

**EFFECTS OF INFLATION AND INTEREST RATES ON MORTGAGE FINANCE
OFFERED BY COMMERCIAL BANKS IN KENYA**

**BY
MESHACK BETT
D61/67826/2011**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF
BUSINESS ADMINISTRATION
UNIVERSITY OF NAIROBI**

OCTOBER 2013

DECLARATION

I hereby declare that the presented paper is my original work and has never been presented either in whole or in part to any other examining body for the award of certificates, diploma or degree.

Name: Meshack Bett

Reg. No D61/67826/2011

Signature.....

Date.....

This project proposal has been submitted for examination with my approval as the supervisor.

Supervisor:

Signed

Date.....

Name: Herick Ondigo

Lecturer, Department of Finance and Accounting,

School of Business,

University of Nairobi.

ACKNOWLEDGEMENT

I take this opportunity to thank the almighty God for enabling me to undertake the Master of Business Administration course and guiding me through to the end of this project. Special thanks and appreciation goes to my supervisor, Mr. Herick Ondigo for the support, advice, guidance, encouragement and tireless effort he gave to me during this entire research period. I also acknowledge my lecturers and fellow students for their contributions towards this research.

Finally I am grateful for the invaluable support offered by anyone else that may have been directly or indirectly involved and formed a basis for which this research was conducted. To all may God bless you.

DEDICATION

I dedicate this work to my dear mother Mrs. Selina Kendagor for her invaluable support in my studies. I thank you for giving me the courage and determination to wither the storms of the course. God bless you.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENT	iii
DEDICATION	iv
TABLE OF CONTENTS	v
LIST OF TABLES	1
LIST OF FIGURES	2
LIST OF ABBREVIATIONS	3
ABSTRACT	4
CHAPTER ONE	5
INTRODUCTION	5
1.1 Background of the Study	5
1.1.1 Inflation Rates.....	6
1.1.2 Interest Rates	8
1.1.3 Mortgage Finance	10
1.2 Research Problem.....	12
1.3 Objective of the Study	12
1.4 Value of the Study	13
CHAPTER TWO	14
LITERATURE REVIEW	14
2.1 Introduction.....	14
2.2 Theoretical Review.....	14
2.2.1 Structural Inflation Theory.....	14
2.2.2 Classical Theory of Interest Rate.....	15
2.4 Empirical Review	15
2.5 Summary of Literature Review	18

CHAPTER THREE	20
RESEARCH METHODOLOGY	20
3.1 Introduction	20
3.2 Research Design	20
3.3 Target Population	20
3.4 Data Collection Instruments	20
3.5 Data Analysis	21
3.5.1 Analytical Model	21
CHAPTER FOUR.....	23
DATA ANALYSIS RESULTS AND DISCUSSION	23
4.1 Introduction	23
4.2 Data Analysis and Presentation.....	23
4.2.1 Descriptive Statistics.....	23
4.2.2 Regression Analysis.....	29
4.3 Interpretation of Findings.....	31
CHAPTER FIVE.....	32
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	32
5.1 Introduction	32
5.2 Summary	32
5.3 Conclusion.....	34
5.4 Recommendations for Policy and Practice.....	35
5.5 Limitations of the Study.....	35
5.6 Suggestions for Further Studies.....	36
REFERENCES.....	37

APPENDICES	42
Appendix I: Letter of Introduction	42
Appendix II: List of Commercial Banks Offering Mortgage Finance	43
Appendix III: Descriptive Statistics for Return on Assets	44
Appendix IV: Descriptive Statistics for Return on Equity	45
Appendix V: Profits after Tax	46
Appendix VI: Mortgage Financing	47

LIST OF TABLES

Table 4.1	Inflation Rate	28
Table 4.2	Interest Rates	28
Table 4.3	Model Summary.....	29
Table 4.4	ANOVA.....	30
Table 4.5	Regression Coefficients.....	30

LIST OF FIGURES

Figure 1.1	Overview of banking industry in Kenya.....	11
Figure 4.1	Return on Assets.....	24
Figure 4.2	Return on Equity.....	25
Figure 4.3	Profits after Tax.....	26
Figure 4.4	Mortgage Financing.....	27
Figure 4.5	Inflation Rate.....	28
Figure 4.6	Interest Rates.....	29

LIST OF ABBREVIATIONS

ARM-	Adjustable rate mortgages
CBK-	Central Bank of Kenya
CRB-	Credit Reference Bureau
FDI-	Foreign Direct Investments
GDP-	Gross Domestic Product
MDG-	Millennium Development Goals
RMBS-	Residential Mortgage Backed Securities.
UK-	United Kingdom
UON-	University of Nairobi
USA-	United States of America
SSA-	Sub- Saharan Africa.
SPSS-	Statistical Package for Social Sciences.

ABSTRACT

Mortgage finance is the provision of finance or capital for housing. In Kenya the institutions that lend money for real estate projects include: banks, mortgage firms, saving and loans firms, insurance companies, government parastatals, pension funds, trusts and other real investment institutions. Unlike unsecured loan, mortgage finance is a secured loan whereby the mortgaged property acts as collateral by the customer as a pledge for security of the extended credit. This study sought to evaluate the effect of inflation and interest rates on mortgage financing by Kenyan commercial banks. To achieve this objective, the study employed a descriptive-correlation research design. Ten commercial banks offering mortgage finance in Kenya were considered. This research relied on secondary which was obtained from banks' annual reports and financial statements and the Kenyan Economic Surveys over a period of five between the years 2008-2012.

The collected data was edited, coded and entered for analysis using the Statistical Package for Social Sciences (Version 17.0) computer package. Both descriptive and inferential statistics were used. The research findings revealed that there was a strong positive relationship ($R=0.717$) between the variables. The study also revealed that 51.4% of mortgage financing in Kenya could be explained by inflation and interest rates. From this study it was evident that at 95% confidence level, the variables produced statistically significant values and can be relied on to explain mortgage financing by Kenyan commercial banks. However, interest rates explain mortgage uptake in Kenya than inflation rates. The research findings were presented in pie charts, bar graphs, and tables for clarity. The findings of this study will be of great use to the government, lending institutions in formulating mortgage financing policies so as to promote the uptake of mortgage facilities in Kenya.

Based on the research findings the following policy recommendations were proposed: The management of commercial banks should ensure that interests charged on mortgage facilities are competitive in the market so as to attract consumers of this product. The government should enact legislation which regulates the inflation and interest rates in the banking industry so as to protect the interests of both consumers and lenders in the market. The government should also enforce monetary and fiscal policies through the Central Bank of Kenya (CBK) so as to regulate money supply in the market.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

According to Corelogic (2011), recent financial crisis was triggered by problems in the US domestic subprime mortgage markets where cumulative loss rates of securitized sub-prime loan portfolio exceeded 20%. In view of this, Reinhard and Rogoff (2009) identify six major historical episodes of banking crisis in advanced economies since the mid 1970's associated with housing burst. Following the steep decline in house prices throughout 2007 and 2008, and the associated crisis in the financial system, the Federal Reserve introduced several programs with the aim of stabilizing the housing market (Federal Reserve, 2009). More significantly it established a program to purchase mortgage backed securities (MBS) that were guaranteed by Fannie Mac and Freddie Mac, the two Government Sponsored Enterprises (GSE). To clarify the concept of mortgage backed housing securities, (Brown, 2008) defined mortgage backed securities as structured products that are collateralized by residential mortgages. According to Brown (2008), most of these mortgages entail a prepayment option by the individual borrower, which gives the borrower the right to prepay the mortgage at any time prior to maturity of the loan, and thereby to refinance at a favorable rate. (Brown, 2008) points out that this prepayment option gives mortgage backed securities characteristic similar to those of a callable bond in which the issuer has the right to redeem prior maturity date. In view of this, Geanakoplos (2010) argues that leverage and lending standards are influenced by the capital structure of the firm.

The impact of the stock markets, bank and exchange rate crisis in Africa comes from both direct and indirect channels (IMF, 2009). Furthermore (IMF, 2009) report identifies Egypt and Nigeria as example of African Countries where the stock market on housing securities indices declined by about 67% between March 2008 and March 2009 because of the nature of their financial structures. In addition (IMF, 2009) argues that bank failures have been rare in the region largely as most African banks do not have any significant subprime mortgage market and asset –backed housing securities. According to IMF (2009), African banks are however, vulnerable to contagion effects arising from the high rate of foreign ownership of banks in several countries in the region which has affected housing securities in financing housing projects. In Kenya, IMF (2009) argues that many real estate and financial service professionals believe that more capital will be raised through public markets to pursue distressed debt and asset opportunities. On the same vein, Mtango (2008) explains that by any

measure, valuations in commercial real estate have been trenching downwards for several years as unemployment continues to climb in Africa and the rest of the world. Furthermore, Claessens, Kose and Terrones (2008) point out that the historical vacancy, levels in four principal classes of commercial real estate-office, retail, multifamily and industrial are approaching and in some cases have even surpassed vacancy levels that occurred in the early 1990's during the last severe real estate down-turn. In the recent past, the banking sector in Kenya has experienced numerous challenges ranging from economic depression to bank failures. The major cause of financial problems has been directly linked to lax in credit standards for borrower, poor portfolio risk management, failure to respond to changes in economic environment and competitive climate (CBK Annual supervision report, 2000).

1.1.1 Inflation Rates

According to Dobson (2002), inflation is a rise in the general level of prices of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money. A chief measure of price inflation is the inflation rate, the annualized percentage change in a general price index (normally the consumer price index) over time. Inflation's effects on an economy are various and can be simultaneously positive and negative. Negative effects of inflation include an increase in the opportunity cost of holding money, uncertainty over future inflation which may discourage investment and savings, and if inflation is rapid enough, shortages of goods as consumers begin hoarding out of concern that prices will increase in the future. Positive effects include ensuring that central banks can adjust real interest rates (to mitigate recessions), and encouraging investment in non-monetary capital projects. Inflation leads to an economic recession.

Economic recession is a financial meltdown, which can last for a period of few months to couple of years and can affect regional or world economy, leading to financial crisis, market crash, unemployment and economic depression. A long lasting impact of economic recession can lead to economic depression. The most important current development in the wake of the banking crisis is the transmission of that crisis to the rest of the economy and its interaction with the more general economic crisis now emerging (Dymski, 2001). The most obvious issue here is the onset of recession. The central reason for the recession is the dependence of consumer demand in particular but also business investment on high levels of debt over the

last two decades. Now that lending is contracting this debt-fuelled expansion is no longer possible and a sharp economic slowdown looks inevitable. According to Kallis, Martinez-Alier and Norgaard (2009) the fall in house prices is also worsening the slowdown in consumer spending as households can no longer borrow against rising equity values.

There are two fundamental reasons for the reliance on debt. Consumption has come to depend on debt because of the contradiction between driving wages down to generate profits in production and needing to ensure demand in order to sell the goods produced and realize these profits (Levine, 1997). The most obvious manifestation of this is growing income inequality and it is no accident that the build-up of debt has been worst in countries with the greatest disparity in incomes. Linked to this is the way in which production in general, but especially investment, has come to rely on debt as a result of the weakness of profitability in the productive sector. The rate of profit of non-financial corporation's fell steeply in the US, by roughly a quarter. Consequently, without debt being available to fund expansion recession appears inevitable (Lwali, 2008). The response of governments to the recession has been firstly to increase their own borrowing and secondly to encourage central banks to cut interest rates (Nassar, 2007). But both of these create their own problems. Government borrowing is limited by the cost of the bank bail-outs. High levels of borrowing can also push up interest rates or reduce currency values as discussed above. Both of these effects lower household real incomes and decrease spending frustrating the original purpose of the borrowing. The strategy adopted by the British government in response to this is to make tax cuts explicitly temporary. But this risks making them ineffective since households will simply save any extra income in anticipation of future tax rises.

Central banks only directly control short-term interest rates and private banks have simply refused to cut long-term rates in response to central bank policies. Cuts in interest rates also have the effect of lowering both the actual returns of current pensioners living off savings and the prospective returns of future pensioners both of which may lower consumption. More fundamentally, the room for government policy to boost the economy is limited so long as spending depends on debt because of low wages and inequality and so long as new debt is not forthcoming. Consequently, the slowdown is likely to be protracted and severe (Azam & Daubreé, 2007). Increased inflation rates had a great effect of changes in the demand patterns of majority of the people. The demand for acquiring of housing through mortgages reduced and the people reverted to purchasing of most crucial needs with the available finances they

had. The high inflation rate lowered the disposal income and lowered purchasing power of the customers (Nassar, 2007). This in turn had an effect of lowering financial performance of mortgage finance offering commercial banks.

1.1.2 Interest Rates

Norris (2010) contends that an interest rate is the rate at which interest is paid by borrowers for the use of money that they borrow from a lender. Specifically, the interest rate (I/m) is a percent of principal (P) paid a certain amount of times (m) per period (usually quoted per annum). For example, a small company borrows capital from a bank to buy new assets for its business, and in return the lender receives interest at a predetermined interest rate for deferring the use of funds and instead lending it to the borrower. Interest rates are normally expressed as a percentage of the principal for a period of one year. Low interest rates and large inflows of foreign funds create easy credit conditions for mortgage financing. The combination of easy credit and money inflow contributed to the United States housing bubble. Loans of various types (for example, mortgage, credit card, and auto) were easy to obtain and consumers assumed an unprecedented debt load (Benos, 2004). Fiscal expansion would be accompanied by a rise in the exchange rate to prevent a decline in the economy. The exchange rate adjustment should be consciously managed.

Benos (2004) argues that management is necessary in order to prevent excessive exchange rate induced inflation and a deterioration of the trade balance. Limits on the stimulus package include avoiding 'excessive inflation', defined as greater than fifteen percent, because a higher rate might excessively increase the nominal demand for credit and stimulate an inflationary spiral; the trade deficit should remain constant as a portion of GDP because it must be financed by donor grants which are inflexible in the short term, and by remittances from abroad which may decline in the short term; and the exchange rate management would be implemented by a series of nominal devaluations to avoid excessive inflationary impact, through government intervention in the. The purpose is to control the depreciation to prevent a growing trade gap as the economy expanded (Bruggeman & Fischer, 2008).

Further, the policy package of fiscal expansion and currency depreciation faces two types of constraints; that is, constraints arising from the adjustment dynamics of the policy package; and constraints resulting from donor behavior and conditions (Brenner, 2006). The most important constraint on a successful outcome of the stimulus package is the inflation induced

by the exchange rate. The inflation constraint is made tighter by the estimation of a structural rate of inflation of five percent per year.

The government should identify an inflation rate which it considers to be the maximum consistent with macroeconomic stability. Taxes can be used for countercyclical intervention, but in practice they are a clumsy instrument for demand management. Changing the public sector's net contribution to aggregate demand with the tax instrument requires either new taxes or altering tax rates. In most countries, including Kenya, both require legislative action, followed by changes in administrative procedures. This can be a lengthy process that fails to achieve demand changes with the speed necessary to respond to short falls in private demand. Public expenditure offers the more effective mechanism for compensating for private demand fluctuations (Daly, 2008).

According to Immergluck (2009) a country's medium and long term growth rates are determined by the development of capacity, skills and technical change, with the latter embodied in capital investment. Since public investment contributes to increasing capacity, it is unwise to use it as a counter-cyclical instrument. Counter-cyclical expenditure increases when the economy grows below its long run potential, and decreases when output rises close to potential, causing resource scarcities and inflationary pressure. Because public investments by their nature mature over several years, to use them as a counter-cyclical instrument would imply abandoning or suspending capital projects, resulting in waste of resources (Kaminsky and Reinhart, 2000). Bonds sales to the private sector ensure that the expansion of the deficit is not inflationary, because the net change in the money supply is zero. The government takes money out of circulation by the bond sale, and returns the same amount to circulation through its increased expenditure. In theory it would be necessary to offer the bonds above the prevailing interest rate in order to sell them successfully, and 'crowding out' of private sector borrowing would occur if private investment is sensitive to formal sector interest rates (Levine, 1997). High interest rates and reduced inflows of foreign funds created lowed credit conditions, this had major consequences in lowering mortgage financing and slowing down acquiring of houses. This in turn lowered financial performance of commercial banks engaging in mortgage financing.

1.1.3 Mortgage Finance

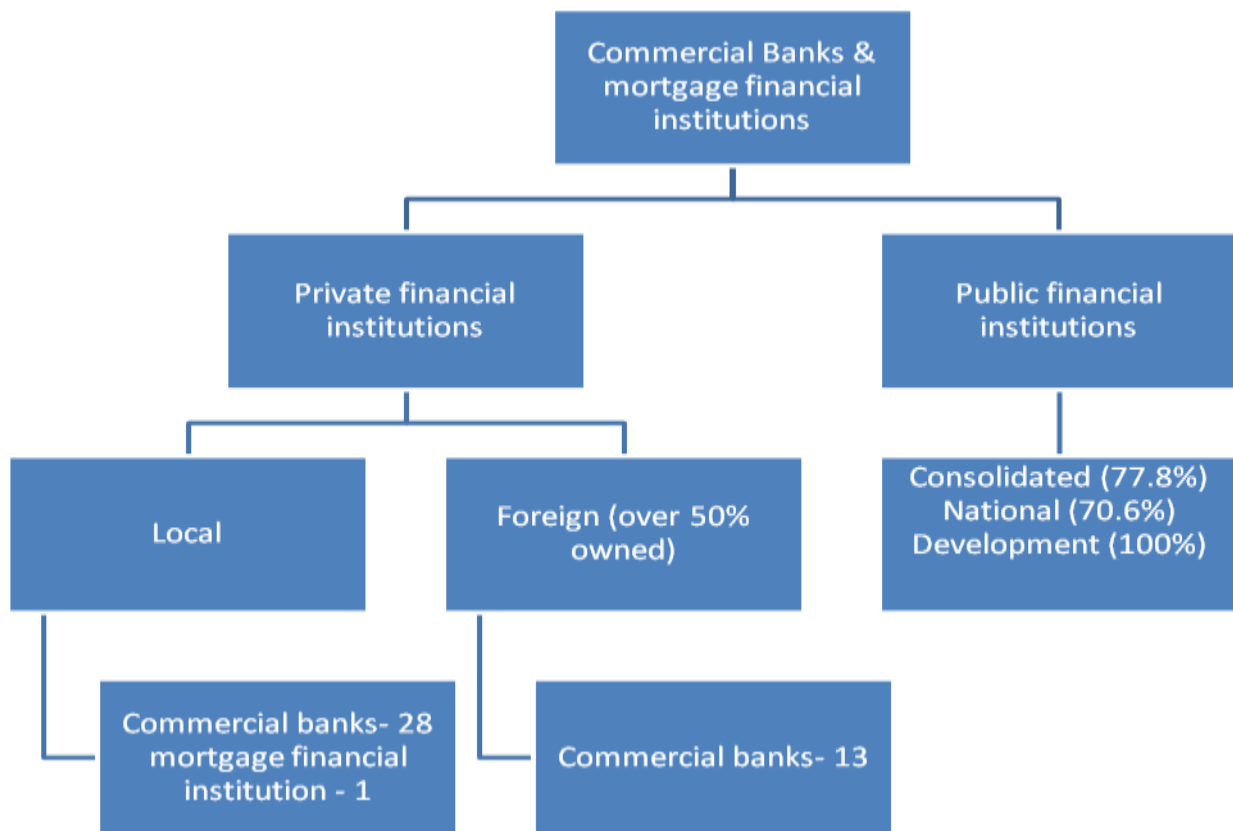
Mortgage finance is the provision of finance or capital for housing. Mortgage finance also means the capital required for construction of housing or the resources required to acquire or access housing project by household or the credit supplied by housing finance institutions against some collateral. UN Habitat report (1991). In Kenya the institutions that lend money for real estate projects include: banks, mortgage firms, saving and loans firms, insurance companies, government parastatals, pension funds, trusts and other real investment institutions as noted by Lwali (2008). Unlike unsecured loan, mortgage finance is a secured loan whereby the mortgaged property acts as collateral by the customer as a pledge for security of the extended credit. (Copeland and Weston, 1995).

UN Habitat (1991) categorizes housing finance as governmental or parastatal housing banks, authorities or corporations who receive funds through forced taxation, payroll levies on all or some individuals or organization but may also allow individual or institutional deposits subject to approval from regulating authorities. Private housing banks are established by the private sector and their source of funds includes deposits, bonds and debentures, though they might have governmental and or external (international) funding as well. Mortgage finance providers may also include mutually owned organizations, societies and associations like building societies, savings and loans(S&L) associations, housing co-operatives which exist as a means of their members accumulating to access housing finance. According to the CBK (2009), East Africa Building Society (EABS) which graduated into a fully regulated bank in 2007 and Savings and Loans (S&L), a subsidiary of KCB, merged its operations with the main group in 2009. At the moment we have Housing Finance Company of Kenya (HFCK) as the only independent mortgage institution in Kenya.

Lwali (2008) notes that the demand for housing in Sub-Saharan Africa(SSA) has surpassed the supply. In an effort to meet this demand a few International Housing Finance Institutions (IHFI) have come into play. These include shelter afrique, overseas private investment corporation, East African Development Bank (EADB) and PTA bank among others. According to market intelligence survey (2009), there are 44 commercial banks in Kenya out of which 9 control 74% of the total assets in the sector. 10 mainstream commercial banks have ventured into the mortgage industry, the latest entrants being CFC Stanbic bank, Equity bank, Co-operative bank of Kenya, Family bank and K-Rep bank. The other forerunners include Barclays bank, Standard chartered bank, KCB through its (S&L) and I&M bank. The

focus of this research will be the responses of commercial banks offering mortgage finance in Kenya to the challenges of global financial crisis. According to the office of the comptroller, USA (1996), the risks associated with mortgage financing include credit risk, reputational risk and political risk. By far the worst risk to affect a housing finance investor is the credit risk. This is the risk that a borrower will be unable to service his loan. This risk is directly proportional to certain economic indicators like inflation which impacts on interest rates.

Figure 1.1: Overview of banking industry in Kenya.



Source: Central Bank of Kenya annual report 2007

1.2 Research Problem

According to Kenya Financial Sector Stability Report (2010) inflation rose to historical high in 2011 compared with the situation 2010. The annual and overall inflation averaged 7.99 percent and 13.97 percent, respectively in 2011, compared to 5.6 percent and 3.9 percent, respectively, in 2010. Further, Kenya Shilling weakened against major world currencies in the year 2011. Against the US dollar, the shilling averaged 101.270 in October 2011 from 81.029 in January 2011. It has since strengthened to average Ksh 83.188 per USD in April 2012 following tightening of monetary policy and implementation of administrative measures to curb currency speculation. In addition, Remittances inflows from Kenyans in Diaspora maintained upward trend in 2011, realizing 39 percent growth rate above the 2010 level. This may be explained by economic recovery in traditional sources of North America. The flow of remittances gained 20.8 million to an average of US \$ 74.3 million in 2011 from US\$ 53.5 million in 2010 (Kenya Financial Sector Stability Report, 2010).

According to Corelogic (2011) recent financial crisis was triggered by problems in the US domestic sub-prime mortgage markets. In view of this Reinhard and Rogoff (2009) identify six major historical episodes of banking in crisis in advanced economies since the mid 1970's associated with housing bust. To address the problem of steep decline in house prices throughout 2007 and 2008, Federal Reserve (2009) introduced several programmes to stabilize the housing market. More significantly, it established a program to purchase mortgage backed securities that were guaranteed by Fannie Mac and Freddie Mac, the two government sponsored enterprises. However Geanakoplos (2010) argues that leverage and lending standards are influenced by capital structure of the firm. Nevertheless, IMF (2009) argues that African banks are vulnerable to contagion effects arising from the high rate of foreign ownership of banks in several countries which has consequently affected housing securities. On the same vein, Mtango (2008) explains that by any measure, valuations in commercial real estate have been trenching downwards for several years as unemployment continues to climb. This study is therefore set to investigate the effect of inflation and interest rates on mortgage finance offered by Kenyan commercial banks.

1.3 Objective of the Study

To establish the effect of inflation and interest rates on mortgage finance offered by commercial banks in Kenya.

1.4 Value of the Study

The study will not only be useful to the mortgage companies in Kenya but also provide an understanding of the effects of inflation and interest rates on mortgage finance offered by commercial banks in Kenya. This study will be useful to the commercial bank managers who would in turn use it to solve bottlenecks of inflation and high interest rates to ensure survival of the commercial banks in Kenya. This will enable them to tailor their products to customers needs and make wise marketing decisions in the restrained global economy.

The study will be of value to researchers as a basis of future empirical and conceptual research, which will be helpful in refining and validating findings especially when a significant number of experiences is collected and studied. The study will also be of help to the government's regulatory agencies through the ministry of finance and central bank of Kenya in regulating the banking industry in Kenya. The findings will help policymakers to come up with necessary mechanisms to solve future economic challenges.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the past study on inflation rates and interest rates. The specific areas covered here are the theoretical review, conceptual framework, effects of inflation and interest rates on mortgage financing and the empirical review.

2.2 Theoretical Review

A theory is a set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena (Copeland & Weston, 2005). Some of the theories which explain the global financial crisis include: The structural inflation theory, classical theory of interest rates, scapegoat theory of exchange rate and the neoclassical theory of capital flow.

2.2.1 Structural Inflation Theory

About 40 years ago, the concept of structural inflation entered in economic discussion and research. It is related to the effect of structural factors on inflation. Structural analysis attempts to recognize how economic phenomena and finding the root of the permanent disease and destruction such as inflation that evaluates lawful relationship between the phenomena. In the economic structural factor causes, supply increase related to demand-push, even if abundant unemployment production factor is impossible or slow. Avgouleas (2008) reasoning of less developed countries, till the time not successful to change in the form of lagging behind structure or not to make attempt for immediate self-economic growth or should compromise with the inflation that is very severe sometimes. This inflation giving the structural improvement, results as a cost in fact that is given for immediate economic growth. Structuralism, even the group that does not find necessary for changing the present policy foundation for eradicating inflation, with the control of inflation through government intervention in the market structure and also, by adopting decisive plans for justly division of inflation pressure there is no opposition and in fact stress is done on these arrangement (Aglietta and Deussy, 1995).

Rapid and faster growth of the service sector that is related to population growth and immigration is another inflationary factor, which is more emphasized by the structuralism. Remaining structure of distribution network, exclusive quasi and structure some of the developed industry, obstacle structure and heavy cost of works and ten's of other small and big factors additionally to all these structuralism from the aspect of inflationary social policy structure is unaware. It should be noticed that level competition and various society crust for large possession share from National income is one of the main factors of the hidden inflation in the developed investment countries (Azam and Daubreeé, 2007).

2.2.2 Classical Theory of Interest Rate

According to the classical theory, interest, in real terms, is the reward for the productive use of capital, which is equal to the marginal productivity of physical capital. In a money economy, however, as physical capital is purchased with monetary funds, the rate of interest is taken to be the annual rate of return over money capital invested in physical capital assets (Keynes, 2001). According to Keynes (2001), true classical theory of interest rate is the savings investment theory. Basically, the theory holds the proposition based on the general equilibrium theory that the rate of interest is determined by the intersection of the demand for and supply of capital. Thus, an equilibrium rate of interest is determined at a point at which the demand for capital equals its supply.

Demand for capital comes from entrepreneurs who wish to invest in capital goods industries. In fact, demand for capital implies the demand for savings. Investors agree to pay interest on those savings because the capital projects, which will be undertaken with the use of these funds, will be so productive that the returns on investment realized will be in excess of the cost of borrowing, i.e., interest. In short, capital is demanded because it is productive, i.e., it has the power to yield an income even after covering its cost, i.e., interest. The marginal productivity curve of capital, thus, determines the demand curve for capital (Kaminsky and Reinhart, 2000). Increased interest rates discourage the uptake of mortgage facilities because of high costs of financing the loans.

2.4 Empirical Review

The literature concerning the impact of inflation and interest rates on mortgage financing offered by commercial banks is rather scarce. Williams & Nguyen (2005) analyzed the impact of ownership change on bank efficiency in South East Asia between 1990 and 2003

by employing stochastic frontier analysis (SFA) and Fourrier flexible functional form. The results of their research, demonstrate that foreign ownership did not lead to performance improvements at privatized banks. Sufian (2009) investigated the efficiency of the Malaysian Banking Sector during the Asian financial crisis of 1997 by employing first Data Envelopment Analysis (DEA), and then a Tobit model for the period between 1995 and 1999. Some recent empirical studies analyzed the efficiency change of banks and banking groups during the 2000-2001 crises and the restructuring period that followed suit in Turkey Mohamed (2011) conducted a study on the impact of the financial crisis on the global economy. The aim of this paper was to analyze the different measures taken by the G7 and G20 leaders to face the current global financial crisis and to show whether such decisions represent a return to protectionism. The paper proposed the introduction of a new economic system based on Islamic banks' principle which calls for cancelling interests. This line of thinking might solve speculation problems and put this type of crisis to an end. The study established that this financial crisis pushed most developed countries to lower their banking rates and to implement null-approximating interest rates, a move which replicates the principle adopted by Islamic banks.

On the other hand, Erdem, (2010) did a study on Turkish banking system in the face of the global crisis on interest rates. The 2008-2009 crises had no significant impact on the Turkish banking system (TBS), with the TBS achieving a record level of profitability in 2009. The strong position of Turkish banks against the global crisis is attributed generally to the good regulation and risk management in the TBS. The measures implemented by The Turkish Central Bank, and The Banking Regulation and Supervision Agency, e.g. high capital adequacy ratio, played a significant role. But, this judgment does not take into consideration the high profitability and some inefficiency of TBS in his role of financial intermediation. The purpose of this paper was to analyze the TBS's performance in the face of the global crisis. The study compared the measures against the global crisis and the performances of banking systems by public supports to financial sector, measures taken vis-à-vis the crisis, ratios as deposits/loans, loans to non-financial sector and return to assets. The study established that the performance of TBS against the crisis is, to some extent, due to the high profitability and low efficiency in financial intermediation.

Edib & Abbas (2010) conducted a study on the global financial crisis as on inflation rate and its implications for the Islamic financial industry. The purpose of this paper was to review the

evolution of the global financial crisis, draw lessons from it, and analyze its effect(s) on the Islamic financial industry (IFI). Based on an extensive literature review, this paper aims to highlight, explain, and discuss the implications of the global financial crisis for IFI and suggest necessary steps for the future development of the industry. The study established that although the crisis had limited impact on IFI the major flaws of the capitalist financial system are relevant to the development of IFI. Without learning and applying the lessons from the crisis, IFI runs a risk of committing the same mistakes. Finally, greater attention should be given to the fundamental principles of Islamic finance in order to ensure the future development of industry.

Ersoy (2009) conducted a study on the impact of the global financial crisis on the efficiency of foreign banks in Turkey. The study empirically searched for the impact of the global financial crisis on the technical efficiency of foreign banks in Turkey. To estimate stochastic frontiers and to predict bank-level technical efficiencies relative to the estimated frontier, a Cobb-Douglas Stochastic Frontier Production Function is used for the period of 2002-2008. The study also estimates the bank specific determinants of technical inefficiencies of commercial banks in Turkey using a single equation of the Frontier model proposed by Bacchetta and Wincoop, (2009). The results of the empirical research suggest that the ranking of commercial banks in terms of technical efficiency as state-owned, private domestic and foreign did not change during the crisis. The technical efficiencies of foreign bank subsidiaries, despite a decrease in 2007, are even closing the gap with private domestic commercial banks. The technical efficiency of state-owned banks, in contrast to both domestic and foreign private banks, continued to increase during both 2007 and 2008. The foreign bank subsidiaries have much higher technical efficiency scores compared to foreign bank branches, which have the most volatile efficiency scores. The technical efficiencies of commercial banks have a high, positive and statistically significant relation with the asset size.

The global financial crisis appears to be hitting Kenya in both the short and long terms. The most immediate impact has been the depreciation of the Kenya shilling relative to the US dollar. The shilling fell 3 per cent in September and another 9 per cent in October. From an exchange rate of approximately 65 to the dollar for much of 2008, the shilling briefly fell as low as 79 to the dollar in late October. Close observers attribute the change to speculation as to what economic conditions abroad will mean for Kenya in the longer term.

Ng'ang'a, (2012) conducted a study on global Financial Crisis and Remittances: The Case of Kenya. The objective of this paper was to investigate the impact of the global financial crisis on remittances in Kenya. The global financial crisis of 2008-2009 had various channels of transmission to Kenya and one of them was through remittances. However, the study found that data from the Central Bank of Kenya shows that remittances from the Diaspora only reduced for the first six months of 2009 after which they started rising though not at the same rate as before. After that remittances have taken an upward trend and they comprise a sizable proportion of Kenya's Gross Domestic Product (GDP). Remittances have been shown to smoothen consumption (food) on the part of recipients. Recipients also use the remittances to pay for health services, built new houses, improve old ones, buy livestock and buy other household assets. The data shows that only a very small proportion of remittances in Kenya is used for improvement of land though Kenya is an agricultural country. With the looming debt crisis in the Euro zone, the future of remittances in Kenya looks bleak unless the crisis is sorted out fast.

2.5 Summary of Literature Review

A review of selected research reveals a tendency by most authors to focus on the effects of inflation and interest rates on mortgage financing by commercial banks in Kenya. Tschoegl (2003) study on how foreign banks generally emerge during the recovery phase of the crisis in the developing countries leave the country in the coming decades as domestic banks grow more rapidly, does not give indication on whether the foreign banks offer mortgage finance or not. Dymski (2007) study on the impact of the Asian crises on the Malaysian banking system and found out that the foreign banks with more of a regional focus suffered as much as domestic banks during the crisis but the others did not. This study did not show how the crisis affected financial performance of commercial banks offering mortgage finance in Malaysia.

Williams & Nguyen (2005) studied and analyzed the impact of ownership change on bank efficiency in South East Asia between 1990 and 2003 by employing stochastic frontier analysis (SFA) and Fourrier flexible functional form. The results of their research encompassed the crisis period and demonstrated that foreign ownership did not lead to performance improvements at privatized banks. This study did not show how ownership change would affect the financial performance of commercial banks offering mortgage finance in South East Asia. The study also did not describe how the crisis leading to

ownership change would affect financial performance of privatized banks in offering mortgage finance in South East Asia. Sufian (2009) investigated the efficiency of the Malaysian Banking Sector during the Asian financial crisis of 1997 by employing first Data Envelopment Analysis (DEA), and then a Tobit model for the period between 1995 and 1999. The empirical analysis showed that the technical efficiency of banks deteriorated rapidly a year after the crisis and that foreign banks by recapitalization exhibited a higher degree of efficiency vis-à-vis domestic banks. This study focused on technical efficiency but did not indicate on the effect of financial performance on commercial banks offering mortgage in Malaysia and further in Kenya, following the 1997 financial crisis in Malaysia. Ng'ang'a, (2012) conducted a study on global Financial Crisis and Remittances: The Case of Kenya.

Scholars have not carried out any research on the relationship between inflation and interest rates on mortgage financing and as such this study seeks to address this existing knowledge gap. The objective of the paper therefore will be to investigate the impact of inflation and interest rates on mortgage financing by commercial banks.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the study design to be applied on the study population will be identified and a description provided of how data will be collected and analyzed. The section comprises of the following sections research design, target population, data collection instruments, and data collection procedure and data analysis.

3.2 Research Design

This study was carried out through a descriptive and correlation study research design. According to Cooper & Schindler (2003), a study design is descriptive when it is concerned with why and how a variable produces change in another, and cross sectional if it is done at only one point in time or over a short period, collecting of data pertaining to the variables in a population or sample is done at a point in time. The design has the ability to allow for data collection, analysis and reporting within the prescribed duration for academic purposes. This study employed this type of design because its purpose is to make an evaluation to establish whether relationship exists among some quantitative variables namely interest rate, rate of return on asset (ROA), rate of return on equity (ROE), and profit after tax (PAT).

3.3 Target Population

The target population for this study was ten commercial banks in Kenya offering mortgage finance during the years 2008-2012 as shown in Appendix II. Since the commercial banks were few the researcher to carried out a census study consisting of all the commercial banks offering mortgage finance hence no need for sampling.

3.4 Data Collection Instruments

This research relied on secondary data hence the researcher considered annual reports and financial statements of the commercial banks offering mortgage finance in Kenya. The financial statements and annual reports disclosed the amounts of non-performing mortgage loans over the period under study. The Kenya economic survey report was key in disclosing information about trends in inflation rates and interest rates.

The annual reports and financial statements of commercial banks were downloaded from their respective websites. Copies of the economic survey reports during the period of the crisis were obtained from the Kenya National Bureau of statistics. The data in relation to ROA, ROE and PAT was obtained from the banks' annual financial statements after conducting document analysis. The financial statements were also available at the Capital Market Authority (CMA) library. The data about average annual interest rates was obtained from the central Bank of Kenya (CBK). Between the year 2005 and 2012. The Central Bank Rate (CBR) was also used as the proxy for interest rates.

3.5 Data Analysis

First level data quality checks was done at the collection level, while secondary level quality checks was done at data entry level. Development of ranges skip and fill rules accompanied by validation checks with all possible means of data cleaning was used to meet the assumptions of the analytical techniques employed. After collection, data was coded into the Statistical Package for Social Sciences (SPSS version 17) for analysis. In addition the researcher used both descriptive and inferential statistics to analyze the data. In descriptive statistics, the researcher used means and standard deviation. Regression analysis was used to establish the effect of inflation and interest rates on mortgage financing by Kenyan commercial banks. Means shall be calculated to show the average interest rates, ROE, ROA, and PAT over the years. Standard deviations were used to show the extent to which ROE, ROA and PAT varied among the firms, and the extent to which interest rates differed over the years. Interest rate was expected to affect borrowing and the rate of loan performance, savings and loan repayment(level of bad-debts).All these influenced banks' earnings(PAT), in addition, earnings was the major component in the computation of ROE and ROA.

3.5.1 Analytical Model

A multivariate linear regression model was used to explain the relationship between inflation and interest rates on mortgage loan uptake in Kenya. Interest rates and inflation rates impact were considered to impact mortgage financing in Kenyan commercial banks significantly.

The multivariate regression model was;

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

Where Y is uptake of Mortgage loans of commercial banks as shown by the amount of advanced mortgage loans.

β_0 is the Y-intercept, β_1 and β_2 are regression coefficients,

X_1 = Inflation rates,

X_2 = Interest rates and ϵ is an error term.

ϵ = Error term which explains other factors not captured in the model that affect variable Y such as deflation and government policies.

The analytical model was used to test statistical significance of the variables under study.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis of data collected from the financial statements and annual reports of commercial banks which offered mortgage finance in Kenya. The researchers managed to obtain information for all the 10 banks. The research sought to establish the effect of inflation and interest rates on mortgage finance offered by commercial banks in Kenya.

4.2 Data Analysis and Presentation

The researcher extracted the published annual reports and financial statements of the commercial banks offering mortgage finance in Kenya from their respective websites. The financial statements and annual reports disclosed information on Profits after Tax (PAT), Return on Assets (ROA), Return on Equity (ROE) and mortgage loans advanced over the period under study year period. Information on interest rates and inflation rates was obtained from the Central Bank of Kenya (CBK) and the Capital Markets Authority (CMA). The information was coded and entered into the Statistical Package for Social Sciences for analysis. Both descriptive statistics and inferential statistics were run to determine the effect of inflation and interest rates on mortgage finance offered by commercial banks in Kenya.

4.2.1 Descriptive Statistics

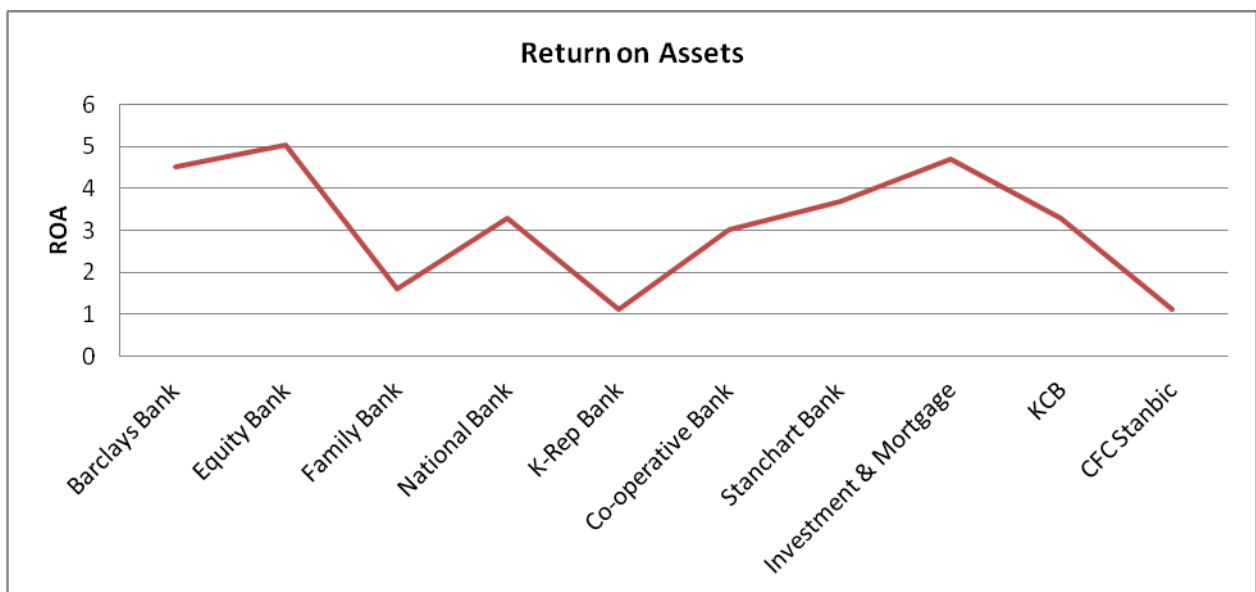
The mean and standard deviations for the net profit after tax and the actual dividends paid out were run. Analysis was done for both the composite variables and individual variables respectively.

4.2.1.1 Return on Assets (ROA)

There was a notable fluctuation in ROA over the five year period with both high and low ROA being registered for a majority of the banks. Barclays bank registered ROAs of between 3.3 and 6.1. Equity bank registered ROAs of between 4.8 and 5.5, Family bank ROAs of between 1.4 and 1.9, National bank ROAs of between 1.1 and 4.4, K-Rep bank ROAs of between 0.4 and 2.1, Cooperative bank ROAs of 3.0, Stanchart bank ROAs of between 3.3 and 4.1, Investment and Mortgage Bank ROAs of between 3.6 and 5.8, KCB ROAs of between 2.9 and 3.7. On the other hand CFC Stanbic bank registered ROAs of between 0.03 and 2.1.

On average means of between 1.1 and 5.04 were registered in terms of ROAs for commercial banks offering mortgage finance in Kenya. Majority of the banks registered low (less than 4) ROA over the five year period attributable to high interest rates and high inflation rates which increase the costs of operations hence investments in assets attracts low returns. The ROAs indicate the overall financial performance of the commercial banks in terms of the returns due from investing in assets. Standard deviations of between 0.09636-.94585 were also registered. The high standard deviation indicates that there was great disparity in financial performance (ROA) over the five year period. The findings are as shown in Figure 4.1.

Figure 4.1 Return on Assets



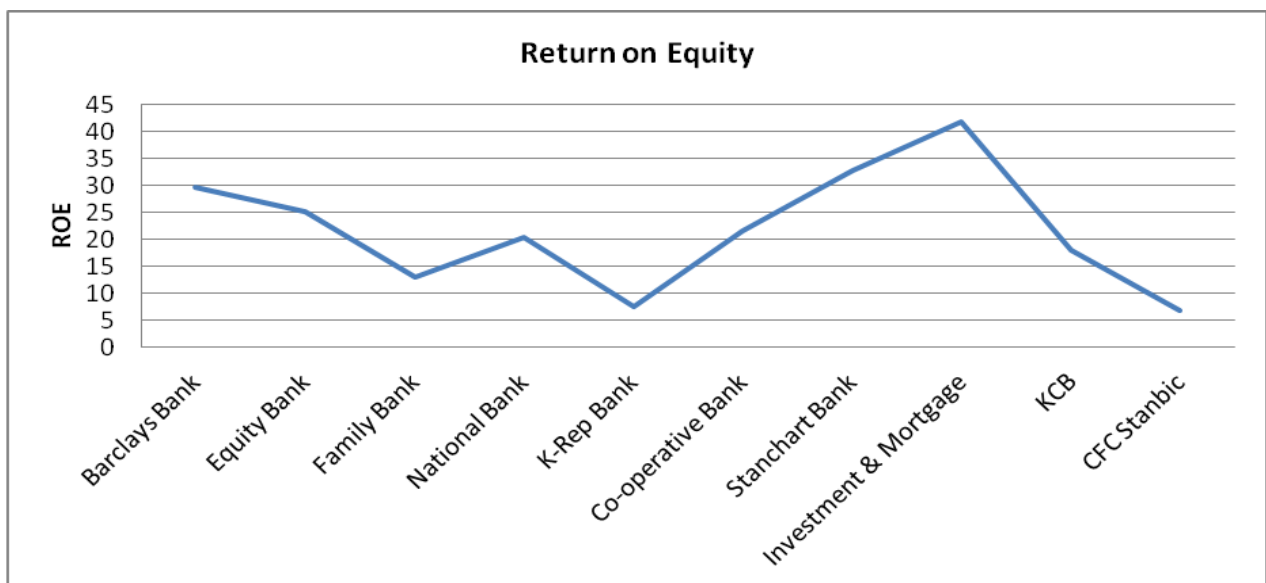
Source: Research Findings

4.2.1.2 Return on Equity (ROE)

Further the research findings revealed that was a notable fluctuation in ROE over the five year period with both high and low ROE being registered for a majority of the banks. Barclays banks registered ROEs of between 25.2% and 33.7%. Equity bank registered ROEs of between 20% and 27.9%, Family bank ROEs of between 10.7% and 18.1%, National bank ROEs of between 6.9% and 27.3%, K-Rep bank ROEs of between 3.4% and 12.8%, Cooperative bank ROEs of between 17% and 26%, Stanchart bank ROEs of between 30% and 33%, Investment and Mortgage Bank ROEs of between 35.6% and 52.8%, KCB ROEs of between 18.0% and 24.8%. On the other hand CFC Stanbic bank registered ROEs of between 0.18% and 12.73%.

On average means of between 6.8% and 41.8% were registered in terms of ROEs for commercial banks offering mortgage finance in Kenya. Majority of the banks registered low (less than 50%) ROE over the five year period attributable to high interest rates and high inflation rates which increase the costs of operations hence investments in equities attracted low returns. This therefore implies that shareholders claim on profits generated over the past five years for a majority of the commercial banks in Kenya was low. Standard deviations of between 0.03733- 0.98463 were also registered. The high standard deviation indicates that there was great disparity in financial performance (ROE) over the five year period. The findings are as shown in Figure 4.2.

Figure 4.2 Return on Equity

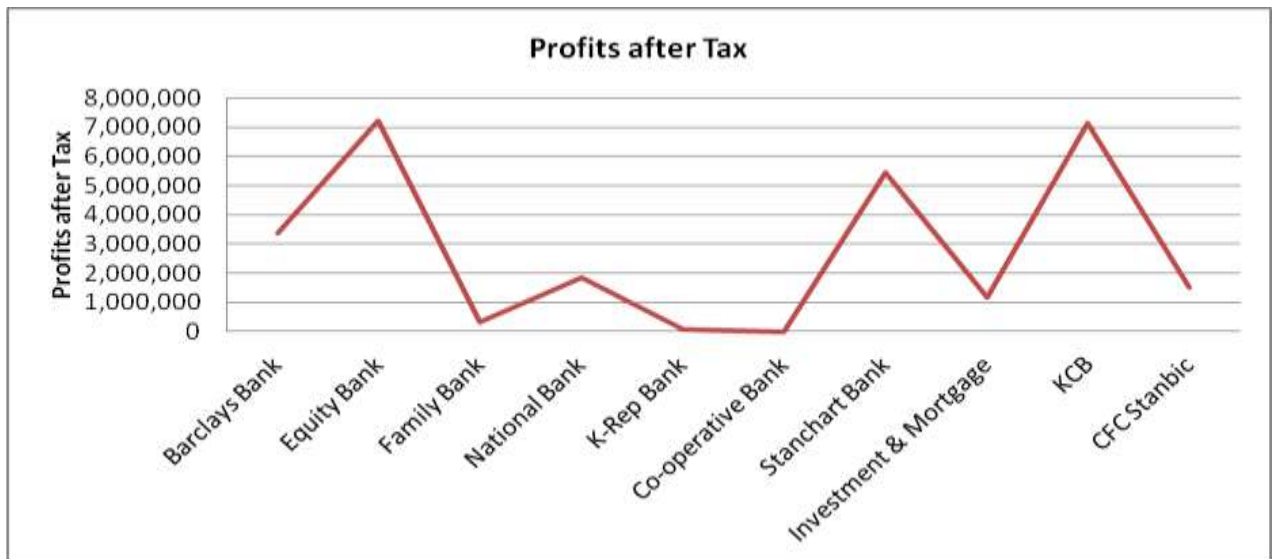


Source: Research Findings

4.2.1.3 Profit after Tax (PAT)

There was a notable increase in profit after tax over the five year period for a majority of the commercial banks offering mortgage finance. KCB, Stanchart and Equity bank registered the highest profits after tax respectively over the five year period. On the other hand K-Rep bank and Cooperative bank registered the lowest profits after tax of the five year period. The findings are as presented in Figure 4.3.

Figure 4.3 Profits after Tax

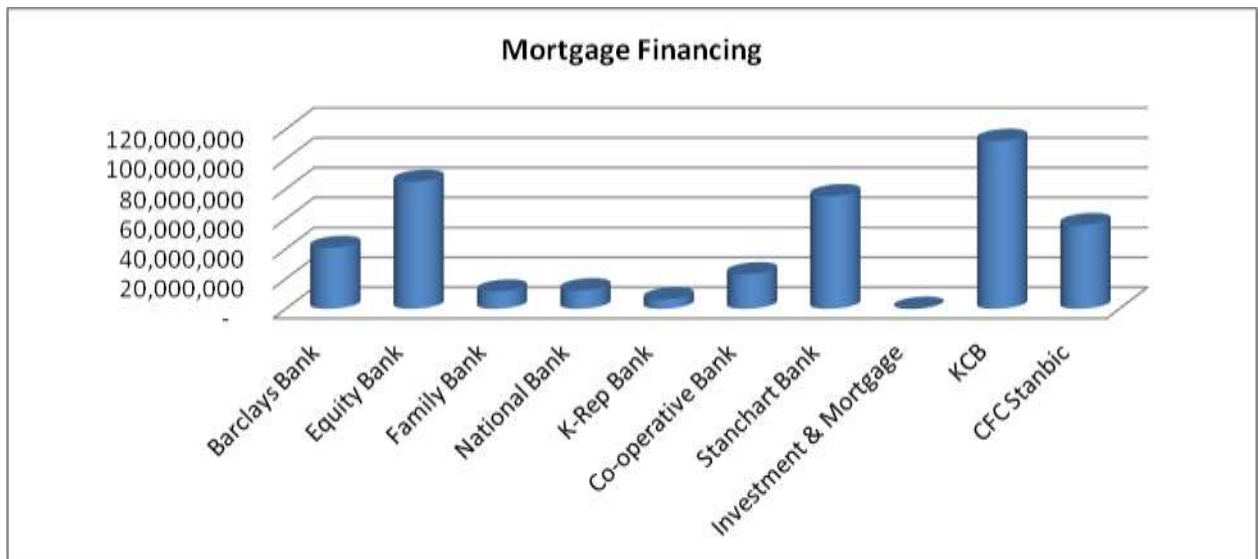


Source: Research Findings

4.2.1.4 Mortgage Financing (“000”)

There was a fluctuation on mortgage financing for a majority of the banks under study for the five year period. Majority of the banks registered a sharp decline in mortgage financing during the period 2008-2010. This could be attributable to global financial crisis faced during that period. The global financial crisis greatly affected the inflation and interest rates which critically influence mortgage uptake. Mortgage finance performance started regaining after the years 2011-2012. KCB registered the best performance in mortgage financing represented by Shs. 112,243,200. Equity bank followed at Shs. 84,858,814 and Stanchart bank at Shs. 75,285,103. On the other hand, K-Rep bank registered the lowest mortgage finance uptake at Shs. 53,222. The findings are as shown in Figure 4.4.

Figure 4.4 Mortgage Financing



Source: Research Findings

4.2.1.5 Inflation Rate

Average inflation rates kept fluctuating over the five year period. The highest inflation rate was registered in the year 2008 at 26.2% and the lowest inflation rate was registered during the year 2010 at 4.1%. The high inflation rate was caused by the high food and fuel prices witnessed during the year 2008. During the year 2009 an average inflation rate of 10.5% was registered. This was occasioned by reduction in fuel and food prices. During the year 2010, inflation was contained within the government’s target of 5.0%. The average annual inflation was 4.1% in 2010 down from a high of 10.5% recorded in the year 2009. The decline in inflation rate was mainly on account of: Favorable weather which led to low food prices emanating from improved agricultural, competition between the financial service providers which led to reduction in inflation rates.

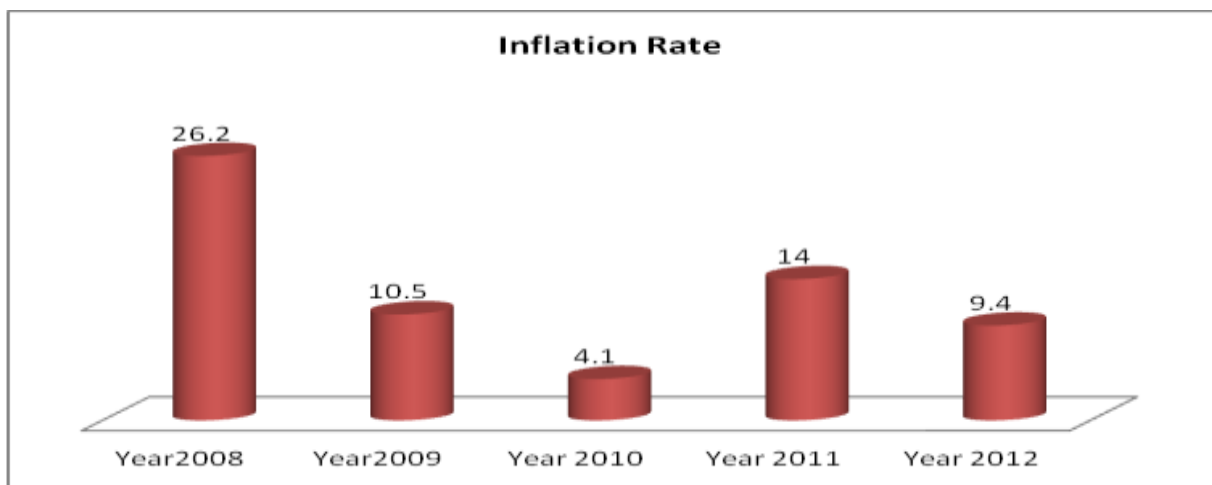
Annual inflation increased to 14.0% in 2011 from 4.1% in 2010. The rise in inflation was mainly on account of: sharp increase in oil prices, inadequate rainfall in the first half of the year which pushed prices of staple foods upwards, weakening of Kenya shilling against major currencies. Annual inflation decreased from 14.0% to 9.4% in 2012. The decline was largely attributed to better food supply resulting from favorable weather conditions. The findings are as presented in Table 4.1 and Figure 4.5.

Table 4.1 Inflation Rate

Year	Inflation Rate (%)
2008	26.2
2009	10.5
2010	4.1
2011	14
2012	9.4

Source: Research Findings

Figure 4.5 Inflation Rate



Source: Research Findings

4.2.1.6 Interest Rate

Further the research findings revealed that average interest rates for mortgage loans advanced kept declining over the five year period. Average interest declined from 19.67% in the year 2008 to 14.0% during the year 2012. The findings are as shown in Table 4.2 and Figure 4.6.

Table 4.2 Interest Rates

Year	Interest Rate (%)
2008	19.67
2009	15.05
2010	14.36
2011	14.8
2012	14.0

Source: Research Findings

Figure 4.6 Interest Rates



Source: Research Findings

4.2.2 Regression Analysis

The research study wanted to establish the effect of interest and inflation rates on mortgage financing by commercial banks in Kenya for the period 2008 -2012. The research findings indicated that there was a very strong positive relationship ($R= 0.717$) between the variables. The study also revealed that 51.4% of mortgage financing by commercial banks in Kenya. From this study it is evident that at 95% confidence level, the variables produce statistically significant values and can be relied on to mortgage financing by commercial banks in Kenya. The findings are as shown in the Tables 4.3, 4.4 and 4.5.

Table 4.3 Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.717	.514	.417	1.96356

Source: Research Data (2013)

Table 4.4 ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.518	9	.138	.746	.003
Residual	.185	1	.185		
Total	1.702	10			

Source: Research Findings

Table 4.5 Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	584,915.795	1014.358		0.562	.029
Inflation rates	.384	9.291	.717	2.302	.040
Interest rates	.799	.232	.258	1.289	.016

Source: Research Findings

From this study it was evident that at 95% confidence level, the variables produce statistically significant values for this study (high t-values, $p < 0.05$). The results of the regression equation below shows that for a 1- point increase in the independent variables, mortgage financing by commercial banks in Kenya is predicted to increase by 584,915.795, given that all the other factors are held constant. The equation for the regression model is expressed as:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

$$Y = 584,915.795 + 0.384X_1 + 0.799X_2$$

Where

β_1 and β_2 are correlation coefficients

Y= Mortgage financing

X_1 = Inflation rates

X_2 = Interest rates

4.3 Interpretation of Findings

This research sought to establish the effect of inflation and interest rates on mortgage finance offered by commercial banks in Kenya. The researcher managed to obtain information for all the 10 commercial banks offering mortgage financing in Kenya during the period 2008-2012. The research findings revealed that there was a notable fluctuation in ROA over the five year period with both high and low ROA being registered for a majority of the banks. On average means of between 1.1 and 5.04 were registered in terms of ROAs for commercial banks offering mortgage finance in Kenya. Majority of the banks registered low (less than 4) ROA over the five year period attributable to high interest rates and high inflation rates which increase the costs of operations hence investments in assets attracts low returns.

Further the research findings revealed that was a notable fluctuation in ROE over the five year period. Means of between 6.8% and 41.8% were registered in terms of ROEs for commercial banks offering mortgage finance in Kenya. There was a notable increase in profit after tax over the five year period for a majority of the commercial banks offering mortgage finance. KCB, Stanchart and Equity bank registered the highest profits after tax respectively over the five year period. Majority of the banks registered a sharp decline in mortgage financing during the period 2008-2010. This could be attributable to global financial crisis faced during that period. The global financial crisis greatly affected the inflation and interest rates which critically influence mortgage uptake. Mortgage finance performance started regaining after the years 2011-2012. The highest inflation rate was registered in the year 2008 at 26.2% and the lowest inflation rate was registered during the year 2010 at 4.1%. Further the research findings revealed that average interest rates for mortgage loans advanced kept declining over the five year period. Average interest declined from 19.67% in the year 2008 to 14.0% during the year 2012.

The inferential statistics revealed that there was a strong positive relationship ($R= 0.717$) between the variables. The study also revealed that 51.4% of mortgage financing in Kenya could be explained by the prevailing inflation and interest rates. From this study it is evident that at 95% confidence level, the variables produce statistically significant values and can be relied on to explain mortgage financing in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the study, discussions and conclusions. The researcher then presents the major limitations of the study and the recommendations for both the research and for the policy and practice.

5.2 Summary

This research sought to evaluate the effect of inflation and interest rates on mortgage finance offered by Kenyan commercial banks. A descriptive and correlation research design was adopted where all banks which offered mortgage finance in Kenya between the period 2008-2012 formed the population. This population was given importance due to easy accessibility of information. This research relied on secondary data which was collected from the commercial banks financial statements and annual reports from their websites and the CMA library. Information on mortgage financing and bank financial performance was obtained from published financial statements whereas information on inflation and interest rates was obtained from the CMA library specifically from the Kenyan Economic Survey reports. The researcher managed to obtain information on mortgage from all the 10 commercial banks in Kenya which offered mortgage financing within that period. The average prevailing inflation and interest rates were also established.

The research findings revealed that there was a notable fluctuation in ROA over the five year period with both high and low ROA being registered for a majority of the banks. On average means of between 1.1 and 5.04 were registered in terms of ROAs for commercial banks offering mortgage finance in Kenya. Majority of the banks registered low (less than 4) ROA over the five year period attributable to high interest rates and high inflation rates which increase the costs of operations hence investments in assets attracts low returns. Further the research findings revealed that there was a notable fluctuation in ROE over the five year period. Means of between 6.8% and 41.8% were registered in terms of ROEs for commercial banks offering mortgage finance in Kenya. There was a notable increase in profit after tax over the five year period for a majority of the commercial banks offering mortgage finance. KCB, Stanchart and Equity bank registered the highest profits after tax respectively over the five year period.

Majority of the banks registered a sharp decline in mortgage financing during the period 2008-2010. This could be attributable to global financial crisis faced during that period. The global financial crisis greatly affected the inflation and interest rates which critically influence mortgage uptake. Mortgage finance performance started regaining after the years 2011-2012. These findings are in line with the findings of Tschoegl (2003) who contends that during the recovery phase of the global financial crisis domestic banks tend to perform better in terms of mortgage financing. In the recent past, the banking sector in Kenya has experienced numerous challenges ranging from economic depression to bank failures. The major cause of financial problems has been directly linked to lax in credit standards for borrower, poor portfolio risk management, failure to respond to changes in economic environment and competitive climate (CBK Annual supervision report 2011).

The highest inflation rate was registered in the year 2008 at 26.2% and the lowest inflation rate was registered during the year 2010 at 4.1%. Further the research findings revealed that average interest rates for mortgage loans advanced kept declining over the five year period. Average interest declined from 19.67% in the year 2008 to 14.0% during the year 2012. According to Dobson (2002) when the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money. When the purchasing power of money decreases people shy away from taking up mortgages because they fear they will end up paying more. Low interest rates and large inflows of foreign funds create easy credit conditions for mortgage financing. The combination of easy credit and money inflow contributed to the United States housing bubble. Loans of various types (for example, mortgage, credit card, and auto) were easy to obtain and consumers assumed an unprecedented debt load (Benos, 2004).

According to Obama (2010), the global financial crisis which plagued the housing industry in the last decade can be largely traced to the interaction of a rising and variable rate of inflation with two major institutional features which have characterized the financing of housing in the United States in the post war period. On the same vein, Alexander (2002) point out that inflation has unfavorable effects on the demand for houses financed by mortgages. In addition Graffy (2008) points out that inflation and the anticipation of its continuation tends to raise interest rates, including mortgage rates by an inflation premium needed to compensate the lender for the anticipated erosion in the purchasing power of his claim.

According to Graffy (2008), the rise in interest raises the annual payment needed to acquire a house of a given value. Alexander (2002) further explains that high interest rate and resulting annual payment do not per se change the real cost of acquiring a house in that they are offset by the gain to the debtor resulting from gradual decline in purchasing power of his debt and his annual payment. Nonetheless, Avery *et al.*, (2006) argue that the rise in interest rates resulting from inflation has an important effect on the time profile of the stream of constant purchasing power. On the same vein, Avery *et al.* (2006) posit that whereas in the world of constant prices these payments are constant over the life of the mortgage, the inflation included increase in interest rates result in an increase in the level of real payment in early years of the contract with a commensurate reduction in the later years. Besides, Avery *et al.* (2005) further explain that in the world in which the household's ability to meet the annual payment is constrained by its current income (there being no significant opportunity for second mortgages and the like) the increase in the annual payment in the early years of the contract is bound to have an unfavorable effect on the demand for housing by forcing many households to postpone or forgo home ownership or scale down their demand.

The inferential statistics revealed that there was a strong positive relationship ($R= 0.717$) between the variables. The study also revealed that 51.4% of mortgage financing in Kenya could be explained by the prevailing inflation and interest rates. From this study it is evident that at 95% confidence level, the variables produce statistically significant values and can be relied on to explain mortgage financing in Kenya. This complements the findings of Ding, Lei, Roberto, Janneke and Wei (2008) who mention that there has been a tendency to assume that inflation is detrimental to a lender, but is good for the borrower and has a favorable impact on housing demand.

5.3 Conclusion

From the study findings, it would be safe to conclude that inflation and interest rates have a positive effect on dividend payout of commercial banks in Kenya. The conclusion is supported by the study findings which showed that there was a strong positive relationship ($R= 0.717$) between the variables. The study also revealed that 51.4% of mortgage finance uptake in commercial banks in Kenya could be explained by inflation and interest rates. From this study it is evident that at 95% confidence level, the variables produce statistically significant values and can be relied on to explain mortgage finance uptake in Kenya.

However, interest rates impact more on mortgage finance uptake than inflation rates hence people tend to take up mortgages which attract small interest rates over a given period of time. Low uptake of mortgages has a negative effect on the GDP of the country in the sense that banks which contribute significantly to the Kenyan economy are negatively impacted on their performance.

5.4 Recommendations for Policy and Practice

With due regard to the ever increasing desire to have better mortgage finance uptake for commercial banks in Kenya, there is need to invest in proper mortgage financing strategies so as to meet these expectations. This should be done in a manner in which all the stakeholders are happy. This therefore calls for embracing proper financing practices which are acceptable, accessible, ethically sound, have a positive perceived impact, relevant, appropriate, innovative, efficient, sustainable and replicable.

The management of commercial banks should ensure that interests charged on mortgage facilities are competitive in the market so as to attract consumers of this product. The government should enact legislation which regulates the inflation and interest rates in the banking industry so as to protect the interests of both consumers and lenders in the market. This legislation should ensure that banks issue reasonable charge affordable interest rates to their customers. The government should also enforce monetary and fiscal policies through the Central Bank of Kenya (CBK) so as to regulate money supply in the market.

5.5 Limitations of the Study

Since the research was to rely mostly on secondary data, obtained online, from published end of year accounts of financial statements, the researchers encountered many challenges particularly during the process of data collection. Most of the financial statements were obtained online from the various reliable search engines such as Google and Yahoo. The search for the information was a bit time consuming due to slow network on the search sites such as google.co.ke.

The information posted by some banks was insufficient enough to facilitate the research. It even required the researchers to calculate some of the data. This is because some banks never disclosed the actual interest rates charged on mortgage finance as they feared that the information might be used by competitors to disadvantage them.

The study findings were also limited to the research approach used. If another research design would have been adopted the findings would have been different.

5.6 Suggestions for Further Studies

Arising from this study, the following directions for further research in finance are as follows: First, this study focused on commercial banks which had offered mortgage financing and therefore, generalizations cannot adequately extend to other non-bank organizations which offered mortgage financing. Future research should therefore focus on all organizations which offered mortgage financing in Kenya.

A broad based study on inflation and interest rates on financial performance of both private and public institutions should also be carried out to give a broader picture on the same.

Further research should consider the impact of the global financial crisis on mortgage financing by lending institution and their general performance.

REFERENCES

- Aalbers, M.B. (2008): "The financialization of home and the mortgage market crisis", *Competition & Change, Vol. 12 No.2, pp.148-66.*
- Avgouleas, E. (2008): "Financial Regulation, Behavior Finance, and the Financial Credit Crisis in Search of a New Regulatory Model"
- Azam J-P and C. Daubréé (2007): "Bypassing the State" *Economic Growth in Kenya, 1964- 90. OECD.*
- Balassa, B. (1961): "The Theory of Economic Integration" *Limits and Prospects, Allen and Unwin, London, .*
- Benos, N. (2004): "Education policies and economic growth," *Department of Economics, University of Cyprus, Working Papers in Economics 4-2004*
- Berger, A (1995): "problem loans and cost efficiency in commercial banks", office of the controller of currency *economics and policy analysis working paper; pp95.*
- Brenner, R. (2006): "The Economics of Global Turbulence," *The Advanced Capitalist Economies from Long Boom to Long Downturn, 1945-2005 Verson, London,*
- Brooks, R., Simon, R. (2007): "Subprime debacle traps even very credit-worthy", *Wall Street Journal, Vol. December 3 pp.A1.*
- Brooks, R., Simon, R. (2007): "Subprime debacle traps even very credit-worthy", *Wall Street Journal, Vol. December 3 pp.A1.*
- Bruggeman, W.B., Fischer, J.D. (2008): "Real Estate Finance and Investments" McGraw Hill-Irwin, New York, NY, Vol. 13th ed. pp.297-302.

Capozza, D.R., Kazarian, D., Thomson, T.A. (1998): "The conditional probability of mortgage default", *Real Estate Economics*, Vol. 26 No.3, pp.359-89.

Carlin, W., Mayer, C. (2003): "Finance, investment and growth", *Journal of Financial Economics*, Vol. 69 pp.191-226.

Burnes, B., (1998): "Managing Change: A Strategic Approach to Organization Dynamics", *Pitman Publishing, U.K.*

Bruggeman, W.B., Fischer, J.D. (2008): "Real Estate Finance and Investments" McGraw Hill-Irwin, New York, NY, Vol. 13th ed. pp.297-302.

Bruggeman, W.B., Fischer, J.D. (2008): "Real Estate Finance and Investments" McGraw Hill-Irwin, New York, NY, Vol. 13th ed. pp.297-302.

Capozza, D.R., Kazarian, D., Thomson, T.A. (1998): "The conditional probability of mortgage default", *Real Estate Economics*, Vol. 26 No.3, pp.359-89.

Carlin, W., Mayer, C. (2003): "Finance, investment and growth", *Journal of Financial Economics*, Vol. 69 pp.191-226.

Central bank of Kenya (CBK) publications:

i) *Bank supervision annual reports (2003, 2006, and 2007)*

ii) *Monthly economic reviews (2005, 2007 and 2008)*

Chapra, U.M. (2002): "The Future of Economics" *Islamic Perspective, Islamic Foundation, Leicester.*

Charles P. Kindleberger and Robert Aliber (2005): "Manias, Panics, and Crashes" *A History of Financial Crises, 5th ed. Wiley, ISBN 0471467146.*

Chow, Y.F., Huang, C., Liu, M. (2000): "Valuation of adjustable rate mortgages with automatic stretching maturity", *Journal of Banking and Finance*, Vol. 24 No.11, pp.1809-29.

- Cipriani, M., and Guarino, A. (2008): "Herd Behavior and Contagion in Financial Markets" *The B.E. Journal of Theoretical Economics* 8(1) (Contributions), Article 24, pp. 1-54.
- Cooper, D.R & Schindler, P.S (2000): "Business Research Methods. New York: Mc
 Copeland, T E., and Weston, J. F (2005): "Financial theory and corporate policy"
 Boston. Pearson Addison Wesley.
- Daly, H. (2008): "Credit crisis, financial assets and real wealth", *The Oil Drum, October 13*, [http:// www.theoil Drum.com/node/4617](http://www.theoil Drum.com/node/4617)
- Deng, Y., Quigley, J., Order, R.V. (2002): "Mortgage terminations, heterogeneity and the exercise of mortgage options", *Econometrica*, Vol. 68 No.2, pp.275-307.
- Dickey, D.A., Fuller, W.A. (1998): "Likelihood ratio statistics for autoregressive time series with a unit root," *Econometrica*, Vol. 49 pp.1057-72.
- Dymski, G.A. (2007): "From financial exploitation to global banking instability- two overlooked roots of the subprime crisis", *University of California Center Sacramento, Sacramento, CA, working paper*, .
- El-Agraa, A.M. (2001): "The European Union - Economics and Policies," *Prentice Hall Publishing, Macmillan, London*, .
- Ferguson, N. (2008): "Full Marx", *Financial Times, No.17-18 August*, .
- Fratzscher, M. (2001): "Financial market integration in Europe: on the effects of EMU on stock markets", *International Journal of Finance and Economics*, forthcoming, also published as *ECB Working Paper 48*, .
- Financial times, November (2007): "the USA subprime crisis".
- Gramlich, E.M. (2007): "Booms busts: the case of subprime mortgages", *Economic Review*, Vol. 92 No.4, pp.105-13.

- Griffith-Jones, Stephanie, and José Antonio Ocampo (2009): "The Financial Crisis and its Impact on Developing Countries", Working Paper 53, International Centre for Inclusive Growth (IPC-IG), Brasilia.
- Hand, D. J.(1986)"New instruments for identifying good and bad credit risk" *A feasibility study report of trustee saving bank, London*
- Hill, C.W.L. & Jones, G.R (1999): "Strategic Management Theory, an Integrated
- Ibañez, D.M. (2009): "Banks, credit and the transmission mechanism of monetary policy", *ECB Research Bulletin, No.8*,
- Immergluck, D. (2009): "Re-forming Mortgage Markets- Sound and Affordable Home Lending in a New Era", *Cornell University Press, Ithaca, NY*,.
- International Monetary Fund (2009): "The Implications of the Global Financial Crisis for Low-Income Countries", (Washington: IMF).
- Joint Centre for Housing Studies (2008): "The State of the Nation's Housing", Harvard University, Cambridge, MA, pp.20.
- Justin Lahart (2007): "Egg Cracks Differ In Housing, Finance Shells". *Wall Street Journal*
- Kallis, G., Martinez-Alier, J., Norgaard, R.B. (2009): "Paper assets, real debts: an ecological-economic exploration of the global economic crisis", *critical perspectives on international business, Vol. 5 No.1/2, pp.14-25*.
- Kilonzo S (2008): "Global financial crisis: its impact on Kenya and possible strategies to mitigate the effects" *Capital markets authority journal*.
- Kimeu, T (2008): "Credit risk management techniques on unsecured loans of commercial banks in Kenya", Unpublished MBA project UON.

Kindleberger, C .P., and Aliber, R. (2005): “Manias, Panics, and Crashes: A History of Financial Crises”, 5th ed. Wiley, ISBN 0471467146.

Keasey, K., Hudson, R. (2007): "Finance theory: a house without windows", *Critical Perspectives on Accounting*, Vol. 18 pp.932-51.

Kraatz, M.S., Zajac, E.J. (1996): "Exploring the limits of the new institutionalism: the causes and effects.

APPENDICES

Appendix I: Letter of Introduction

July, 2013

Commercial Bank offering Mortgage Finance

P.O Box,

Nairobi.

MBA RESEARCH PROJECT

I am a student at the University of Nairobi pursuing a Masters of Business Administration program.

Pursuant to the pre-requisite course work, I would like to conduct a **Survey on the Effects of the inflation and interest rates on Mortgage Finance offered by Commercial Banks in Kenya**. The focus of my research will be commercial banks offering mortgage finance and operating in Nairobi and this will involve use of questionnaires administered to staff members of the management team.

I kindly seek your authority to conduct the research at your company through questionnaires and use of any other relevant documents. I have enclosed an introductory letter from the University. Your assistance is highly valued.

Thank you in advance.

Yours faithfully,

Meshack Bett

MBA student

Appendix II: List of Commercial Banks Offering Mortgage Finance

1.	Barclays Bank
2.	Equity Bank
3.	Family Bank
4.	National Bank
5.	K-Rep Bank
6.	Co-operative Bank
7.	Stanchart Bank
8.	Investment & Mortgage
9.	KCB
10.	CFC Stanbic

Appendix III: Descriptive Statistics for Return on Assets (%)

Bank	2008	2009	2010	2011	2012	Mean	Std. Dev
Barclays Bank	3.3	3.7	6.1	4.9	4.4	4.5	.09636
Equity Bank	4.9	4.8	4.9	5.5	5.1	5.04	.27928
Family Bank	1.5	1.6	1.9	1.4	1.8	1.6	.20736
National Bank	4.4	4.2	4.5	2.3	1.1	3.3	.52480
K-Rep Bank	0.4	0.5	0.6	1.9	2.1	1.1	.82765
Co-operative Bank	3.0	3.0	3.0	3.0	3.0	3.0	0.132
Stanchart Bank	3.3	3.8	3.8	3.6	4.1	3.7	.29496
Investment & Mortgage	3.6	4.4	5.8	4.1	5.6	4.7	.94585
KCB	2.9	3.2	3.9	2.9	3.7	3.3	.45730
CFC Stanbic	0.7	0.03	1.28	1.22	2.1	1.1	.77079

Source: Research Findings

Appendix IV: Descriptive Statistics for Return on Equity (%)

Bank	2008	2009	2010	2011	2012	Mean	Std. Dev
Barclays Bank	27.1	25.2	33.7	32.4	29.5	29.6	.54500
Equity Bank	20	25.4	26.2	27.9	25.8	25.1	.98463
Family Bank	12.3	11.9	12.5	10.7	18.1	13.1	.88097
National Bank	26	27.3	27.2	14.8	6.9	20.4	.20342
K-Rep Bank	3.4	3.9	4.4	13	12.8	7.5	.94267
Co-operative Bank	17	18	22	25	26	21.6	.03733
Stanchart Bank	32	39	30	33	30	32.8	.70135
Investment & Mortgage	35.7	44.1	52.8	41.04	35.6	41.8	.11523
KCB	20	18.5	18.0	24.8	22.9	18.0	.27029
CFC Stanbic	4.16	0.18	7.22	9.51	12.73	6.8	.83403

Source: Research Findings

Appendix V: Profits after Tax (“000”)

Bank	2008	2009	2010	2011	2012
Barclays Bank	23,628	23,397	26,025	8,112,637	8,740,703
Equity Bank	3,910,283	4,321,873	7,131,325	9,773,857	10,996,839
Family Bank	219,943	220,895	390,999	354,604	561,459
National Bank	2,150,325	2,159,441	2,697,823	1,546,113	729,752
K-Rep Bank	25,945	35,953	50,639	173,366	196,078
Co-operative Bank	2,374	2,968	4,580	5,363	5,714
Stanchart Bank	3,250,813	4,732,754	5,376,191	5,836,821	8,069,533
Investment & Mortgage	967,490	1,769,017	2,421,192	(934,407)	1,712,344
KCB	1,240,610	4,083,871	7,177,973	10,981,046	12,203,531
CFC Stanbic	846,593	35,928	1,787,368	1,838,992	3,009,891

Source: Research Findings

Appendix VI: Mortgage Financing (“000”)

Bank	2008	2009	2010	2011	2012	Mean
Barclays Bank	108,086	104,204,29 5	99,072,495	93,543	87,147	40,713,113
Equity Bank	122,410,01 3	106,486,36 7	78,301,921	72,902,021	44,193,749	84,858,814
Family Bank	17,868,745	7,675,806	16,332,359	5,689,272	10,208,136	11,554,864
National Bank	28,068,218	28,346,668	1,621,114	2,302,655	1,414,100	12,350,551
K-Rep Bank	69,533	36,821	76,191	50,813	32,754	53,222
Co-operative Bank	52,908,543	62,274,194	90,965	114,101	116,509	23,100,862
Stanchart Bank	44,857,772	114,534,98 7	58,016,010	97,417,343	61,599,405	75,285,103
Investment & Mortgage	6,754,243	5,252,438	6,754,243	5,754,541	6,954,783	6,294,050
KCB	1,092,375	1,621,114	211,664,22 6	148,113,36 4	198,724,91 9	112,243,20 0
CFC Stanbic	44,661,305	64,256,754	66,149,841	45,840,448	58,984,961	55,978,662

Source: Research Findings