega et al (1990), and Macharia (1995), argue from a conventional economic theory, that high interest rates have two separate effects on private savings that work in opposite directions. First they have a positive effect on savings as people tend to save more and secondly reduce current consumption. Ross (1999), argue that a cross — economic growth regressions indicate that financial restraints with perhaps the exceptions of control on capital flows may hamper financial sector development while, Shaw (1973), further argues that financial repression has led to large differentials between deposits and lending interest rates.

There is a tendency by the authorities to set high reserve requirements in Less Developed Countries.

2.4 Conclusion

The theoretical literature on the effect of interest rate on economic growth is inconclusive. Given that interest rates determine the cost of capital (finance) the variability of interest rate will therefore intuitively impact on the overall financing of the economy. Although some of the empirical studies appreciate the importance of interest rate on economic growth, others have tended to focus more on other factors eg inflation, monetary policies and demand and supply of money. Therefore so much need to be studied on the effects of interest rate on economic growth. It is in light of this that the importance of this study cannot be overemphasized.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that were followed in completing the study. It involved a blueprint for the collection, measurement and analysis of data. Specifically the following subsections were included; research design, target population, data collection instruments, data collection procedures and finally data analysis.

3.2 Research Design

Creswell (2003), defines a research design as the scheme, outline or plan that is used to generate answers to research problems. Dooley (2007), notes that a research design is the structure of the research, it is the “glue” that holds all the elements in a research project together. The study adopted a descriptive cross-sectional research design, which according to Kothari (2004), is used when the problem has been defined specifically and where the researcher has certain issue to be described by the respondents about the problem. Survey designs have also been found to be accurate in descriptive studies and generalizations of results (Ngechu, 2004). Cross-sectional survey designs survey a single group of respondents at a single point in time. It aimed to establish the effect of lending interest rate on economic growth in Kenya and the empirical evidences that help answer the research objective.

3.3 Data Collection

Secondary data, quantitative in nature, regressed quarterly from central bank of Kenya for a 10 year period starting from 2003 to 2012 was selected. According to Ngechu (2004), a study population is a well-defined or specified set of people, group of things, households, firms,

services, elements or events which are being investigated. Thus the population should fit a certain specification, which the researcher is studying and the population should be homogenous. According to Keya (1989), these are individuals or things or elements that fit the researcher specification. The population can be divided into sets, population or strata which are mutually exclusive.

3.4 Data Analysis

Regression analysis was used to analyze the data and establish the effect of lending interest rate on economic growth in Kenya. In this research, a dynamic econometric model was employed to assess the joint relationship between budget deficit and economic growth in Kenya.

3.4.1 Analytical Model

To establish this relationship the study formulated the following regression equation. Model developed by Shojai (1999), is used in this paper to establish the effect of lending interest rate on economic growth in Kenya and Ordinary Least Square (OLS) is employed to ensure the fulfillment of the assumptions thereof. These assumptions include, linearity of the model, its non-stochastic characteristic, having mean value of 0, and distribution with equal variance etc. In the model used, the study did not use the natural log of GDP, inflation and lending rates as their absolute value were small. The mathematical expression of the model is as follows:

$$GDP = \beta_0 + \beta_1 INF + \beta_2 \ln (EXCH) + \beta_3 LR + \ln \beta_4 (BD) + \ln \beta_5 (GI) + u$$

Where,

GDP = Gross Domestic Product (GDP)

INFL = Inflation

EXCH = Real Exchange Rate

RIR = Real Interest Rate

BD = Budget Deficit

GI = Gross investment

u = Stochastic Error Terms

Where, β_0 , β_1 , β_2 , β_3 , β_4 , β_5 are the respective parameters.

Analysis of Variance (ANOVA)-According to Tredoux & Durrheim (2002), "ANOVA is used to test for differences between the means of more than two groups, and can be used in designs with more than one independent variable. In the present study, ANOVA was used to test the mean score differences between lending rates and economic growth in Kenya in order to test for significance at 95% confidence level and 5% level of significance.

Operation definition of variable

Variables	Definition	Measurement
GDP	GDP is the Country Gross Domestic Product	GDP ; will be measured using the country GDP values obtained from Central bank and KNBS, in this study GDP will be measured using GDP values
INFL	INFLT is the country inflation	Inflation ; will be measured using the inflation values obtained from Central bank and KNBS, the study will use inflation values as obtained from CBK
EXCH	EXCH is the Real Exchange Rate	Real Exchange Rate ; will be measured using the values of Real Exchange Rates obtained from Central Bank , the study will use the natural log of real exchange rate
LR	LR is the lending rates	Lending rates ; will be measured using the values of lending rates obtained from Central Bank, in this study lending will be measured using its absolute value obtained from CBK
BD	BD is the country's budget deficit	Budget Deficit ; will be measured using the country budget deficit values obtained from Central Bank and Kenya National Bureau Of Statistics , the study will use the natural log of budget deficit

GI	GI is the country value of gross investment in the country	Gross investment; will be measured using the values of gross investment obtained from Central Bank and Kenya National Bureau Of Statistics, the study will use the natural log of gross investment
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CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the research findings on the effect of lending interest rate on economic growth in Kenya. The study was conducted on 10 year period where secondary data for the period 2003 to 2012 was used in the analysis. Regression analysis was used in analysis of the data.

4.2 Descriptive Statistics

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
GDP Rate	40	1.50	6.90	4.5100	1.76601
Inflation	40	2.60	16.90	7.8500	4.92573
Gross investment	40	8705.00	30311.00	17438.3000	7624.65389
Budget deficit	40	6122.00	8667.00	7320.3000	874.34802
FX rate	40	81.42	105.96	91.7968	8.86067
Lending rates	40	13.90	20.27	16.4620	2.75756
Valid N (listwise)	40				

The study revealed that the mean of the country gross domestic product for the last 10 years was 4.51, the mean for inflation was found to be 7.85%, gross investment was found to be 17438, budget deficit was 7320, exchange rate was found to have an average of 91.7968, and lending rates had an average of 16.4620.

4.3 Correlation Analysis

Table 4.2: Correlations Coefficient

		Economic growth	Inflation rate	Exchange rate	Lending rates	Budget deficit	Gross investment
Economic growth	Pearson Correlation	1	-.364	-.434	-.572	-.673	.402
	N	40	40	40	40	40	40
Inflation rate	Pearson Correlation	-.364	1	.594	.148	.396	.178
	N	40	40	40	40	40	40
Exchange rate	Pearson Correlation	-.434	.594	1	.361	.276	.444
	N	40	40	40	40	40	40
Lending rate	Pearson Correlation	-.572	.148	.361	1	.264	.213
	N	40	40	40	40	40	40
Budget deficit	Pearson Correlation	-.673	.396	.276	.264	1	.610
	N	40	40	40	40	40	40
Gross investment	Pearson Correlation	.402	.178	.444	.213	.610	1
	N	40	40	40	40	40	40

Source : Research Findings

From the findings on the correlation analysis, the researcher conducted a Pearson Product Moment correlation. From the findings on the correlation analysis between economic growth and gross investment was found to be positive as shown by correlation coefficient factor of 0.402. The study also found a negative correlation between economic growth and budget deficit as shown by correlation coefficient of -0.673, association between economic growth and interest rate was found to have negative relationship as shown by correlation coefficient of -0.572 , economic growth and exchange rate were found to have negative correlation as

shown by correlation coefficient of -0.434, economic growth and inflation rate were found to have negative correlation with a correlation coefficient of -0.364. This is an indication that there was positive relationship between economic growth and gross investment and negative relationship between economic growth and budget deficit, interest rate, exchange rate and inflation rate.

4.4 Regression Analysis

In this study, a multiple regression analysis was conducted to test the influence among predictor variables. The research used statistical package for social sciences (SPSS V 20) to code, enter and compute the measurements of the multiple regressions.

Table 4.3: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891(a)	.793	.761	.09440

Source : Research Findings

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.761 an indication that there was variation of 76.1% on economic growth of the country due to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment at 95% confidence interval . This shows that 76.1% changes in economic growth of the country could be accounted to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables

as shown by 0.891.

Table 4.4: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.150	5	1.030	3.131	.048 ^b
	Residual	11.186	34	0.329		
	Total	16.336	39			

Source : Research Findings

From the ANOVA statistics in table 4.4 above, the processed data, which is the population parameters, had a significance level of 4.8% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The F calculated at 5% level of significance was 3.131 since F calculated is greater than the F critical (Value = 2.262), this shows that the overall model was significant. This is an indication that inflation rate, exchange rate, interest rate, budget deficit and gross investment influence changes in the economic growth of the country.

Table 4.5: Regression Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	Constant	.298	.453		2.165	.006
	Inflation rate	-.237	.160	-.198	-1.479	.012
	Exchange rate	-.231	.126	-.245	-1.834	.016
	Interests rate	-.239	.145	-.008	-.065	.023
	Budget deficit	-.281	.114	-.031	-.246	.001
	Gross investment	.276	.185	.183	1.488	.042

Source : Research Findings

From the data in the above table the established regression equation was

$$Y = 0.298 - 0.237 X_1 - 0.231 X_2 - 0.239 X_3 - 0.281 X_4 + 0.276 X_5$$

From the above regression equation it was revealed that holding inflation rate, exchange rate, interest rate, budget deficit and gross investment to a constant zero , economic growth of Kenya would be at 0.298 , a unit increase in inflation rate would lead to decrease in the economic growth of Kenya by a factors of 0.237, unit increase in exchange rate would lead to decrease in economic growth of Kenya by factors of 0.231, a unit increase in interest rate would lead to decrease in economic growth of Kenya by a factor of 0.239 , unit increase in budget deficit strategies would lead to decrease in economic growth of Kenya by a factors of 0.281 and further unit increase in gross investment would lead to increase in economic growth in Kenya by a factors of 0.276.

At 5% level of significance and 95% level of confidence, gross investment had 0.042 level of significance, interest rate had a 0.023 level of significance; exchange rate showed a 0.016

level of significance, inflation rate had a 0.012 level of significance while budget deficit 0.001 level of significance hence the most significant factor is budget deficit. Overall budget deficit had the greatest effect on economic growth in Kenya, followed by inflation rate, followed by exchange rate then interest rate while gross investment had the least effect to the economic growth in Kenya. All the variables were significant ($p < 0.05$).

4.5 Discussion of Findings

From the findings on the Adjusted R squared the study found that there was variation of 76.1% on economic growth of the country due to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment. The study further revealed that there was a strong positive relation between the study variables. From the findings on the ANOVA the study found that that inflation rate, exchange rate, interest rate, budget deficit and gross investment influence changes in the economic growth of the country.

From the regression analysis the study found that there was a negative relationship between economic growth and inflation rate, exchange rate, interest rate and budget deficit. The study further revealed that there was a positive relationship between gross investment and economic growth in the country. At 5% level of significance and 95% level of confidence, budget deficit had the greatest effect on economic growth in Kenya, followed by inflation rate, followed by exchange rate then interest rate while gross investment had the least effect to the economic growth in Kenya.

From the findings on the correlation analysis, the study found that there was a strong positive correlation between economic growth and gross investment. The study further revealed that there was a negative relationship between economic growth and budget deficit, interest rate,

exchange rate and inflation rate. The finding of this study concur with Alejandro (1985), who argues that financial liberalization can lead to instability and question the ability of the financial markets to allocate credit efficiently. Fredrick (1986), explain that high liquidity preference requirement encourage the crowding out effect of the private sector and provides the government with the buffer of resources to finance her deficits. This leads to underdevelopment of the economy. Fredrick (1986), contends that high interest rate is an effective tool for curbing high inflation. Giovanni (2012), argues that small economies are affected by conditions in large countries) that is high large country's interest rate have the concretionary effect on annual real GDP /growth in the domestic economy. But this effect is centered in countries with fixed exchange rates, the effects on interest rate in small countries are through direct monetary policy channel and general capital market or a trade effect, a demand shock leads to a short term rise in the real interest rate.

CHAPTER FIVE:

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

From the analysis and data collected, the following discussions, conclusion and recommendations were made. The responses were based on the objectives of the study. The researcher intended to establish the effect of the lending interest rate on economic growth in Kenya.

5.2 Summary of Findings

The objective of the study was to establish the effect of lending interest rate on economic growth in Kenya. Secondary Data was collected from Central Bank and multiple regression analysis was used in the data analysis. From the findings on the Adjusted R squared, the study found that there was variation of 76.1% on economic growth of the country due to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment. The study further revealed that there was a strong positive relationship between the study variables. From the findings on the ANOVA, the study found that that inflation rate, exchange rate, interest rate, budget deficit and gross investment influence changes in the economic growth of the country. The study also revealed that the established regression equation was

$$Y=0.298-0.237X1-0.231X2-0.239X3-0.281X4+0.276X5$$

From the regression analysis the study found that there was a negative relationship between economic growth and inflation rate, exchange rate, interest rate and budget deficit. The study further revealed that there was a positive relationship between gross investment and

economic growth in the country. At 5% level of significance and 95% level of confidence, budget deficit had the greatest effect on economic growth in Kenya, followed by inflation rate, followed by exchange rate then interest rate while gross investment had the least effect to the economic growth in Kenya. From the findings on the correlation analysis, the study found that there was a strong positive correlation between economic growth and gross investment. The study further revealed that was negative relationship between economic growth and budget deficit, interest rate, exchange rate and inflation rate.

5.3 Conclusion

From the findings the study concluded that increase in lending rates negatively affect the economic growth in the country. It was found from the regression and correlation analysis that there was a negative relationship between economic growth and lending rates in kenya. The study also concluded that gross investment in the country positively influence the country economic growth as it was revealed that increase in gross investment positively influence the country economic growth .

The study further revealed that increase in inflation rate, exchange rate and budget deficit, negatively influence the country economic growth. Increases in inflation rate scare away investor as it reduces the currency purchasing power thus decreasing the economic growth in the country. Increase in exchange rate reduce the foreign direct investment in the country which negatively affect the economic growth in the country while increase in lending interest rate reduces borrowing which in turn slows economic growth.

5.4 Recommendations for the Study

From the findings and conclusion, the study recommends that there is need for the government to control the country lending rates as it was found that lending rates negatively affect the economic growth of the country. The study further recommends that there is need for the government to control the country inflation rate through various fiscal policies as it was revealed that a unit increase in inflation rate negatively affects economic growth in the country.

There is need for the for the government to control exchange rate and budget deficit as their decrease will stimulate investment in the country which positively affect the economic growth in the country. It was also found that increase in gross investment positively affect economic growth in the country.

5.5 Limitations of the Study

This study was not without limitations. In attaining its objective, the study was limited to 10 years period starting form year 2003 to year 2012. Secondary data collected from the Kenya National Bureau of statistic and Central banks of Kenya was also limited to the degree of precision of the data so obtained. While the data was verifiable since it came from the CBK and KNBS publications, it nonetheless could still be prone to these shortcomings.

The study was limited to establishing the effect of lending interest rate on economic growth in Kenya. It was also based on a ten year study period from the year 2003 to 2012. A longer duration of the study would have captured periods of various economic periods such as booms, recessions, depression or even recovery. This may have probably given a longer time focus hence given a broader dimension to the problem.

5.6 Areas for Further Research

The study sought to establish the effect of lending interest rate on economic growth in Kenya. While this was done, it recommends a study to be done on the relationship between budget deficit and foreign direct investment in Kenya. Further it recommends that a study be done on the effect of lending rate on budget deficit in Kenya. In addition there is need for a study on the relationship between budget deficit and domestic borrowing.

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APPENDICES

Appendix I: Introductory Letter

From: **Daniel Musyoka Mutinda**

To: Respondent

Dear, Respondent

RE: Questionnaire

I am a student at University of Nairobi pursuing Masters of Science in Finance. I am carrying out a study on the **EFFECTS OF LENDING INTEREST RATE ON ECONOMIC GROWTH IN KENYA.**

You are kindly requested you to complete the attached questionnaire so as to enable me accomplish the study. Please, note that all the information given shall be treated purely and used for academic purposes and shall be treated as confidential. Thank you for taking your time to complete the questionnaire and for your time and cooperation.

Yours sincerely

Daniel Musyoka Mutinda

Student UoN Kenya

Appendix II : Data Collection sheet

YEAR	GDP Rate	Inflation	Gross investment	Budget deficit	FX rate	Lending rates
2003						
2004						
2005						
2006						
2007						
2008						
2009						
2010						
2011						
2012						

Appendix III: Data

YEAR		GDP Rate	Inflation	Gross investment	Budget deficit	FX rate	Lending rates
2003	Q1	2.7	2.8%	8705	6122	81.4208	13.91
	Q2	2.6	3.1%	8469	6327	81.5709	13.67
	Q3	3.1	3.3%	7892	6723	82.3467	13.07
	Q4	2.6	3.0%	6998	6683	81.4532	13.34
2004	Q1	4.6	4.6%	9600	6862	81.5611	13.90
	Q2	4.3	4.9%	9406	6957	83.6741	13.74
	Q3	4.8	5.1%	9733	6809	82.3934	13.26
	Q4	4.1	4.4%	9205	6715	83.4572	13.31
2005	Q1	5.9	6.1%	10786	6916	83.7514	14.13
	Q2	5.6	6.2%	11405	6056	84.3851	14.61
	Q3	5.8	5.8%	10543	6710	82.8737	14.21
	Q4	5.5	6.3%	10879	6510	83.2123	14.23
2006	Q1	6.3	6.3%	12055	6427	85.8292	14.32
	Q2	6.1	5.9%	12698	6567	84.3121	14.33
	Q3	6.7	6.2%	13674	6308	85.2561	14.26
	Q4	6.1	6.1%	12438	6831	85.8789	14.18
2007	Q1	6.9	2.6%	14413	6622	87.0422	14.79
	Q2	7.3	2.4%	15673	6987	87.4534	14.09
	Q3	6.6	2.2%	16890	7225	89.4789	14.13
	Q4	7.1	2.5%	15093	7015	89.0653	14.57
2008	Q1	1.5	16.9%	17477	7461	94.2694	15.21
	Q2	1.6	17.6%	17945	7670	96.3958	15.37
	Q3	1.8	16.4%	19546	7342	95.7353	16.58
	Q4	1.9	18.2%	18910	7224	96.2543	15.43
2009	Q1	2.6	10.6%	21279	7548	96.5222	18.51
	Q2	2.3	12.4%	22900	7432	96.7449	17.76
	Q3	4.8	11.6%	21378	7564	96.2858	18.19

	Q4	3.9	9.7%	22543	7649	63.7547	18.13
2010	Q1	4.9	4.1%	22434	8181	99.7783	19.54
	Q2	4.8	3.4%	24904	8245	98.6732	19.43
	Q3	4.3	3.7%	25820	8140	96.6831	18.92
	Q4	5.2	44.4%	26770	8224	98.4387	19.34
2011	Q1	5.5	14%	27323	8397	99.8319	20.04
	Q2	5.3	15.7%	29804	8441	96.7345	21.67
	Q3	6.1	13.3%	27877	8550	99.8234	20.89
	Q4	4.3	14.4%	28567	8456	95.6647	22.68
2012	Q1	4.2	10.6%	30311	8667	105.9612	20.27
	Q2	4.6	11.1%	32670	8524	102.5912	21.49
	Q3	5.1	12.4%	31402	8703	103.4291	19.45
	Q4	4.9	9.9%	33804	8879	99.8653	21.56

