THE EFFECT OF MORTGAGE INTEREST RATES ON THE GROWTH OF MORTGAGE FINANCING AMONGST FINANCIAL INSTITUTIONS IN KENYA

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DECLARATION

This research project is my original work and has not been presented to any other university for the award of degree, diploma or certificate.

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This research project has been submitted for examination with my approval as university supervisor.

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DEDICATION

To my dear mother, Jane Okang'a,

You are the center of my hopes and aspirations for success,

My inspiration,

And the wind beneath my wings.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

AMFI   Association of Microfinance Institutions

ANOVA   Analysis of Variance

ARM   Adjustable Rate Mortgage

CBK   Central Bank of Kenya

GDP   Gross Domestic Product

MFBs   Microfinance Banks

MFIs   Microfinance Institutions

NPLs   Nonperforming Loans

ABSTRACT

Mortgage financing plays an important role in the development of an economy and ultimately poverty alleviation when individuals get to be home owners instead of tenants. The Kenyan mortgage market has been experiencing slow growth over the last few years despite the upsurge of housing prices. Compared to European countries, the Kenyan mortgage market is quite underdeveloped albeit with great potential for growth. Interest rates have been identified as one of the factors influencing mortgage financing. The objective of this study was to establish the effect of mortgage interest rates on the growth of mortgage financing amongst financial institutions in Kenya for the financial period 2012-2014. The target population was the 44 licensed commercial banks and housing finance company. Data was collected from secondary sources and a descriptive research design was employed. Regression analysis was used to carry out inferential analysis. The regression analysis conducted at level of significance 0.05 revealed a very weak positive relationship between mortgage interest rates and growth of mortgage financing. The analytical model used in the study accounted for only 11 percent of growth of mortgage financing. The study recommends that other variables that capture relevant and significant factors that will adequately predict growth of mortgage financing be included in the model and financial institutions should also consider designing affordable mortgage products for the middle income earners to ensure growth in mortgage financing because they form a large part of the population and have great untapped potential. Future studies on the Kenyan mortgage market should use primary data in addition to secondary data so as to capture other key factors affecting growth of mortgage financing such as access to long term funds and levels of income.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

International experience suggests that the widespread availability of residential mortgages has favorable impact on poverty alleviation, quality of housing, infrastructure and urbanization (Erbas and Walley, 2005). A major obstacle to mortgage financing identified by banks in a Central Bank of Kenya (CBK) survey in 2013 and 2014 is high interest rates (CBK, 2014). According to a CBK report, high interest rates caused the number of non-performing loans to rise in 2012 and that the tendency for financial institutions to grant mortgage loans on variable interest rate basis may be contributing to the slow growth in residential mortgage market in Kenya (CBK, 2013).

A mortgage is a type of loan and like any other loan, they have an interest rate and are scheduled to amortize over a set period of time, typically 30 years. All types of real property can be, and usually are, secured with a mortgage and bear an interest rate that is supposed to reflect the lender's risk (Dolde, 2006). Market interest rate can be determined by the factors that affect the supply of and demand for loan able funds according to loan able funds theory. Other theories underpinning this study are liquidity preference theory and classical theory of interest. Liquidity preference theory suggests that people will sacrifice their ability to earn interest on money that they want to spend in the present, and that they want to have it in hand- as a precaution- for when interest rates rise. Otherwise, they become willing to hold less money for these purposes in order to secure a profit. The classical theory suggests that interest, in real terms, is the reward for the productive use of capital and that the demand for and supply of capital determines the rate of interest (Keynes, 1936).

World Bank found that only 11 per cent of Kenyans can afford an average mortgage loan of ksh6.6 million that demands a monthly repayment of about ksh90, 000 for a period of 20 years (CBK, 2011). The risk involved in mortgage business has made mortgage financing an investment of commercial banks that are better placed to manage the risks (Okwir, 2002) however, a few microfinance institutions have also taken up this line of business. This study therefore seeks to establish the relationship between mortgage interest rates and the growth of mortgage financing amongst financial institutions in Kenya.

1.1.1 Mortgage Interest Rate

Crowley (2007) defines interest rate as the price a borrower pays for the use of money they borrow from a lender/financial institutions or the fee paid on borrowed assets. The main types of mortgage interest rates are fixed and variable interest rates. According to World Bank, in higher and more volatile inflation environments, fixed-rate mortgages become either prohibitively expensive or too risky for lenders to offer.

According to Njongoro (2013), mortgage interest rates reflect the general lending rate of financial institutions as any other loan. Inflation stabilization can be implemented through a 'Taylor rule' in which interest rates are adjusted in response to output and inflation. In using interest rates, the Central Bank sets a target inflation rate then interest rates are steered to move inflation to its intended levels. Interest rates therefore are increased when the inflation rate is above the target rate, and reduced when inflation is below the target rate. The Central Bank of Kenya (CBK) Monetary Policy Committee (MPC) is responsible for the regulation of interest rates in Kenya.

1.1.2 Growth of Mortgage Financing

According to a World Bank report, the Kenyan housing finance system has grown rapidly over recent years in both value of loans and number of loans. The market has now gone through the initial 'germination' stage and is preparing to enter its next development phase. Consideration now needs to be given to the requirements for ensuring continued growth (World Bank, 2011).

The report further says, the mortgage market in Kenya is the largest in the region and is likely the third largest in sub-Saharan Africa after South Africa and Namibia, with assets equivalent to over 2.5 per cent of the country's GDP. However, with an average housing loan going at the rate of nearly 17 per cent, owning a home has remained a pipe dream for many Kenyans.

According to a Central Bank residential mortgage survey, the value of mortgage loan assets outstanding increased from Ksh. 138.1 billion in December 2013 to Ksh.164.0 billion in December 2014, representing a growth of Ksh.25.9 billion (18.7%). Mortgage loans in the market went up to 22,013 in December 2014 from 19,879 in December 2013 and the average mortgage loan size increased from Ksh. 6.9 million in 2013 to Ksh. 7.5 million in 2014 (Bank Supervision Annual Report, 2014).

Growth in the mortgage market can occur when the types of mortgage loans increase, when the rates of those mortgages are affordable, when mortgage financing is the preferred mode for acquiring housing for individuals and companies, when the housing supply meets the demand in the market, when the competition in this market is strong enough to moderate rates through several competitive commercial mortgage providers (Njongoro, 2013).

According to a 2013 fourth quarter report released in January 2014 by The Mortgage Company and Hass Consult, potential home buyers increasingly prefer to rent houses or acquire short-term loans to finance home projects. There is therefore a big role to be played by mortgages to fill the large gap; mortgages have great potential to attain levels such as the average mortgage debt to GDP level in European countries that is approximated to be around 50 percent, whereas in the United States it is in the region of 72 percent. World Bank estimates the potential size of the mortgage market to be around $9.9 billion or Ksh800 billion which is around 13 times the current level (World Bank, 2011).

1.1.3 Mortgage Interest Rates and Growth of Mortgage Financing

The World Bank estimates that the Kenyan mortgage market has the potential to grow to Sh800 billion, which is about nine times the current size. The 16,000 mortgages valued at Sh91.2 billion in 2011 account for 2.5% of the GDP, which pales in comparison with other countries such as South Africa which has a 26.4% ratio. Kenya's ratio also lags behind Namibia 19.6%, Morocco 16.9%, Mauritius 12.2%, Tunisia 12% and Seychelles 3.94% (Gachiri, 2012).

According to a Central Bank Report, the high interest rates witnessed in 2012 continued to impact negatively on the mortgage market. The outstanding value of non-performing mortgages increased from Kshs 8.5 billion in December 2013 to Kshs 10.8 billion in December 2014 (CBK, 2014). The absence of response in mortgage rates to the sharp decline in the cost of money (as seen in the T-Bill rates) is an indication of the lack of sensitivity in mortgage rate setting to the macro environment. Mortgage rates should have fallen to their lowest levels ever as is the case in many developed markets. The absence of a strong link to capital market funding and the

lack of consumer price elasticity mean that banks are able to offer rates which are much higher than their cost of funds (World Bank, 2011).

A World Bank paper7 tackled the issue of risk premiums and bank margins to show that Kenya's banking system is efficient relative to its immediate neighbors. Banks charge a net interest margin of 6.6 percent in Kenya which is exactly the sub-Saharan average. The difficulty with such a high interest margin for term finance is that it has to be additional to the capital market rate as set by the yield curve. With long term funds currently costing in excess of 12 percent, it would mean mortgage rates closer to 20 percent. Lenders are able to blend funds and partly use their deposit bases, capital and other funding sources to achieve a lower cost of funds, but over the long term the net interest margin will have to reduce if financial access is to improve (World Bank, 2011).

According to the CBK, the average interest rate was 15.8 percent and ranged between 8.0 – 21.3 percent (CBK, 2014). This is a high variability among the mortgage lenders and is a clear indication that some financial institutions are gaining very high profits from this industry. This further explains the un-affordability of mortgages resulting into the slow growth of the market in Kenya.

1.1.4 Financial Institutions in Kenya

Mortgage lending is predominantly done by banks in Kenya. Of the 43 banks and one Mortgage Finance Company in the Kenyan banking system, 25 of them have mortgage portfolios of differing sizes. Some of the lenders have just one or two loans on their books which may be to staff members or special customers and other banks are much larger players who see mortgages as a major business center (World Bank, 2011).

Inasmuch as Kenya's mortgage market is growing, the industry is still dominated by the large banks indicating barriers to entry or high risk for medium and smaller banks. However, the growth rates indicate that the small sized banks have the fastest growth rate of 38% on average, followed by medium banks which are growing at 25% on average with large banks closely following at 24% on average (CBK, 2010).

Before the mortgage crisis, banks offered easy access to money. One could qualify for mortgages with little or no documentation. Even individuals with bad credit could qualify as subprime borrowers. Stringent measures on Mortgage applications were not applied to check for accuracy as well as it should have been. When the mortgage crisis began, home prices stopped rising, borrowers who bought more houses than they could afford stopped paying the mortgage, monthly payments increased on adjustable rate mortgages as interest rates rose. This led to the banks repossessing the houses leaving most in a state of homelessness (Atati, 2014).

The Housing Finance Company of Kenya (HFCK) is the sole remaining Mortgage Finance Company at present. The largest lender in Kenya is Kenya Commercial Bank (KCB) following its acquisition of Savings and Loans, which remains as a mortgage subsidiary of KCB. Overall the two largest lenders control over half the market (World Bank, 2011).

Mortgage financing over the years has been a preserve for housing financing companies and commercial banks but with time, microfinance institutions have started to venture into the mortgage line of business (Ngumo, 2012). Microfinance institutions in Kenya have ventured into mortgage financing recently starting with Select management services, Jamii bora and Rafiki microfinance bank. Mortgage financing is an emerging sector in microfinance sector with mortgage products being

provided in same terms and flexibility like those of commercial banks. However, the uptake of the business line has been poor with less information being known of profitability effect of the business line (AMFI, 2013).

Banks charge an interest rate for lending their funds depending on the length of the loan and the security (collateral). The interest rate charged to the borrower is based on the Central Bank Base Rate (CBR) which the Central bank uses to control interest rates. Changes in interest rates can greatly influence a person's ability to purchase a residential property because as the interest rates fall, the cost to obtain a mortgage to buy a home decreases and as interest rates rise, the cost to obtain a mortgage increases (Nguyen, 2011).

1.2 Research Problem

The high risk premiums associated with mortgages cause their interest rates to be expensive to lenders. A typical loan for an amount of Ksh. 4 million over a period of fifteen years would be done at variable rates for around 14%. Based on this, 2.4% of the total population could afford a mortgage for a basic house (World Bank, 2011). Mortgage rate changes affect the amount of mortgage interest payments thus causing a direct cash-flow effect on consumption. Interest rate changes also affect housing demand and housing prices (Rubio, 2008).

The mortgage market in Kenya is the third most developed in Sub-Saharan Africa with mortgage assets equivalent to 2.5% of Kenya's GDP. In common with much of Africa, Kenya has a large housing gap which is growing every year and is increasingly prevalent in urban areas. Based on the population growth and urban migration taking place, the current annual housing deficit is estimated at 156,000 units per annum. There is limited data on current levels of construction but according to the

Ministry of Housing, it is 50,000 units a year. The deficit is largely filled by the growth in slum dwellings and continued self-construction of poor quality traditional housing. Mortgages have a big role to play in filling this gap; mortgages have great potential to reach levels such as the average mortgage debt to GDP level in European countries which is in the region of 50%, while in the US it reaches 72%. According to World Bank, the potential size of the mortgage market is currently around Ksh 800 billion or $9.9 billion around 13 times the current level (World Bank, 2011).

A World Bank report established that fixed-rate mortgages are most suitable for low to moderate and stable inflation and interest rate environments. In such environments, the premiums for expected inflation and its variability are relatively low and stable. The report further states that in higher and more volatile inflation environments, fixed-rate mortgages become either prohibitively expensive or too risky for lenders to offer (Mwalimu, 2013). An empirical study using Kenyan variables was not done. Rubio (2008) focused on how the proportion of fixed and variable-rate mortgages in an economy can affect the way shocks are propagated. She also analyzed optimal implementable simple monetary policy rules and the welfare implications of this proportion. This was a foreign study without Kenyan variables.

Studies on mortgages in Kenya have been done extensively. However, local studies on the relationship between interest rates and growth of mortgage financing are limited and cannot be relied upon entirely. Ngumo (2012) undertook a study on the effect of interest rates on the financial performance of firms offering mortgages in Kenya. Njongoro (2013) studied the effect of interest rates on the growth of mortgage financing in Kenya. Ngacha (2013) undertook a study on the effect of interest rate

volatility on mortgage default rate in Kenya. Wachira (2014) did a study on the effect of mortgage financing on profitability of microfinance institutions in Kenya.

This study sought to answer the research question and fill the gap in knowledge and empirical study by answering the following research question: what is the effect of mortgage interest rate on the growth of mortgage financing amongst financial institutions in Kenya?

1.3 Research Objective

To establish the effect of mortgage interest rates on the growth of mortgage financing amongst financial institutions in Kenya.

1.4 Value of the Study

The study will contribute to the knowledge of the factors affecting growth of mortgage financing amongst financial institutions in Kenya and their effects. Thereby providing policy makers and industry players with a basis upon which they can make informed choices and policies that that will allow for development.

To the theory of finance, this study will widen empirical evidence on the theoretical concepts by looking into the effect of interest rates on the growth of mortgage financing. This will ensure better understanding of the theoretical environment and ultimately, its interpretation.

To the practice of finance, the financial institutions that provide mortgage products will benefit from the study as it will show how interest rates can restrict or facilitate growth of mortgage financing. This will in turn allow these financial institutions to find innovative ways to manipulate interest rates to ensure growth of mortgage financing.

Researchers and academicians will also benefit from the findings of this study. Those interested in this area of study or other related topics will use it as a reference point and ultimately, it will also form a basis for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review on the relationship between mortgage interest rates and the growth of mortgage financing. It explains the theories and empirical evidence that relate to the area of study, in order to reveal the literature that is applicable in determining the conclusion of the study. The theories are; loan able funds theory, liquidity preference theory and classical interest theory.

2.2 Theoretical Review

Loanable funds theory suggests that the market interest rate can be determined by the factors that affect the supply of and demand for loanable funds. According to the liquidity preference theory, people will sacrifice their ability to earn interest on money that they want to spend in the present, and that they want to have it in hand- as a precaution- for when interest rates rise. Otherwise, they become willing to hold less money for these purposes in order to secure a profit. The classical theory suggests that, interest, in real terms, is the reward for the productive use of capital and that the demand for and supply of capital determines the rate of interest (Keynes, 1936).

2.2.1 Loanable Funds Theory

According to this theory, interest rate is the price paid for the right to borrow and utilize loanable funds (Harvey, 1993). The supply of loanable funds comes from people and organizations- such as the government and businesses- that have opted to save part of their money for investment purposes. Lending money to borrowers at a rate of interest is one way to invest.

Individuals and organizations seek loans for investment purposes and the desire to finance investments through borrowing makes up the demand for loanable funds (Mayer, 2010).

In economics, the loanable funds market is a hypothetical market that brings savers and borrowers together. Savers supply the loanable funds; for instance, buying bonds transfers their money to the institution issuing the bond, which can be a firm or government. In return, borrowers demand loanable funds; when an institution sells a bond, it is demanding loanable funds. "Another term for financial assets is "loan able funds", funds that are available for borrowing, which consist of household savings and sometimes bank loans. Loanable funds are often used to invest in new capital goods, therefore, the demand and supply of capital is usually discussed in terms of the demand and supply of loanable funds" (McConnell, 2005).

2.2.2 Liquidity Preference Theory

Liquidity preference refers to the relationship between the quantity of money the public wishes to hold and the interest rate. According to Keynes (1936), the public holds money for three purposes: to have in hand for ordinary transactions, to keep as a precaution against extraordinary expenses, and to use for speculative purposes. Therefore, people value money for the transaction of current business as well as its use as a store of wealth. The hypothesis was that the amount held for the last purpose would vary inversely with the rate of interest. Therefore, they will sacrifice the ability to earn interest on money that they want to spend in the present, and that they want to have it in hand as a precaution. However, when interest rates increase, they become willing to hold less money for these purposes in order to secure a profit.

Liquidity preference theory is the idea that investors demand a premium for securities with longer maturities, which entail greater risk, because they would prefer to hold cash, which entails less risk. The more liquid an investment, the easier it is to sell quickly for its full value. Because interest rates are more volatile in the short term, the

premium on short- versus medium-term securities will be greater than the premium on medium- versus long-term securities. For example, a three-year Treasury note might pay 1% interest, a 10-year treasury note might pay 3% interest and a 30-year treasury bond might pay 4% interest (Njongoro, 2013).

2.2.3 Classical Theory of Interest

According to Blang (1992), the main idea of this theory is that the demand for and supply of capital determine the interest rate. The point at which demand for capital is equal to the supply of capital, interest rate is determined. The demand for capital arises from investment and the supply of capital arises from savings. Since this theory explains the determination of the rate of interest by real forces -thrift, time preference and productivity of capital- it is also called the real theory or nonmonetary theory of interest.

Keynes (1936) explains that investment represents the demand for investable resources and saving represents the supply, whilst the rate of interest is the "price" of investable resources at which the two are equated. Just as the price of a commodity is necessarily fixed at that point where the demand for it is equal to the supply, so the rate of interest necessarily comes to rest under the play of market forces at the point where the amount of investment at that rate of interest is equal to the amount of saving at that rate.

Caplan (2000) argued that an equilibrium rate of interest is determined at a point at which the demand for capital equals its supply. Demand for capital stems from investment decisions of the entrepreneur class. Investment demand schedule, thus, reflects the demand for capital, while the supply of capital results from savings in the community. Savings schedule, thus, represents the supply of capital. It follows that

savings and investment are the two real factors determining the rate of interest (Friedman & kuttner, 1991).

The capital or savings is demanded because of its productivity. The marginal productivity of capital diminishes as more of it is used for production. The marginal product curve of capital slopes downwards from left to right. Because of this the demand curve of capital slopes downwards from left to right. This means, the lower the rate of interest, the greater the demand for capital. The supply of capital comes from savings which is affected by interest rates. The higher the interest rate, higher shall be the volume of savings and lower the rate of interest, the lower the volume of savings. Hence, the supply curve of savings or capital rises upward from left to right. Interest rates will remain stable when the economy, the money market, the loanable funds market, and foreign currency markets are simultaneously in equilibrium (Njongoro, 2013).

2.3 Determinants of Growth of Mortgage Financing

There are a number of factors besides interest rates that influence the growth of mortgage financing in Kenya. These determinants of growth of mortgage financing are as follows:

2.3.1 Interest Rates

The obstacles of mortgage financing identified by banks in a Central Bank of Kenya (CBK) survey in 2011 and 2012 are interest rates and access to long-term finances (CBK, 2012). Positive Interest rates (lending in excess of inflation rates) are viewed as prerequisite for successful and sustainable finance (Buckley, 1999). Long term loans, such as mortgage financing loans have higher interest rates as a result of expectation of higher inflation among other factors (Gitman, 1997). The market rate

of interest on mortgage loans is established by what borrowers are willing to pay for the use of funds over a specified period of time and what lenders are willing to accept in the way of compensation for the use of such funds.

Real estate tends to be highly levered and thus the rate of return earned by equity investors tends to be affected by changes in interest rate. Even where the investor has a fixed rate of mortgage, an increase in interest rate may lower the price a subsequent buyer is willing to pay. Furthermore, the yield rate (required rate of return) that an investor requires for real estate tends to increase with the overall levels of interest rates in the economy (Fisher, 1999). Excessive high interest rates in Kenya Finance sector have strongly discouraged long-term investment and constrained Kenya's ability to grow. With nominal interest rates ranging from 20-30% the private sector is unable to borrow to finance long term investments in the mortgage sector. In addition, the 11-18% point spread between lending and deposit rate is much higher than the 5 point spread common in other developing countries (Economic Report on Africa 2002).

2.3.2 Access to Long Term Funds

Mortgages by their nature are long term investments that will involve credit agreements spanning from 5 years to 30 years. In order to be able to properly finance such contractual agreements, Mortgage Finance Institutions need ready market to provide them with longer term funds that they can in turn use to invest in properties and provide the market with mortgage products.

Lack of long–term finance implies that the Institutions will be unable to finance construction of new properties causing the mortgage market to shrink because the providers of funds will not be in a position to offer the public long term finance if they are unable to access it (CBK Mortgage Finance Survey, 2010)

2.3.3 Size of Financial Institution

Large banks may have a comparative advantage in using transaction technologies such as credit scoring and asset-based lending (Berger and Udell, 2006). Larger banks are thus in a better position to offer mortgage financing and as banks grow in size, mortgage financing grows.

The size of a bank may also influence its customer profile. Large banks may have a comparative advantage in lending to large customers as they can exploit scale economies in evaluating the hard information that is available on such customers. Small banks, however, may not be able to lend largely especially for risky ventures like mortgages because of size limitations. They are, for instance, more constrained by regulatory lending limits (De la Torre, Martinez & Schmukler, 2008). According to Bhayani (2010) the size of a financial institution will determine the amount invested in loans and mortgage financing level and overall profitability and growth of the firm. In this study, the size of the firm was measured by the amount of total assets.

2.3.4 Fees Charged on Mortgages

Mortgage contracts attract fees and costs that are levied on the mortgage that increase the cost of procurement. Such costs include: legal fees, stamp duty, arrangement fees, valuation fees, mortgage protection policy all of which add to increase the cost of mortgage and this pushes the costs of mortgages out of reach from most individuals as one not only has to bear in mind the cost of the property but also consider the

additional costs which on average amount to 10% of the property value (Central Bank of Kenya -Mortgage Finance in Kenya –a Baseline survey 2011).

2.3.5 Mortgage Accessibility to Low Income Earners

In Kenya, the mortgage debt to GDP ratio is 2.48% which is low by international standards (CBK Mortgage Finance, 2010). Currently to access a mortgage facility, one requires a certain level of salary threshold. With the average loan size at 4.4.milion this would indicate that one would require a net salary of KSh 100,000 net to service the mortgage for 15 years at 20% interest (Central Bank of Kenya-Mortgage Finance Survey, 2010). This is not what an average professional earns which means, even the most basic mortgage product is out of their reach. This eventually impacts on the number of people who take up mortgages and in turn the volume of the mortgage market.

According to Mokua (2004) mortgage financing remains unaffordable to potential home owners and that all the mortgage products target high and middle-income earners who constitute partly a percentage of the salaried people within the private sector. The challenge with provision of housing has not been building or lack of demand, but access to financing to buy homes. What is missing are lenders willing to take the risk (Vusumuzi, 2009).

2.3.6 Credit Risk

This is one of the oldest and most important forms of risk faced by financial intermediaries (Broll, Pausch and Welzel, 2002). Since this risk carries the potential of wiping out enough of a financiers capital to force it into bankruptcy, managing this kind of risk has always been one of the predominant challenges in running financial intermediaries (Broll et al, 2002). Proper management of credit risk could ensure

growth in mortgage financing. By lowering of the risk premium, the cost of loans can be brought down.

High credit risk puts lenders in a dangerous position as they are unable to fully evaluate and guarantee the mortgage being advanced due to the unavailability of credit history. This has the effect on increasing the cost of the mortgage as the lenders will compensate themselves for the risk by charging high interest rates (Central Bank of Kenya -Mortgage Finance in Kenya –a Baseline survey 2011).

2.4 Empirical Studies

Martínez and Maza (2003) used an error correction model, where real income and nominal interest rates are posited as the main variables explaining the evolution of house prices and established that there was a positive relation between housing prices and real income to mortgage credit and that interest rates negatively impact on the variation in short term credit.

Ngugi (2004) established that the effect of interest rates on the amount of credit to the economy is largely minimal. He found that the overall net credit available in Kenya financial industry is influenced more by other factors such as information asymmetry between the borrowers and the lenders, value of the reserve requirements, debit credit controls on the banking system and perception of risk regarding the solvency of other banks within the banking system.

Gerlach and Peng (2005) took the first explicit approach to the interaction between financing and house prices in Spain. Their results show that growing imbalances in the mortgage credit market tend to bring down house prices in the long run, whereas in the short term increases in mortgage credit appear to bring about a rise in house prices. They

found that the increase in interest rates were to a significant extent positively related to growth in long term mortgage loans.

Sørensen and Lichtenberger (2007) analyzed the process of convergence of mortgage interest rates for the house purchase in the euro area and found that supply and demand factors only partially explain interest rates, while a fundamental role is played by institutional factors specific to each country.

Rubio (2008) studied the effect of the proportion of fixed and variable-rate mortgages in an economy on the way shocks are propagated. The study analyzes optimal implementable simple monetary policy rules and the welfare implications of this proportion. A New Keynesian dynamic stochastic general equilibrium model is developed and solved that features a housing market and a group of constrained individuals who need housing collateral to obtain loans. A given proportion of constrained households borrow at a variable rate, while the rest borrow at a fixed rate. The model predicts that in an economy with mostly variable-rate mortgages, an exogenous interest rate shock has larger effects on borrowers than in a fixed-rate economy.

Mwega (2009) established that there was a credit crunch in Kenya in the period between 1993 and 2002. This was because formal lending institutions preferred less risky investments in government securities at the expense of small to medium enterprises. The situation is unfavorable to the growth of mortgage markets because they would lack the much needed financing.

A study done in the USA by Moench, Vickery and Aragon (2010) analyzed recent trends in households' mortgage decisions, focusing mainly on the choice between fixed rate mortgages and adjustable-rate mortgages. They document that the market

share of ARMs has declined significantly across all segments of the mortgage market in recent years. Using a simple model, they present evidence that this decline in the ARM share can largely be accounted for by factors that explain mortgage choice in earlier periods in particular, measures of the relative borrowing costs for fixed-rate and adjustable-rate mortgages. Supply-side factors, especially the increasing share of the conforming mortgage market, are also important in accounting for the fall in the ARM share over this period

Aguko (2012) sought to investigate the factors influencing mortgage uptake Kenya. The study was guided by several specific objectives but in relation to this study, the objective to examine the extent to which interest rates inf1uence mortgage financing in Kenya is more specific to the research. A descriptive survey was employed in this study that targeted 238 staffs in selected department in Housing finance Corporation, Kenya. To capture the various levels of staffs and management, stratified random sampling method was conducted. The study concluded that interest rate setting on mortgage debt; government instruments and fiscal measures are the major policies that govern mortgage financing.

Muguchia (2012) studied the effect of flexible interest rates and the results show a negative relationship between flexible interest rates and mortgage financing. The document argues that if banks charge a fixed rate of interest, it would be possible for investors to plan for a predictable amount of money to be repaid hence stability and increased level of borrowing. Other independent variables in the study include; inflation, non-performing loans, liquidity ratio and negative effects on mortgage financing, while money supply, GDP, customer deposits, bank capitalization and bank size had positive effect on mortgage financing. The study relied on secondary data

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from annual reports of the banks and regression analysis was mainly used to analyze the data.

Njongoro (2013) studied the effect of mortgage interest rates on the growth of mortgage financing in Kenya. The population was the 44 licensed commercial banks and Housing Finance Company. The study relied on secondary data (financial reports, central Bank reports, economic journals and statistical publications) that covered a period of four years (2009 to 2012). The results showed a high negative relationship between mortgage interest rate and the growth of mortgage financing.

2.5 Summary of the Literature Review

For this study, the theories are somewhat limited; they barely breakdown the variables and are more generalized and inconclusive. In theory, the relationship between interest rates and the growth of mortgage financing remains very controversial. Some empirical findings show a positive relationship, others show a negative relationship and in some instances, even no relationship between the two variables.

Ngugi (2004) found out that the effect of interest rates on the amount of credit to the economy is largely minimal. Gerlach and Peng, (2005) established that the increase in interest rates were positively and significantly related to growth in long term mortgage loans. Aguko (2012) concluded that, interest rate setting on mortgage debt (government instruments and fiscal measures) is one of the major policies that govern mortgage financing. Muguchia (2012) shows a negative relationship between flexible interest rates and mortgage financing. Njongoro (2013) shows a negative relationship between mortgage interest rate and the growth of mortgage financing.

Global studies on mortgages have been conducted extensively and there exists a diversity of findings as a result of the different contextual conditions. Locally, studies on interest rates in relation to mortgages have not been widely covered. Thus, there exists a gap to be filled in relation to knowledge and empirical studies.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter focused on systematically solving the research problem; the procedures that were employed to get to data collection and ultimately data analysis. It covered the following areas: Research design, determining the target population, data collection procedure, data analysis, analytical model and test of significance.

3.2 Research Design

Research design is the plan and structure of investigation so conceived as to obtain answers to the research questions. It includes an expression of both the structure of the research problem and the plan of investigation used to obtain empirical evidence on the relationships between the variables of a study (Cooper and Schindler, 2006).

This research was of descriptive design. Descriptive study design helps a researcher understand the root cause of the research problem (Chordiaet, 1997). This design was ideal for the study as it aimed at identifying possible effect of mortgage interest rates on growth of mortgage financing by establishing the relationships between the two variables (Mugenda and Mugenda, 2003). Therefore it sought to find out and collect facts in the market and describe the causal linkage between mortgage interest rates and growth of the mortgage financing amongst financial institutions in Kenya.

3.3 Population

According to Thomas, Nelson, and Silverman (2010), a population refers to a universal set of all elements in which the characteristics under consideration are present. The target population of the study comprised of all the 44 licensed commercial banks as at December 2014 and one mortgage finance company registered with CBK. A census was conducted on the 44 commercial banks that

offered mortgage financing. The research covered a period of three years (2012-2014).

3.4 Data Collection

According to Creswell (2002) data collection is a means of collecting information from the selected units of a study. Data was collected from secondary sources. Mugenda and Mugenda (2003) describe secondary data as information that has previously been collected, utilized by a person other than the one who collected the data. It can be obtained from books, journals and electronic materials.

The secondary data was obtained from Central Bank of Kenya Annual reports, websites belonging to the target financial institutions and published financial reports. The type of data that was collected included: data on mortgage rates, data on market size in the past three years, data on non-performing mortgage loans, data on total assets and data on other factors affecting mortgage financing.

3.5 Data Analysis

Data analysis involves systematically applying statistical and logical techniques to describe, condense and evaluate data. Various analytic procedures provide a way of drawing inductive inferences from data and distinguishing the signal, the phenomenon of interest and statistical fluctuations present in the data (Shamoo and Resnik, 2003).

The collected data was categorized purposefully, edited and coded. After coding, the data was analyzed using Ms Excel and Statistical Package for Social Sciences (SPSS) to help organize and summarize data by the use of descriptive statistics. An analytical model was then used together with percentages and coefficients calculated to support or conflict the study tests.

3. 5.1 Analytical Model

The analysis equation was analyzed using Ms Excel regression tool to obtain statistical results. The aim of this model was to find the relationship between mortgage interest rate and the growth of mortgage financing. The regression model that was used to analyze the effect of mortgage interest rate on the growth of mortgage financing was as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

Y= The proportional growth of mortgage financing. This was measured by comparing the total value of mortgages yearly for every financial institution

α = Regression constant

β_1 β_2 and β_3 = coefficients of the variables in the regression model

X_1 = mortgage interest rates. The average mortgage interest rate per year for each financial institution was used

X_2 = Size of the financial institution. This was measured by calculating the natural logarithm of the total assets.

X_3 = Non-performing loans. The natural logarithm of non-performing loans at the end of every year was used

ε = Error term.

3.5.2 Test of Significance

Analysis of variance (ANOVA) was used to test the significance of the overall model at 95% level of significance. This was because multiple sample cases were involved. Using this technique one can draw inferences about whether the samples have been drawn from a population having the same mean (Kothari, 2004).

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1. Introduction

This chapter presents results and findings obtained from secondary data collected. It involves data analysis, interpretation and discussion. The variables of the analytical model are linked in a bid to establish the relationship between mortgage interest rates and growth of mortgage financing amongst financial institutions. Descriptive and inferential statistics have been used to discuss the findings of the study.

4.2 Descriptive Statistics

Descriptive statistics gives a summary of the observations made during data analysis.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Proportional growth	72.00	-.55	2.30	25.18	.35	.55
Log of NPLs	72.00	14.44	22.15	1293.56	17.97	1.93
Log of Assets	72.00	21.97	26.66	1779.68	24.72	1.15
Average Interest Rate	72.00	12.80	25.00	1365.00	18.96	2.85
Valid N (listwise)	72.00					

Source: Research findings

The standard deviations of the study variables used in the analysis, owing to their small values i.e. proportional growth (0.55), Log of NPLs (1.93), Log of Assets (1.15) and Average Interest Rate (2.85) indicate that the observations clustered evenly around the mean and had minimal variation.

The variances of the variables, as indicated in Table 4.2 below, indicate minimal variance about the means. Thus, the observations were minimally spread out. This is all true except for the average interest rate variable that has a variance of 8.13,

indicating that the observations were significantly spread out with a minimum value of 12.8 and a maximum value of 25.

The skewness and kurtosis measures of the variables are used to give insight into the shape of the distribution of the observations. With the exception of the proportional growth, the other variables have their distribution curves more or less shaped after the distribution curve. The observations of proportional growth exhibited platykurtic kurtosis and were skewed to the right.

Table 4. 2: Descriptive Statistics

	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Proportional growth	.30	1.45	.28	2.93	.56
Log of NPLs	3.72	.08	.28	-.33	.56
Log of Assets	1.31	-.17	.28	-1.00	.56
Average Interest Rate	8.13	.43	.28	-.68	.56
Valid N (listwise)					

Source: Research findings

4.2.1 Mortgage Interest Rates

The average mortgage interest rate amongst financial institutions in Kenya decreased from 18% in 2012 to 16.37% in 2013. This was a 9.06% decrease. It further decreased from 16.37% in 2013 to 15.8% in 2014. This is a decrease of 3.48%. This shows that the average mortgage interest rate per year has been decreasing since 2012.

Table 4. 3: Average mortgage interest rates

YEAR	AVERAGE INTEREST RATE	% CHANGE
2011	20.7%	
2012	18%	-13.04%
2013	16.37%	-9.06%
2014	15.8%	-3.48%

Source; Research findings

Figure 4. 1: Average mortgage interest rates
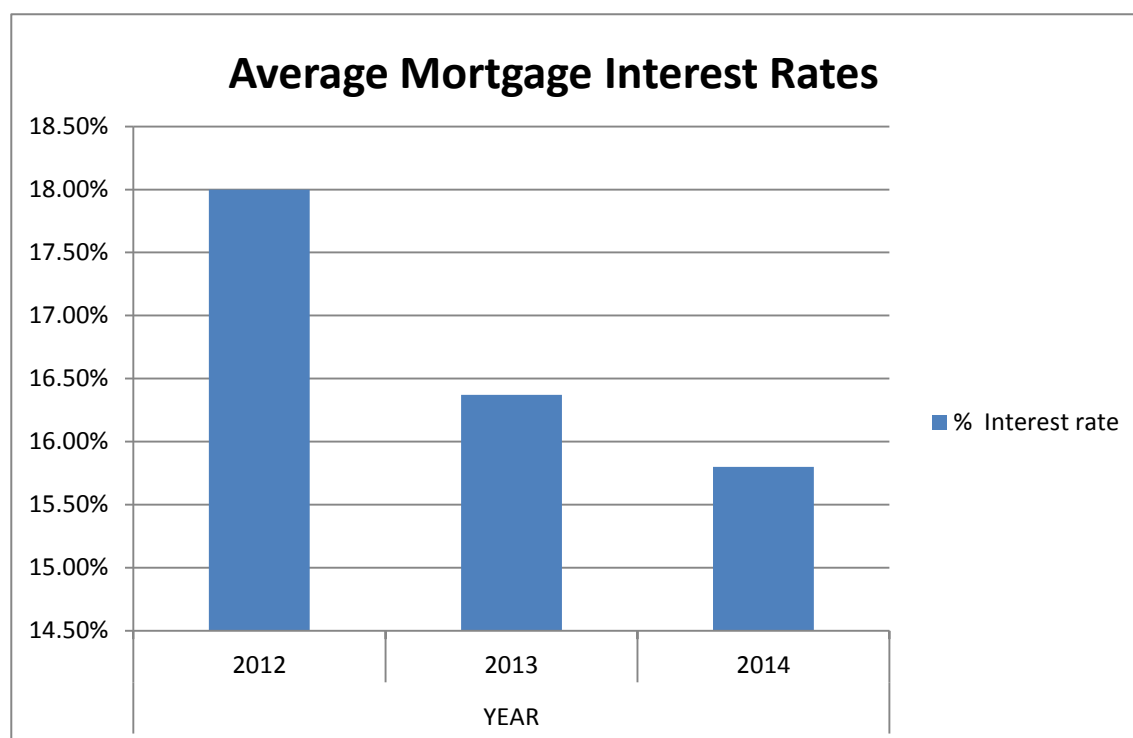
Source: Research findings

4.2.2 Mortgages Outstanding

The value of outstanding mortgages in 2012 was Ksh. 122,160 million and in 2013 it increased to Ksh. 138,111 million. This was an increase of 13.06%. In 2014 the value rose again by 18.75% to reach Ksh.164,007 million. In the three years (2012-2014),

the amount of outstanding mortgages has increased by 34.3%. Outstanding mortgage
value has been increasing yearly as shown in the table and graph below.

Table 4. 4: Mortgages Outstanding

YEAR	MORTGAGES OUTSTANDING (Ksh. M)	% CHANGE
2011	90,401	
2012	122,160	35.13%
2013	138,111	13.06%
2014	164,007	18.75%

Source: Research findings

Figure 4. 2: Mortgages outstanding
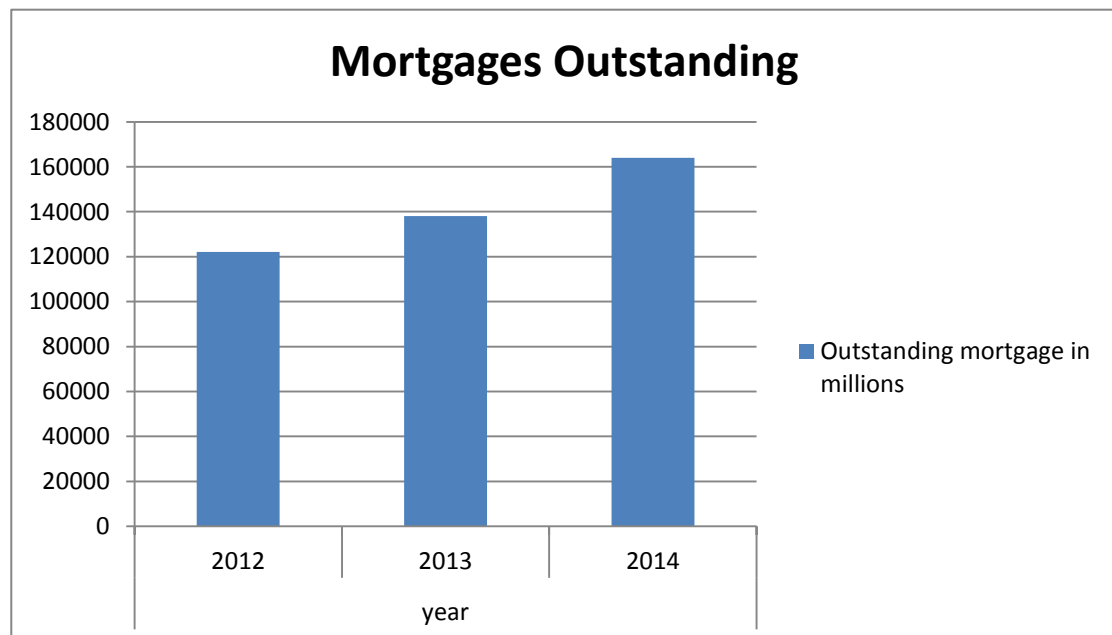
Source: Research findings

4.3 Diagnostic Tests

Diagnostic tests are used to test for the conformity of the data observations to the basic assumptions of any statistical analysis (Finlay, 1997). Linear regression analysis for example, makes the basic assumption that the residuals of the predictors are normally distributed and that the predictors are not collinear. Diagnostic tests for the same are thus necessitated.

Table 4. 5: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Proportional growth	.190	72	.000	.860	72	.000
Log of NPLs	.057	72	.200[*]	.973	72	.129
Log of Assets	.117	72	.017	.959	72	.018
Average Interest Rate	.175	72	.000	.945	72	.003

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Both the Kolmogorov-Smirnov and Shapiro-Wilk diagnostic tests of normality were performed. Owing to the small sample size of the study (<2000), only the results of the Shapiro-Wilk test were considered. The null hypothesis (H_0) was that the observations of the variables were normally distributed and the alternative hypothesis (H_1) was that they were not normally distributed. Owing to the significance of the test on the proportional growth, assets and average interest rate, the null hypothesis was rejected indicating that the observations were not normally distributed. The NPLs variable however, exhibited normal distribution.

Table 4. 6: Test of Collinearity

Model		Collinearity Statistics	
		Tolerance	VIF
	(Constant)		
1	Log of NPLs	.934	1.071
	Log of Assets	.910	1.099
	Average Interest Rate	.968	1.033

Source: Research findings

According to Kutner (2004) the variance inflation factor (VIF) quantifies the severity of multicollinearity in an ordinary least squares regression analysis. This was used as the diagnostic test for the determination of multicollinearity. Seeing that the values of VIF were less than 5, the implication is that, very little multicollinearity was exhibited by the variables.

4.4 Correlation Analysis

To measure the strength of the relationship between the variables, Karl Pearson's coefficient of correlation was used. Pearson's correlation coefficient is a measure of the strength of a linear association between two variables and can take a range of values from -1 to +1. It is denoted by *r*. Table 4.7 below shows the findings obtained.

Table 4. 7: Pearson's correlation coefficient matrix

		Proportional growth	Log of NPLs	Log of Assets	Average Interest Rate
Proportional growth	Pearson Correlation	1	-.236[*]	-.182	.238[*]
	Sig. (2-tailed)		.046	.126	.044
	N	72	72	72	72
Log of NPLs	Pearson Correlation	-.236[*]	1	.255[*]	-.075
	Sig. (2-tailed)	.046		.031	.530
	N	72	72	72	72
Log of Assets	Pearson Correlation	-.182	.255[*]	1	-.177
	Sig. (2-tailed)	.126	.031		.138
	N	72	72	72	72
Average Interest Rate	Pearson Correlation	.238[*]	-.075	-.177	1
	Sig. (2-tailed)	.044	.530	.138	
	N	72	72	72	72

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

Source: Research findings

Using the rating level of:

0 to -+0.3= Weak Relationship

-+0.4 to -+0.6= Moderate/ Average Relationship

-+0.7 to -+0.9= Very Strong Relationship

The results from table 4.7 above reveal that there is a weak positive relationship (r= 0.238) between mortgage interest rates and growth of mortgage financing at level of significance 0.05. This implies that as interest rates rise, mortgage financing increases. The findings also show a weak negative relationship (r= -0.236) between NPLs and growth of mortgage financing. This implies that as NPLs reduce mortgage financing increases albeit minimally. The results also show that average interest rates and NPLs are significantly correlated to growth of mortgage financing with values of 0.044 and 0.046 which are both below 0.05.

4.5 Mortgage Interest Rates and Growth of Mortgage financing

The analysis equation was analyzed using MS Excel regression tool to obtain results that would allow for a better understanding of the relationship between mortgage interest rates and growth of mortgage financing in Kenya. Table 4.8 below shows the regression results obtained.

Table 4. 8: Regression Results: SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.335922532
R Square	0.112843947
Adjusted R Square	0.07370471
Standard Error	0.526163694
Observations	72

ANOVA

	df	SS	MS	F	Significance F
Regression	3	2.39457761	0.7981925	2.883141167	0.042038214
Residual	68	18.82567983	0.2768482		
Total	71	21.22025744			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.729257433	1.525953429	1.1332308	0.261097082	-1.31573519	4.774250055
log NPLs	-0.055680276	0.033520638	-1.6610744	0.101302807	-0.122569668	0.011209116
Log assets	-0.045658021	0.057096049	-0.7996704	0.426686447	-0.159591412	0.068275369
average interest rate	0.039530014	0.022265686	1.7753782	0.080310183	-0.00490047	0.083960498

Source: Research findings

The table above shows the multiple regression analysis results. The results show a negligible positive relationship between mortgage interest rates and the growth of mortgage financing as indicated by the coefficient of interest rate (0.0395). The coefficient of total assets (-0.0457) implies that there exists a very low negative relationship between growth of mortgage financing and total assets and coefficient of NPLs (-0.0557) also shows a low negative relationship between growth of mortgage financing and non-performing loans.

The results obtained also show that the independent variables are not adequate predictors of the growth rate of mortgage financing. This is indicated by the coefficient of variation R-square value (0.1128). This means that only 11% of the growth of mortgage financing amongst financial institutions in Kenya is explained by

the selected independent variables while the remainder (89%) can be explained by other factors not included in this model.

The P-values show the extent of reliability on the data. The P-value for the intercept is 26% implying that there is 26% probability the results were by chance, 8% for interest rates, 42% for total assets and 10% for NPLs. All these values are greater than 5% implying that the significance of the coefficients is very low. In the analysis of variance (ANOVA), the significance F value is 4% which means that only 4% of the output occurred by chance. Therefore, the model developed was significant at 95% since the p value obtained of 0.042 was less than 0.05.

As per the results above, the equation $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$ becomes $Y = 1.7293 + 0.0395 X_1 - 0.0457 X_2 + 0.0557 X_3 + 0.5261$ where Y is proportional growth of mortgage financing as measured by outstanding mortgages at the end of every year under study, X_1 is average mortgage interest rates, X_2 is the size of financial institution as measured by natural logarithm of total assets and X_3 is the NPLs measured by the natural logarithm of value of NPLs at the end of every year. The overall implication is that, mortgage interest rates, NPLs and total assets have a small influence on the growth of mortgage financing thus other variables need to be introduced in the analysis.

Internationally, these findings agree with the findings of Gerlach and Peng (2005) who found that the increase in interest rates was to a significant extent positively related to growth in long term mortgage loans. Locally, Ngugi (2004) found out that the effect of interest rates on the amount of credit to the economy is largely minimal.

He found that the overall net credit available in Kenya financial industry is influenced more by other factors such as information asymmetry between the lenders and borrowers, value of the reserve requirements and perception of risk regarding the solvency of other banks.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the findings from chapter four. It also includes discussions, conclusions and recommendations based on the data analysis. The conclusion and recommendations drawn are in a bid to address the objective of the study which was to establish the effect of mortgage interest rates on the growth of mortgage financing amongst financial institutions in Kenya.

5.2 Summary of the Study

The objective of the study was to determine the effect of mortgage interest rates on the growth of mortgage financing amongst financial institutions in Kenya. The objective was achieved through analysis of secondary data. To establish the relationship between the dependent and independent variables, regression analysis was conducted.

The model developed was significant at 95% since the p value obtained of 0.042 was less than 0.05. The model developed by the study was $Y= 1.7293+0.0395X_1-0.0457X_2+0.0557X_3$ where Y is proportional growth of mortgage financing as measured by outstanding mortgages at the end of every year under study, X_1 is average mortgage interest rates, X_2 size of financial institution as measured by the natural logarithm of total assets and X_3 is the NPLs measured by the natural logarithm of value of NPLs at the end of every year. The study found that interest rates had a very weak positive relationship to growth of mortgage financing. The study also found a weak negative relationship between growth of mortgage financing and non-

performing loans. Implying that, there is a reduction in growth of mortgage financing as NPLs increase.

The statistical results show that the independent variables (interest rates, non-performing loans and total assets) account for only 11% of the growth of mortgage financing leaving 89% unexplained. This means that there are other factors that contribute to the growth of mortgage financing such as accessibility to funds, levels of income of the people, mortgage legislation, and high cost of construction, among others. Market surveys by CBK and World Bank identified interest rates as a key obstacle in the Kenyan mortgage market hence the drive to determine the extent to which mortgage interest rates affect growth of mortgage financing.

Over the years under study, the mortgage market has been improving. However, this improvement does not match the potential highlighted by the World Bank. Currently, the size of the mortgage market is Ksh.164 billion yet the World Bank says that the potential size is Ksh.800 billion. In developed countries, the mortgage market is highly developed and it contributes immensely to their GDPs. For instance in European countries it is in the region of 50% and in the U.S it reaches 72% while in Kenya it is at 2.5%.

In this study, when the interest rates decreased by 9% in 2013, the outstanding mortgages increased by 13% which was a small change compared to the 19% increase in mortgages outstanding when interest rates decreased by 3.5%. This indicates that mortgage interest rate is a minor factor influencing growth of the Kenyan mortgage market.

5.3 Conclusion

From the findings of this study and the ensuing discussion, the conclusion is that there exists a weak positive relationship between mortgage interest rates and growth of mortgage financing. This study concludes that mortgage interest rates take up a very small fraction of the determinants of growth of mortgage financing. It is highly possible that a major part of growth of mortgage financing is determined by other factors other than interest rates which were not included in the analytical model. Therefore many other variables that determine growth of mortgage market ought to be factored in so as to draw reliable conclusions.

The study also concludes that, with the challenge of unavailability of credible and complete information on mortgage statistics identified in this research, further analysis of interest rates can be conducted if data is made more accessible to give a better conclusion of the extent of effects of interest rates on growth of mortgage financing.

This study is consistent with international studies conducted by Gerlach and Peng (2005) who found that the increase in interest rates was to a significant extent positively related to growth in long term mortgage loans. Locally, Ngugi (2004) found out that the effect of interest rates on the amount of credit to the economy is largely minimal. He found that the overall net credit available in Kenya financial industry is influenced more by other factors such as information asymmetry between the lenders and borrowers.

5.4 Recommendations

The World Bank and Central bank of Kenya surveys on the mortgage market should be conducted as frequently as is financially possible in order to ensure data available is up to date and can be relied on. This will in turn encourage developments and result in growth within the mortgage sector as information will be readily available to everyone -lenders and borrowers.

The Central Bank of Kenya as the interest regulating body should consider closely monitoring mortgage interest rates to ensure financial institutions are not exploiting potential home owners just to increase their profits. Financial institutions should instead consider other ways of managing credit risk other than charging high interest rates. By lowering the risk premium, the cost of loans will be brought down and more people will be able to afford mortgages. This will result in growth in mortgage financing

Financial institutions should consider designing affordable mortgage products for the middle income earners to ensure growth in mortgage financing because they form a large part of the population and have great untapped potential.

5.5 Limitations of the Study

Like any other studies, this study encountered some challenges. Obtaining data on mortgage interest rates for every bank was one major challenge. Since 2011, the Central Bank as the regulator of interest rates has not made that information available to the public. Secondly, the Central bank only began publishing information on mortgages in 2011 and some banks did not disclose the value of mortgage NPLs thereby limiting the amount of data for the study. The limited information available resulted in changes being made to adapt the study to such limitations.

The study model developed and analyzed had variables that were not sufficient in explaining the growth of mortgage financing according to the regressed results. The study also relied solely on secondary data as published; no adjustments were made on the data obtained. The researcher had no means of verifying the accuracy of the data obtained and for that reason, the findings may be distorted if the data was inaccurate.

The cost of doing the research work from start to completion was another challenge for the researcher; printing costs, binding costs, transport and internet costs. Researchers will need to prepare financially in order to complete their studies effectively. Lastly, the limited time available for the research work was also a challenge. So much had to be done in such limited time and data that was not available online had to be sought physically.

5.6 Suggestions for Further Research

A couple of gaps and challenges were identified in the study which should form the basis for future research. Future studies need to use both primary and secondary data so as to capture more variables and in turn increase accuracy of prediction. Primary data can provide useful insights that are in most cases not captured by secondary data. Primary data can capture factors like levels of income, accessibility to long term funds, credit risk, among many others. This will ensure a better model is established, that is significant and sufficiently effectively the growth of mortgage financing.

The specific types of interest rates should be taken into consideration. There are fixed interest rates, flexible interest rates and split interest rates, all of which are important in the mortgage market analysis.

Very few microfinance banks have taken up mortgage financing. Future studies should seek to establish why microfinance banks have not embraced the mortgage line of business. Finally, further research is recommended using a case study approach on the effect of flexible interest rates on the growth of mortgage financing. A case study will make it possible to capture firm specific variables that have an effect on growth of mortgage financing and the study should be conducted over a longer period of time in order to obtain more reliable results.

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Appendix 1: List of commercial banks in Kenya as at December 2014

1. African Banking Corporation Ltd

2. Bank of India

3. Bank of Africa Kenya Ltd

4. Bank of Baroda (Kenya) Ltd.

5. Barclays bank of Kenya Ltd

6. CFC Stanbic Bank Limited

7. Chase Bank Kenya Ltd

8. Charterhouse Bank Ltd

9. Citibank N A Kenya

10. Co-operative Bank of Kenya Ltd

11. Commercial Bank of Africa

12. Consolidated Bank

13. Credit Bank Ltd

14. Development Bank Of Kenya Ltd

15. Diamond Trust Bank

16. Dubai Bank Kenya Ltd

17. Ecobank Kenya Ltd

18. Equatorial Commercial Bank Limited

19. Equity Bank

20. Family Bank ltd

21. Fidelity Commercial Bank Ltd

22. Fina Bank

23. First community Bank Ltd

24. Giro Commercial Bank Ltd

25. Guaranty Trust Bank Ltd

26. Guardian Bank Ltd.

27. Gulf African Bank Ltd

28. Habib Bank A.G Zurich

29. Habib Bank Ltd

30. Imperial Bank Ltd

31. Investments & Mortgages Bank Limited – I&M Bank

32. Jamii Bora Bank Ltd

33. K-Rep Bank

34. KCB Bank

35. Middle East Bank (K) Ltd

36. National Bank

37. NIC Bank

38. Oriental Commercial Bank Ltd.

39. Paramount Universal Bank Ltd

40. Prime Bank

41. Standard Chartered Bank Kenya Ltd

42. Trans-National Bank (K) Ltd

43. UBA Kenya Bank Ltd

44. Victoria commercial Bank Ltd

Non- Banking Financial Institution

1. Housing Finance Company Ltd

Source**: CBK Bank supervision report 2014**

Appendix 2: RESEARCH DATA

YEAR 2014

Institution	Mortgage Outstanding (Ksh. M)	Value of NPLs Mortgage (Ksh. M)	Average mortgage Interest Rate	Total Assets (Ksh. M)
Housing Finance Company Ltd	45,278.00	4,149.00	16%	60,491
Kenya Commercial Bank Ltd	41,327.00	2,521.00	14.9%	3 76,969
Standard Chartered Bank Ltd	13,092.64	142.68	12.8%	2 22,636
CfC Stanbic Ltd	13,039.80	362.48	15.5%	1 71,347
Equity Bank Ltd	6,375.00	162.00	18%	2 77,116
Cooperative Bank of Kenya Ltd	5,694.00	837.00	15.75%	2 82,689
Barclays Bank of Kenya Ltd	4,922.00	66.00	14.9%	226,043
Commercial Bank of Africa Ltd	3,929.00	126.00	15.5%	175,809
Development Bank Ltd	3,314.80	499.70	21%	16,954
I&M Bank Ltd	3,293.00	32.00	16%	1 37,299
Chase Bank Ltd	3,268.70	373.30	18.5%	107,112
Consolidated Bank Ltd	3,201.80	776.05	18.3%	15,077
Family Bank Ltd	2,899.12	38.28	18%	61,813
National Bank of Kenya Ltd	2,311.30	179.30	15.45%	1 22,865
Bank of Africa Ltd	1,901.00	26.90	17%	62,212
NIC Bank Ltd	1,621.00	32.00	16%	137,087
Jamii Bora Bank Ltd	1,052.00	57.00	18.4%	13,118
Fidelity Bank Ltd	1,052.00	46.00	17.5%	16,515
African Banking Corporation Ltd	904.00	68.80	18%	21,439
Gulf African Bank Ltd	885.84	30.86	16%	19,754
Diamond Trust Bank Ltd	574.99	4.17	18%	141,176
Bank of Baroda	468.45	1.87	15.6%	61,945
Ecobank Ltd	701.00	65.00	18.5%	45,934
Trans-National Bank Ltd	619.00	-	17.5%	10,240

Imperial Bank Ltd	605.73	157.45	17.3	56,599
Prime Bank Ltd	517.00	-	15.7%	54,918
Guardian Bank Ltd	389.00	-	16.1%	14,571
Giro commercial Bank Ltd	209.96	-	15.8%	15,082
Paramount Universal Bank Ltd	190.36	25.75	15.3%	10,402
Bank of India	174.34	-	17.9%	34,370
First community Bank Ltd	101.43	14.90	17.8%	15,278
Equatorial Commercial Bank Ltd	46.24	-	18.26%	16,598
Middle East Bank Ltd	28.00	-	15.9%	5,937
Victoria Commercial Bank Ltd	5.41	-	15.7&	17,244
Oriental Commercial Bank Ltd	4.70	-	16.9%	7,858
Dubai Bank Ltd	3.40	-	18.2%	3,502

YEAR 2013

Institution	Mortgage Outstanding (Ksh. M)	Value of NPLs Mortgage (Ksh. M)	Average mortgage Interest Rate	Total Assets (Ksh. M)
Housing Finance Company Ltd	3 5,279	3,209	17.3%	46,755
Kenya Commercial Bank Ltd	34,040	2,468	16%	323,312
Standard Chartered Bank Ltd	10,099	67	14.9%	220,524
CfC Stanbic Ltd	11,621	147	15.3%	170,726
Equity Bank Ltd	5,277	205	19%	238,194
Cooperative Bank of Kenya Ltd	5,911	479	15.75%	228,874
Barclays Bank of Kenya Ltd	4,640	57	15.5%	207,010
Commercial Bank of Africa Ltd	2 ,889	64	17%	124,882
Development Bank Ltd	2711	188	18.9%	15,581
I&M Bank Ltd	2743	12	16.5%	110,316
Chase Bank Ltd	1947	104	19%	76,569
Consolidated Bank Ltd	3686	340	19%	16779
Family Bank Ltd	393	-	17.5%	43501
National Bank of Kenya Ltd	5150	567.5	16.4%	92493
Bank of Africa Ltd	1735	44	17%	52683
NIC Bank Ltd	1618	22	19%	112917
Jamii Bora Bank Ltd	626	15	18.8%	7010
Fidelity Bank Ltd	117	26	17.6%	12,779
African Banking Corporation Ltd	2075	42	18.5%	19,639
Gulf African Bank Ltd	1197	36	17.2%	16,054
Diamond Trust Bank Ltd	574.99	4.17	19%	141,136
Bank of Baroda	394	2	16.5%	52,022
Ecobank Ltd	1393	311	19.1%	36,907
Trans-National Bank Ltd	98	3	18.7%	9,658
Imperial Bank Ltd	459	39	18.2%	43,006
Prime Bank Ltd	473	-	16%	49,461

Guardian Bank Ltd	257	-	18%	12,835
Giro commercial Bank Ltd	393	2	16.3%	13,623
Paramount Universal Bank Ltd	56	-	19.9%	8,029
Bank of India	91	-	19%	30,721
First community Bank Ltd	129	-	18.4%	11,305
Equatorial Commercial Bank Ltd	145	-	23%	15,562
Middle East Bank Ltd	14	-	21%	5,766
Victoria Commercial Bank Ltd	9	-	20%	13,644
Oriental Commercial Bank Ltd	9	-	18%	7,007
Dubai Bank Ltd	3	-	17.8%	2,927

YEAR 2012

Institution	Mortgage Outstanding (Ksh. M)	Value of NPLs Mortgage (Ksh. M)	Average mortgage Interest Rate	Total Assets (Ksh. M)
Housing Finance Company Ltd	30,293	2,331	22%	40,686
Kenya Commercial Bank Ltd	31,455	2,218	21.2%	304,112
Standard Chartered Bank Ltd	9,723	162	18.4%	195,493
CfC Stanbic Ltd	9,488	190	24%	133,378
Equity Bank Ltd	3,684	35	24%	215,829
Cooperative Bank of Kenya Ltd	6,643	312	23.25%	199,663
Barclays Bank of Kenya Ltd	4,341	19	20.3%	185,102
Commercial Bank of Africa Ltd	3,194	153	24%	100,456
Development Bank Ltd	2,617	147	23%	13,417
I&M Bank Ltd	2,309	26	18.5%	91,520
Chase Bank Ltd	1,531	28	22%	49,105
Consolidated Bank Ltd	3,848	286	23%	18,001
Family Bank Ltd	1,193	7	24.5%	30,985
National Bank of Kenya Ltd	4,123	572	22%	67,155
Bank of Africa Ltd	1,212	5	22%	48,985
NIC Bank Ltd	1,136	-	24%	101,772
Jamii Bora Bank Ltd	218	7	19%	3,480
Fidelity Bank Ltd	261	115	23.3%	11,772
African Banking Corporation Ltd	1,506	37	22%	19,071
Gulf African Bank Ltd	1,069	3	22%	13,562
Diamond Trust Bank Ltd	423	-	23.5%	94,512
Bank of Baroda	434	2	21.2%	46,138
Ecobank Ltd	1136	183	20.4%	31,771
Trans-National Bank Ltd	192	25	24.6%	8,801
Imperial Bank Ltd	293	40	23%	34,590

Prime Bank Ltd	350	-	18%	43,463
Guardian Bank Ltd	234	-	-	11,745
Giro commercial Bank Ltd	222	2	22%	12,280
Paramount Universal Bank Ltd	64	-	-	7,255
Bank of India	101	-	23%	2,4877
First community Bank Ltd	119	2	21.6%	9,959
Equatorial Commercial Bank Ltd	-	-	-	14,109
Middle East Bank Ltd	46	1	18%	5,870
Victoria Commercial Bank Ltd	32	-	18%	10,323
Oriental Commercial Bank Ltd	17	-	24%	6,220
Dubai Bank Ltd	3	-	23.4%	2,484
Habib Bank Ltd	3	-	-	2,327