EFFECTS OF MACRO-ECONOMIC VARIABLES ON MORTGAGE LOAN UPTAKE
IN SELECTED FINANCIAL INSTITUTIONS IN NAIROBI CITY COUNTY, KENYA

BY

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DECLARATION
This is my original work and has not been presented to any other institution of higher learning.

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REG. NO: D53/OL/CTY/24048/2014 sign date

This research project was submitted with my approval as the university supervisor.

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DEDICATION

I dedicate this work to my father Newton Wadiaga, mum Tabitha, Wife Consolata and children Newton and Rose. Also siblings Berrick, Beatrice, Monica, Elly, Debra, Nelson and Sharon for their support in the journey of developing this document.
ACKNOWLEDGEMENT

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ABSTRACT

The demand for housing in Kenya is immense and driven by a growing population and urbanization. Growing economic prosperity has also increased the demand for housing. This means that while there is an absolute shortage, and a growing one for housing in urban centers in Kenya, consumers do not have the means to satisfy the need for housing especially in town centers as financing is restricted by macroeconomic variables which converge to frustrate these unmet needs for housing. Vision 2030 cites housing and facilitation of the mortgage sector as one driver of the economic growth. This study therefore, sought to determine the effects of macro-economic variables on mortgage uptake. The specific objectives of the study were; To measure the effects of taxes incentive changes on mortgage uptake; to examine the effects of per capita income changes on mortgage loan uptake; To evaluate the effects of interest rate changes on mortgage loan uptake; To examine the effects of inflation rate changes and examine effect of exchange rate changes on mortgage loan uptake. The study adopted descriptive research design and descriptive statistics, correlation analysis and regression analysis as analytical tools with application of SPSS. The study was conducted in selected mortgage lender institutions of Housing Finance Corporation of Kenya and Kenya Commercial Bank in Nairobi City County. The target population was their employees in Credit department and the target area was all their branches in the four zones of Nairobi of Nairobi North, Nairobi East, Westland, and Nairobi West. 120 employees from Credit sections were selected using clustering and stratified sampling 72 from KCB and 48 from HFCK each from the two lenders. Both primary and secondary data were used in the study. Primary data was collected using open-ended questionnaires and closed ended questionnaires. The response rate was 82 of the 120 respondents sampled returned the questionnaire representing about 70 percent. The drop and pick method, posting of questionnaires was used to administer questionnaires. Secondary data included all the relevant literature from KNBS, World Bank reports, Central Bank of Kenya reports, financial and economic journals, seminar papers, books, Annual Economic Survey Reports and internet sources. The data was analyzed using descriptive statistics and inferential statistics. The research finding indicated that per capita income changes, inflation rate changes and mortgage interest rate changes have significant influence on mortgage loan uptake. While changes in tax incentives and foreign exchange rate changes has no significant influence on mortgage loan uptake. The study recommends as way of increasing mortgage loan uptake by the larger population of Kenya. That financial institution to be innovative by going for alternative financing options like covered bonds, credit swaps, REITS and securitization of mortgages to rope in more finances both locally and internationally to support the mortgage industry growth. The government agencies like Central Bank of Kenya, Kenya Revenue Authority and Nairobi Securities Exchange to facilitate through necessary legislation, incentives to encourage more players to join the industry both as suppliers and users in this industry. Further research should be carried on impact of urbanization on mortgage demand, government involvement on mortgage sector and effects of land reforms in encouraging growth in this sector.
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<td>Adjustable Rate Mortgage</td>
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>CBR</td>
<td>Central Bank Rate</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>FRM</td>
<td>Fixed Rate Mortgage</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HFCK</td>
<td>Housing Finance Company of Kenya</td>
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<td>HOSP</td>
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OPERATIONAL DEFINITION OF TERMS

Exchange rate
The rate of exchanging the currency of a country

Inflation rate
Inflation generally denotes a rise in the general level of prices. Inflation is measured by the consumer price. Index (CPI) which is the weighted average of the cost of as standard basket of goods and services bought by the average consumer

Interest rates
Is the cost of borrowing funds especially loans. with that of other country.

Loan to value ratio:
The relationship expressed as a percentage of the mortgage loan amount to the appraised value or the sale prices of the property.

Mortgage:
Loan secured by the collateral of some specific real estate property that allow home buyers to spread out the cost of the home over several decades by making reasonable monthly payments mortgages vary widely in terms of their interest rates and overall cost.

Per Capita income
It’s the gross domestic product of a nation expressed in Kenyan Shillings divided by the number of population of a nation

Real gross domestic product (GDP)
Real GDP is a measure of the market value of goods and services produced in a country in the course of one year adjusted for inflation. Its obtained by dividing overall GDP by the total population of the economy. An increase is indicate a rising income while a drop signal falling income.

Taxes
These are levies on citizen by the government to provide public goods and services.
CHAPTER ONE
INTRODUCTION

1.1 Introduction
This chapter forms the introductory part of this research project discussed under the following subheadings; background information to the study problem, statement of the problem, objectives of the study, significance of the study, scope and limitations of the study.

1.2 Background of the Study
Mortgages are important for households, financial institutions and for macroeconomic stability. Mortgages are a major fraction of banks assets, despite financial innovation that allow banks to securitize mortgage pool in a global finance. The global debt problem that began globally in 2008 has made it abundantly clear that problems in mortgage lending have the potential to destabilize the financial systems and economies of nations. The activities of borrowers in terms of what inform their mortgage loan uptake in light of macro-economic variable have made for great research and debate in the world of academia and specifically finance and economics. Many studies tend to generate different reasons that explain the mortgage loan demand and the factors there of that influence these. Size of Kenyan mortgage market is Kshs 91.4 billion, number of mortgage loans is 20000 units (KNBS, 2015). The average loan size is Ksh 4 million, typical interest rate charged by lenders is 14 percent. The number of mortgage lenders is 35, mortgagee as a proportion of credit in Kenya is 15 percent, mortgage debt as proportion of GDP is 2.5 percent. Estimated size of mortgage market is kshs700 billion while, annual housing need is about 150000 units. The estimated housing production is 40,000 units, number of houses needed over next 10 years is greater than 2.19 million units (Central Bank, 2009). The urban population in 2014 is 1 in 4, urban population in 2050 is expected to be 1 in 2, total population who can afford mortgage 2.4 percent and the urban population who could afford mortgage 11 percent (World Bank, 2011).

Gesimba (2012) show that lending is done by banks of the 52 banks. Housing Finance Company of Kenya (HFCK) which still has a government investment of 7 per cent is one of the remaining mortgage finance company at present. The largest lender in Kenya is Kenya Commercial Bank (KCB) (Appendix III) (World Bank, 2011).
Kenya Bank Associations Housing Price Index (HPI, 2015) found that 49 percent of potential home owners plan to acquire houses without borrowing from banks. Mortgage rates charged by banks stood at between 13 percent and 24 percent by (CBK, 2015), given the CBK bank reference rate stood at 10 percent. The HPI index also found that the average monthly repayment needed to buy an apartment in an upmarket Nairobi neighborhood stood at Kenya shillings 140,000 per month. The average income of a Kenyan worker middle class is 27,000 shillings per month. Banking data indicates that there are some 20,000 active mortgages in the Kenyan market which has a population of 42 million (KNBS, 2015).

The mortgage industry as at December 2012, the total mortgage book was Ksh. 91.2 billion and comprised 16,135 mortgage loans. During the period the average loan size rose from Ksh. 4.1 million to Ksh. 6.6 million. CBK(2009) attribute this to an increase in property prices due to high level of inflation and interest rates in 2011 and 2013. There was also shift in trends towards variable rate mortgage (ARM) from fixed rate mortgage (FRM) due to volatility in interest rates.

According to World Bank (2015) housing market in Kenya is the largest in the region (East and Central Africa) and is the third largest in Sub-Saharan Africa after South Africa and Namibia business. The Housing Finance Company of Kenya (HFCK) is only remaining mortgage finance company at present. There are no major differences in the regulations applying to the two types of institutions and they each compete on a level playing field. The largest mortgage lender in Kenya is Kenya Commercial Bank (KCB). Overall the two institutions control over half the market and only banks (6 large, 2 medium and 1 small bank) have a mortgage portfolio exceeding Kshs 1 billion.(CBK,2009)

1.2.1 Macro economic variables

1.2.1.1 Interest rates Changes
Most research have focused on role of market condition in influencing the choice of lenders by credit consumers. This is the supply side of economics while little study has been done on the demand side of economics with regard to the influence and effects of macroeconomic variables on mortgage loan uptake. Himmelberg, Mayer, and Sinai (2005) explaining the increasing mortgage loan demand show that low interest rates substantially boosted housing demand and prices. However, skeptics of an especially strong role for interest rates include Glaser and
Gyourko (2008) and Greenspan (2010). However, economist are far from reaching consensus on whether interest rate fluctuation affect mortgage loan uptake.

On Glaser et al (2012) in their research on cheap mortgage on housing boom in USA argue that if buyers in low-interest rate environment anticipate having to sell their homes in periods with higher rates, the link between current interest rates and housing mortgage loan demand is weakened. They further argue that interest rate change have no dramatic effects on demand for mortgage loan. Interest rates in the larger macro-economic environment affect the lending rates by financial institution which in turn affects the mortgage loan uptake. Mortgage loan consumers are faced with the option of ARMs and FRMs. In case of FRM only the inflation rates affect the payments; a higher inflation rate reduces the real value of outstanding debt and hence the real value of the payment home owners have to make. The strength of this effect increases with inflation persistence, amplifying the redistribution in favor of mortgagee which make FRM attractive. In the case of ARM, the short-term nominal interest rates also matters. effect of higher inflation. As a result, mortgage payments increase as if monetary policy had a control over the short-term real interest rate. Over time, however, the cumulated effect of persistently higher inflation becomes stronger, gradually reducing the real value of the payments (Campbell and Cocco, 2003).

A study by Di Maggio, Kermani and Ramcharan (2014) provides some empirical prediction model on behaviour of consumers of mortgage loan in response to changes in interest rates. It find that home owners respond more to interest rate change in ARMs than FRMs especially those who are financially constrained. The factors that affect short-term interest rates include the monetary policy, government fiscal policy taxation, inflation and demand for capital. Monetary policy is used by Central Bank to control the supply of money in the economy. This is in effect control money available to lending institutions, to create credit to the public. When supply of money in the economy is low then interest rates are expected to be high and vice versa.

The fluctuation money supply growth by CBK may lead to high interest rates. Under public expenditure policy the government finances all expenditure in the economy (public sector). In budget deficit, the government is forced to borrow from the local markets. This affects the supply of money in the economy which again affects the trend of interest rates; credit becomes expensive due to “crowding out effect”. Mortgage loanee under such macroeconomic
environment stays away from financial market. Inflation causes long-term interest rates to raise making borrowing in the long-term for risky assets like house be expensive and risky. This negatively affects demand for mortgage loans. But the theory of short-term interest rates on demand for mortgage loan is only applicable in a market where there is volatility in interest rates. Hence it doesn’t provide satisfactory explanation on markets that have stable interest rates in the short-term and long-term periods, hence not conclusive in explaining mortgage loan uptake.

1.2.1.2 Per Capita Income Changes
The 2008 debt crisis in USA showed that mortgage loan decision can have huge impact on the financial situation of a household and financial market. Households normally find themselves with mortgage loans that exceed the home value because of falling house prices. Others are struggling to make their mortgage payments due to falling per capita income which lead to serious financial problems, or bankruptcy. Gerardi et al (2013) demonstrated that borrowers with high loan values relative to per capita income and house value or adjustable rate mortgages are more likely to experience problems servicing their mortgage. Stafford et al (2012) have shown that US households allocate too much of their household income to mortgage payment in times when the labour market is performing well and have prices appreciate. Their studies above only look at the “income risk” in relation to mortgage uptake in relation to macroeconomic variable.

Campbell and Cocco (2012) argue that “wealth risk” is an important factor in mortgage loan uptake. In the event of payment problems, negative housing equity will lead to selling house at price insufficient to repay the outstanding mortgage loan balance. However they (Campbell and Coco) used interest-only mortgage which exclude the other types of mortgage such as investments, amortization, endowments, etc. this is inconclusive as far as income and wealth variables affects mortgage loan uptake. In another study focused on effect of per capita income on mortgage uptake Lacour-little (2007) indicate low and moderate-income borrowers are more likely to take mortgage loan if it has less down payment and low credit-score requirements or features. However his study was unable to explain why these loans were characterized by big loan to value (LTV) ratios. A research by Fang and Jie (2008) showed that the Chinese real estate market has made a significant progress since 2008 as a result of the growing per capita income of the citizens. Research publication by Thomas (2009) suggests that USA presents a best
example of a country who enlarging economy was rapidly fuelling demand for housing loan through escalation of industrial employment that has led to increasing per capita income.

1.2.1.3 Tax Incentives Changes
Taxes are compulsory levy on citizens by government to facilitate public service provision. Taxation as fiscal policy tool by the treasury have a great macroeconomic impact on mortgage loan uptake. Van Ooijen (2016) argue that countries that have interest paid mortgage loans tax deductions and which translates into substantial tax refunds have higher mortgage loan uptake. The refunds depends on factors such as marginal tax rate, meaning that its benefit rise with income and mortgage principal. His work was based on survey of Dutch households. Mian et al (2013) in their study of effects of mortgage tax on mortgage loans in Norway and using the data from wealth survey finds that Norway has a tax system that favours housing over asset. The lenient taxation of housing is mentioned as one of the reasons for high demand for housing mortgage loans (World Bank, 2012). However theoretical literature on taxation of housing generally recommends neutrality of taxation (Mirrlees et al, 2011), out of consideration both for fairness and efficiency. In optimal tax theory, the principle of production efficiency says that taxation should not discriminate between input factors (Auerbach and Hires, 2002) low housing taxation leads to spike in demand for mortgage loans. Mian et al(2013) paper did not look at the feedback effects of taxation on housing prices.

Keightley (2009) in his study of effects of tax benefits on home ownership/ mortgage loans finds that the effect is limited. He argues that the effect on mortgage loan demand depends on interaction between the supply and demand for rental housing and supply and demand for owner-occupied housing. Garriga and Schlangenauf (2009) examining the facts that best explain the increase in mortgage loan demand over the last decade, finds that the most influential factor was innovation in the mortgage markets, not tax policy. allowing more households to purchase a home. Therefore there is no compelling argument based on research that shows significant impact of tax changes on mortgage loan demand hence need for further research.

1.2.1.4 Inflation Rate Changes
Inflation is persistent increase in prices for abroad range of commodities (Gallagher, 2011). Inflation is measured by the changes in the Consumer Price Index (CPI) which measures the retail prices of goods and services purchased by households (Liow, Ibrahim and Huang, 2005). It is theoretically expected that the higher the inflation rate the higher the house price and therefore
the lower the mortgage loan uptake. Martinez and Maza (2003) did a study on inflation rates changes in Spain and found out that there was a negative relation between inflation increase and mortgage loan uptake. Empirical studies done locally include, Muli(2011) studied the relationship between property prices and mortgage lending in Kenya. regressions. Their result suggests that the increasing inflation negatively affects the mortgage loan uptake. Notable economist like Foote et al (2012), emphasize over optimistic expectation about the future path of house prices during the USA pre-2008 for mortgage loan demand and housing boom. Mayer et al (2009) argue that government subsidy and looser underwriting standards increased the motivation by borrowers to take mortgage loans. However the studies were unable to provide an explanation for low demand for mortgage loan in African continent despite fairly low inflation rate over time especially in Botswana.

1.2.1.5 Exchange Rate Changes
In order to reduce the exchange rate risk, banks in emerging markets are typically denoting their loans in foreign currencies. In an economy where foreign-currency loans are a dominant source of financing economic activity, depreciation of the local currency establishes a negative feedback mechanism that leads to higher default probabilities and plunge in mortgage loan demand. Luca and Petrova (2008) suggest that increases in banks’ access to foreign currency deposits will lead them to offer more foreign currency mortgage loans. At macroeconomic levels, households will be more likely to request foreign currency mortgage loans if the interest rate differential between local currency and foreign currency credit is high and the volatility of the exchange rate is low. Low credibility of domestic monetary policy make banks reluctant to lend in local currencies, especially at longer maturities like mortgage loan. Roseberg and Tripark (2008) however argue that wholesale foreign currency funding of banks in Eastern Europe is not the key driver of foreign currency dominated loans mortgage. But a growing need by the larger Eastern Europe nations government formerly communist blocks, to encourage mortgage/ house ownership through subsidies and tax incentives for their citizens.

1.2.2 Mortgage loan uptake in Kenya
Mortgage industry in Kenya dates back in 1965 when housing finance was incorporated. Its main goal was to carry out government’s policy of promoting home ownership. In 1992 it offered part of it’s equity to public and also became a quoted company in stock exchange (www.housing.co.ke). Mortgage lending in Kenya is dominated by commercial
banks. As at December 2013 at least 25 banks were offering mortgage loans. Housing Finance is the only mortgage finance institution. Mortgage market in Kenya presents a case of highly concentrated market given that only 5 out 44 banks control at least 70% of the total mortgage market. These institutions are Kenya Commercial Bank, Housing Finance, CFC Stanbic Ltd, Standard Chartered Bank, and Cooperative Bank of Kenya (www.housingfinanceafrica.org). Variable rate mortgage is preferred by most providers as opposed to fixed rate mortgage. Therefore, the adverse effects of macroeconomic environment have a negative effect on the mortgage rate. According to the (CBK report, 2013) as at December 2013 the total mortgages in Kenya stood at approximately 20,000.

However, even though mortgage is seen as a major avenue for home ownership, Kenyan market presents a dynamic phenomenon in that majority of the home owners have financed their homes through avenues such as SACCOS, microfinance institutions personal savings and home loans as opposed to mortgage loans. The mortgage market in Kenya is therefore underdeveloped with a lot of untapped potential. Mortgage lending has been left to commercial banks thus restraining growth in this sector. This is due to the fact that commercial banks rely on short term deposit to finance long term lending. Since commercial banks practice risk management on short term funds it has resulted to high mortgage rates to borrowers (Murithi, 2014).

1.2.3 Financial institution in mortgage industry

1.2.3.1 Kenya commercial Bank Group

Kenya commercial banks originated from National bank of India which opened a branch. In Mombasa in 1896 with the aim being handling the business generated from the port during that time there was a merger between National Bank of India and Grindlays Bank giving rise to national Grindlays Bank. The government of Kenya acquired 60 percent shareholding in NGB and firming up its shareholding in 1970 which lead to renaming of NGB to Kenya commercial bank which was now fully owned by the government of Kenya. Saving and Loan Kenya Ltd was acquired by KCB in 1972 a wing specializing in offering mortgage loans to clients. The government offloaded 20 percent of ownership in 1988 via initial public offer at Nairobi stock exchange. The governments shareholding has been on reducing trend in the company until 2010 when the government reduced the shareholding to 17.31%. KCB started moving into the East African region in 1977 with the establishment of KCB Tanzania limited. in 2006 may KCB increased its subsidiaries to two following the licensing of KKCB south sudan. in 2007 they
ventured in Uganda and in 2008 they entered the Rwandese market. In 2012 they ventured in Burundi and Ethiopia in 2015. In addition it owns, KCB Capital, KCB foundation and KCB Insurance. Its mortgage subsidiary is savings and Loan Limited.\(http:\text{www.kcbbankgroup.co.ke}\).

1.2.3.2 Housing Finance Company of Kenya

The company was incorporated in November 1965 as per the banking act. The founding shareholders were the common wealth development corporation with 60 percent shareholding and government with 40 percent. The government increased shareholding to 50 percent in 1970 and in 1984 it completed phase five of Buru Buru estate with a total of 4789 units.

In 1992, the company offered part of its equity to the public and became a quoted in Nairobi Stock exchange, with 39.2% offered to Kenyan institutional and individual investors, and government of Kenya each retaining 30.4%. Shareholding recently stood at 3.66% government, 24.85% Equity Bank Limited, 12.37% Equity Nominees Ltd, 8.86% BAICL.

In 2010, Housing Financing Corporation Kenya successfully raised kshs 7 billion bond capital and additional kshs 5 billion.

1.3 Statement of the Problem

The mortgage market is a critical sector to the financial markets and the economy. Its performance is affected by changes in macroeconomic factors. Mortgage debt is especially in developed nations the largest form of credit. It can be viewed as the demand for one particular type of debt instrument. As such, the demand for mortgage debt is one of many possible equations that explains households demand for asset and liabilities. Household choose assets and liabilities that maximize their wealth. The particular holdings they choose depends on the costs of the debt instrument (interest rate charged), the tax associated with the various assets and liabilities. Household decisions are also affected by per capita income growth in future and wealth constraints; for example, the purchase of a home requires some minimum down payment. Chambers, Gariga and Schlagenhauf (2009) argue that as income and wealth rise while the cost of financing falls and house prices are unchanged, marginal households move from renting to home ownership. Interest rate is dependent on money-supplying by monetary authorities and fiscal policies driven by the treasury. This also has implication on per capita income-growth and hence houses spending on house loans. Increased government spending through subsidy can
trigger demand for housing. Housing demand in developing countries is influenced by macro-economic variable that also affect the larger business environment. These macroeconomic variables include mortgage taxation, per capita income levels, inflation and prevailing interest rates. The demand for housing in Kenya is immense and driven by a growing population and urbanization. The demand for residential and commercial houses in Kenya increased after the central bank cut its benchmark interest rate eight time between 2008 and 2011 to help boost economic growth. But the mortgage market is still growing. While the growth rate in mortgage loans has been rapid at, just under 50 percent since 2006 and has been growing steadily at 14 percent annually, the loan portfolio remains small. The mortgage loan to GDP is just 2.5 percent why?.

Locally, study by Ndirangu (2004) investigated the effect of mortgage interest rates on mortgage loan demand indicated that falling interest rate have greatly increased demand for housing loans. But his study was not able to explain dramatic drop in demand for mortgage by the population in 2013 and thereafter despite reduction of interest by central bank in that period. Kilonzo (2003) in his study of the effect of changes in interest rates on credit granted by commercial banks, in Kenya from 1992 to 2002 used regression analysis to indicate an inverse relationship between the level of interest rates and the amount of credit granted by commercial banks. He observed that when interest rates increase, the amount of credit granted by commercial banks to their customers decrease while the interest rates decline, the amount of credit granted by commercial banks increases. His research findings led to a conclusion that interest has a weak correlation to the demand for mortgage credit. Leonard and Owiti (2013), when investigating the determinants of mortgage uptake in Kenya, used the regression analysis on the capital market variables as his independent variables and they found out that the capital market variables negatively affected the mortgage uptake. The study was limited because few mortgage companies are listed in the stock exchange. This uncertainties lead to the need to reevaluate the link between housing markets and credit market. Rapport (2016) analyzes the incidence and efficiency loss from mortgage subsidies in a theoretical model with endogenous housing supply. He found that the mortgage interest deduction hurts first-time home buyers by increasing house price. While he is unable to quantify the effect on house ownership, he finds that the mortgage interest tax deduction generates efficiency losses by increasing households leverage and distorting allocation of credit.
Keightley (2009) in his study of effects of tax benefits on mortgage loans finds that the effect is limited because the deductions are not well targeted towards the group of potential home buyers in most in need of assistance – first-time buyers and low income households. In Kenya income tax law makes specific provisions for home ownership saving plan (HOSP) and the amount saved. In another Kenyan study; Oduor, Karingi and Mwaura (2011) in their study tried to illuminate the point on interest rates effects on mortgage loan demand is largely minimal. Instead mortgage uptake in Kenya is influenced more by other factors such as, income growth, information asymmetry between the borrower and lender, value of the collateral used by the banks to secure the loans, and the house prices. Kenya Bankers Property Index statistical measurements confirm the existence of a negative relationship between changes in house prices and mortgage rates for the Kenyan markets. In Kenya the main source of mortgage financing are the commercial banks. There is limited to none participation by foreign investors. According to study in the USA by Sommer and Sullivan (2016) using stochastic life cycle model they finds that introducing mortgage interest tax deduction increases home ownership and improves overall welfare.

Case and Shiller (2003) on the other hand suggest in their study of housing bubble and boom in USA suggests that home buyers went for mortgage loan in wild expectation of future price appreciation fuelled by inflation. In their survey found that 83 to 95 percent of purchasers in USA in 2003 thought that prices would rise by an average of around 9 percent per year due to expected increase in general prices. Chen and Winter (2011) argue that inflation may have a substantial impact on risk-sharing and household saving rate but also mortgage loan demand. Boamah (2009,2011) argues that a stable currency is an essential ingredient for a successful mortgage market. He also noted that resident Ghanaians have been priced out of the mortgage market by high exchange rate levels and the dominations of mortgages in foreign currencies. However his studies failed to incorporate the impact of the exchange rate fluctuation on citizens whose mortgage loans are dominated by domestic currency and their effects on the debts. It also failed to appreciate the role played by central bank in influencing foreign exchange movements through monetary policies measures.
While these studies give experience in developed world, the same cannot be assumed to be what is happening in developing country like Kenya hence, the need to do further research to find out the effect of house prices changes on attractiveness of mortgage loan as product of consumption. The disconnect between the argument for and against the influences of macroeconomic variable on mortgage loan demand among the policy makers and academician is a cause of concern, a fact which justify the purpose of the research.

1.4 Objectives of the Study

1.4.1 General Objective
The broad objective of the study was to investigate the effects of macroeconomic variables on the uptake of mortgage loans in selected financial institution in Nairobi city county, Kenya.

1.4.2 Specific Objectives
Specific objectives of the study included;

i. To determine the effect of interest rate changes on mortgage loan uptake in selected financial institutions in Nairobi city county?..

ii. To establish the effect of per capita income changes on mortgage loan uptake in selected financial institutions in Nairobi city county?.

iii. To determine the effect of tax incentive on mortgage loan uptake in selected financial institutions in Nairobi city county?..

iv. To examine the effect of inflation rate changes on mortgage loan uptake in selected financial institutions in Nairobi city county?..

v. To examine the effect of exchange rate changes on mortgage loan uptake in selected financial institutions in Nairobi city county?.

1.5 Research Questions

i. What is the effects of interest rate changes on mortgage loan uptake in selected financial institutions in Nairobi city county?.

ii. What is the effect of per capita income changes on mortgage loan uptake in selected financial institutions in Nairobi city county?.

iii. To what extent does changes in tax incentive influence on mortgage loan uptake in selected financial institutions in Nairobi city county?.
iv. How does changes in inflation rate affect mortgage loan uptake in selected financial institutions in Nairobi city county?.

V. What are the effects of exchange rate changes on mortgage loan uptake in selected financial institutions in Nairobi city county?.

1.6 Significance of the Study
The study focused on the effects of changing macroeconomic variables on demand for mortgage loans. It will benefit;

1.6.1 Potential mortgagee

to provide information that will enhance decision making on where and when to take mortgage loan with respect to prevailing macroeconomic factors impact on mortgage demand. It also contribute to correct “portfolio reshuffling” in the household on response to policy changes by banks and government in relation to lending rates, tax rebates, growth in money supply and house prices.

1.6.2 Government policy makers

The Kenyan government vision 2030 is to provide a decent house to all citizens. The study highlighted the impact of taxes in achieving this dreams. The influence of taxes on both supply and demand for housing loans. Central bank of Kenya will evaluate their policies related to housing finance sector.

1.6.3 Financial institutions

The study shed light on the importance of tailoring mortgage loans that suit the various income groups in the market place. This will ensure competitive advantage for the concerned banks and firms. It will also inform their marketing strategy and targeting in relation to diversification for increased profitability and growth.

1.6.4 Researchers and scholars

Since the global financial crisis (2008) whose onset was United States. The academic world has been conducting research to either explain the causes of the financial crisis from mortgage loan debt crisis perspective to the immediate and future impact on the global financial stability. The study will add to the body of knowledge gathered so far on the subject.
1.7 Scope of the Study
The overreaching aim of the study was to evaluate the effects of macroeconomic variables on mortgage loan uptake in Nairobi city county. The study examined the employees of Housing Finance Corporation of Kenya and Kenya Commercial Bank credit department in Nairobi City County. HCFK has 5,235 mortgage loans while KCB has 5,091. The mortgagees in Nairobi originated between years 2000 to 2014. A sample of 120 employees (72 from KCB and 48 from HCFK). Secondary data was collected from government agencies and financial institutions through their official records. The focus of the study were the key macroeconomic variables and their effects on mortgage loan uptake. In view of the extent of the study it may be applicable to urban setting.

1.8 Organization of Study
This research project is structured as follows; the chapter one provides the research background research objectives, significance of the study, scope and the limitations that will be encountered in the course of the study. Chapter two presents literature review on the effects of macroeconomic variables on mortgage loan uptake by consumers in selected financial institutions and a conceptual framework. Chapter three deals with the methodology that was employed in the study. Chapter four covers research findings and Chapter five is conclusion, recommendations and areas for further research.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This section focuses on both theoretical and empirical literature on the effects of macroeconomic variable on mortgage uptake or demand by the Kenyan population. The empirical evidence is drawn from Kenya and the rest of the world.

2.2 Theoretical Review
Various theories of interest, taxation and liquidity preferences put together explain or provide variables which determine the effects of macroeconomic variable influence on mortgage loan uptake.

2.2.1 Interest Rate Theory
Fisher (1901) defines interest rate as the price of savings determined by the demand and supply of loanable funds. With assumption of the existence of capital market it’s the rate at which savings are equal to investment. Also he argues that nominal interest rate adjusts fully to the expected rate of inflation leaving the real interest rate unaffected. There is a positive relationship between expected future price increases and nominal interest rate. An increase in price increases the nominal value of trade resulting to an increase in demand for money leading to an increase in nominal interest rate. However, the theory has been subjected to a lot of criticism by the Keynesian on the ground that it is indeterminate since the levels of income increase can shift to the right of the saving and investment schedule; therefore increasing interest rates.

2.2.2 Keynesian Liquidity Preference Theory
The theory according to Keynes (1936) postulates that the rate of interests is determined by the intersection of the supply-schedule of money and demand-schedule for money (liquidity presence schedule). This the theory explains that the rate of interest is determined at a point where the liquidity preference curve equals the supply of money curve. If money supply is increased by the monetary authorities but the liquidity presence curve remains the same, the rate of interest will fall. However, if the demand for money increases and the liquidity presence curve shifts upwards given the supply of money, the rate of interest rises. The theory has been criticized on the ground it’s indeterminate. The liquidity presence schedule will also shift as
income level changes and not just money supply changes, therefore unless the income level is known; the demand and supply curve of money cannot tell us what the rate of interest will be.

\[(M/P)y = L_1(Y) + L_2(r) \ldots (5i)\]

OR

\[(M/P)y = L(Y, r) \ldots (5ii)\]

Figure 2.1: Keynesian liquidity curves

The value of money is determined by intersection of the money supply as controlled by the central bank, and money demand as created by consumers (mortgage loan demand figure 2.1. depicts the money market is an economy). The money supply curve is vertical because central banks set the amount of money available without consideration for the value of money. The money demand curve slopes downward because as the value of money decreases consumers are forced to carry more money to make purchases because goods and services cost more money (Cochrane, 2005). Similarly, if the value of money is high, consumers demand little money because goods and services can be purchased for low prices. In fig 2.2. depicts the money market in an economy when there is no change in supply of money and shift to the right of money demand curve. The interest rate falls (I1) and consumers realize there is drop in cost of borrowing hence ask for credit like mortgage loans (increases). in the long-run the money demand curve shift to the right leading to increase in interest rates (I2).

2.2.3 Optimal Tax Theory

According to Ramsey (1927) and Mirrless (1971), the standard theory of optimal taxation posts that tax system should be chosen to maximize a social welfare function subject to a set of constraints. It’s assumed that everyone in society has the same preference over, say consumption and leisure. The social planners goal is to choose tax system that maximizes the representative
consumer welfare, knowing the consumer will respond to whatever incentives the tax system provides the optimal tax is simply a lump-sum tax. Absent any market imperfection, it is best not to distort the choices of that consumer at all. But lump-sum tax is rarely used because it falls equally on the rich and poor, placing a greater relative burden on the later. Therefore the social planner has to come to grips with heterogeneity in tax payers’ ability to pay. Mirrlees (1971) suggested a formalized way to deal explicitly with unobserved heterogeneity among tax payers individuals differ in their innate ability to earn income if the planner taxes income, mortgage/ house capital gain in an attempt to tax those of high ability, individuals will be discouraged from exerting as much effort or taking particular assets (Mortgage houses). The weakness of Mirrless approach is its high level of complexity. Optimal taxation theory is yet to deliver clear guidance on a general system of history dependent, co-ordinated labour and capital taxation for realistically-calibrated economy.

2.2.4 Title theory and Lien theory of mortgages

Some banks retain and treat the mortgage as a title theory. Since the mortgage is said to hold a title interest, she has the right to possession under this theory. Some banks apply a lien theory. This theory only gives the mortgagee a lien interest in the property. In a title theory bank, the mortgage is treated as having transferred title to the mortgage, subject to the mortgagee’s duty to recovery if payment is made. The title is said to remain in the mortgagee until the mortgage has been satisfied and foreclosed. Although the mortgagee has the right of possession to the property, there is generally an express agreement giving the right of possession to the mortgagor. The mortgagee is said to hold the title for security purposes only. The mortgagor is given the right of possession. In a lien theory bank, the mortgagor retains legal and equitable title to the property, but conveys an interest that the mortgagee can only foreclose upon to satisfy the obligation of the mortgagor. This is equivalent to a future interest in the property which allows the mortgagee to use the process of foreclosure. The interest is a security interest or mortgage, which forms a lien on the property. In this theory the right to possession arises upon a default. The mortgagor has a right to sue the mortgagee for any interference with his right of possession (Buckley & Kalarickal, 2004). This is the theory used in Kenya by the mortgage institutions and commercial banks. In Kenya, commercial banks issuing mortgage products and other mortgage financing institutions use the Lien theory and this allows the customers to assume ownership of the property as soon as they acquire the mortgage. This assumption of ownership allows
customers to have the right to transfer the property to a third party and pay-off the mortgage in a lump-sum amount in case of a more profitable deal. It can therefore be argued that this theory adopted in Kenya is more attractive to customers and can be used by firms to attract more customers and thus grow the mortgage industry.

2.3 Empirical Review

2.3.1 Mortgage Interest Rates Changes and Mortgage Loan Uptake
Global mortgage demand in early 2000s were explained by cheap credit and global “saving gluts” which led to low real interest rates (Himmelberg, Mayer & Sinai, 2009). Others dispute that low interest rates caused huge demand prior to financial crisis occasioned by housing mortgage (Khandani, Lo & Merton, 2009) argue loosening of credit constraints combined with reduction in downpayment costs account for much of the recent boom. Also Greenspan (2010) dispute interest rate argument but provide a counter point to the argument that agency conflicts within mortgage securitization programs contributed to the issuance of significantly risk mortgage loans. Glaeser, Gyourko, & Saiz (2008) showed that the mode of housing supply provides additional reason why interest rate do not have huge effect, at least in some markets. If supply is highly elastic in the relatively short run, then house prices should be pinned down by fundamental production costs. In that case, any demand shifter, whether interest rate-related or not, simple engenders sufficient new production to keep prices from rising. Another mechanism muting the impact of higher rates is that buyers may anticipate the ability to access lower rates in the future via refinancing. As long as buyers also anticipate the current rates will not remain low (or high) in perpetuity, the interest rate elasticity of house price will be lower.

The Structure of housing finance influence the monetary policy transmission mechanism, as movements in short-term market interest rates affects the choice of ARMs. FRMs borrowers are affected by long-term interest rates and only if rates fall and these borrowers are able to refinance their mortgages (Miles, 2008). Campbell & Coco (2003, 2014) suggest that the spread between the FRM rate and the current ARM rate may be the relevant variable for determining the demand for mortgage loan. According to study by Momach & Gambrah (2001) in Accra, Ghana using survey method on over 200 respondents, they argues that anticipated inflations affects the nominal interest rate charged, leading to high quoted repayments and thus the front-loading of payments to compensate for loss in purchasing power over time even where inflation is unanticipated in high-risk premium. Furthermore, the uncertainty created by the persistent
instability of a currency due to unstable inflation hinders access to external long-term funding, making short-term domestic funding as the only available funding to lend long-term.

Kenya Bankers Property Index statistical measurements confirm the existence of a negative relationship between changes in house prices and mortgage rates for the Kenyan markets. Englund et al (2015) citing experience in Sweden agree the most influential factor affecting the user cost is the real interest rate after tax. Since 1990s the real interest rate on mortgages in Sweden had fallen from 6 to 1 percent, which halved the under costs. This has led to massive uptake of mortgage loans. This concurs with the study that interest rate increase has tampered demand for mortgage. The drop in the interest rates globally has been due to increased savings in emerging economies (like China) following the Asian crisis in 1997, demographic factors(older population with greater propensity to save) and increased income inequality (along share of income went to the richest share of the population , which have a higher propensity to save). Cyclical factors have also contributed to decline in interest rates. the financial crisis and the ensuing slow recovery has led to many central bank policy rate being gradually cut and now lying close to or even below zero.(Armelius etal, 2014).A decline in real interest rate boost demand for mortgage interest rates. the impact of interest rates on housing bubbles is especially strong when they are too low for ‘too long’ (Hott,2012).lower interest rates makes credit cheaper.

2.3.2 Per Capital Income Changes and Mortgage Loan Uptake
Chambers, Gariga & Schlagenhauf (2009)argue that as income and wealth rise while the cost of financing falls and house prices are unchanged, marginal households move from renting to home ownership.Increase in debt-income ratio argues Kohn & Dynan (2003) make some households more vulnerable to shocks to incomes fluctuations all else being equal. Because debt payments represent commitment whose amount and timing cannot usually be altered without a good deal of effort, reductions in per capita income due to macroeconomic shocks reduce the cash flow available to fund current consumption proportionately more for highly indebted households. As a result, shocks to income may have larger effects on consumer spending and aggregate mortgage demand. Johnson & Li (2007) find that households vulnerable to income shocks are more sensitive to piling debts (mortgage loans) in their accumulation of assets. Benito & Zampolli (2007) argue that per capita income having not grown very rapidly in recent years, and survey responses suggesting that households have not been very optimist about their earning in the
immediate future over the past several years, hence contracted demand for mortgage loan. McCarthy et al (2002) show that a worker in Asia is likely to be asset-rich and cash-poor upon retirement with 75 percent of his retirement wealth in housing asset, provided housing values continue rise in real terms. In contrast, an European elderly household would have only 20 percent of their wealth in housing asset. If the housing market were to take a down turn and remain depressed for years (as in Japan), this could reduce retirement asset accumulation of the Singapore worker substantially, as this will negatively reduce their income through capacity to borrow.

According to Stephens (2003) expanding GDP for instance, signify a growing economy, while dropping GDP reflects poor economic performance. Samuelson and Nodhau (2001) have noted that growth in real GDP is usually associated with rising real per capita incomes. Improved per capital income means greater purchasing power of households which in turn stretches demand for basic commodities like housing pushing up demand for mortgage loans. Conversely, falling GDP may lead to a decline in the income of household which will dampen housing loan demand. Unemployment rate also influence mortgage loan demand. An unstable economy with high rates of unemployment leads to a decline in real incomes and could lead to negative loan amortization in real terms creating difficulties in mortgage loan repayment. Increases in household income result in the purchase of a property becoming more affordable (Bourassa et al, 2001 and Capozza et al, 2004).

Dropping disposable income is negatively correlated with demand for properties since higher unemployment reduces households’ disposable income, and hence their demand for mortgage loan. Households income and budget constraint are central to its decision making process to either buy or rent a property. Chiquier & Lear (2009) say that stable income reduces borrowers risk. They also found that mortgage loans are inaccessible to majority of households employed in the informal sector due to the nature of their incomes and the strict requirements of loan collateral by the formal housing finance sector. In another study based on a sample analysis of 13,487 home loan accounts with leading housing finances companies and public sector banks, Bakpathway & Saha (2009) found that more than 90 per cent of the borrowers belonged to the category of “employed” while the remaining borrowers were either self-employed, unemployed or pensioners. It indicates the high value that lenders place on regularity of income in sanctioning loans. Demir et al (2003) argue that if unemployment level in an economy is low, the potential
house buyer’s ability to engage with housing finance market increases. Mugambe (2007) found a mismatch between mortgage tenor and the tenor of employment in the Egyptian mortgage market. The empirical existence generally corroborates the theoretical prediction of the basic life cycle and as to the age profile of household debt. Loan to value (LTVs) higher at the time of home purchase and decreases thereafter. But many studies confirm also the importance of borrowing constraints for a significant proportion of households. Leece (2006) for UK shows that households prefer longer amortization schedules or an interest – only mortgage to reduce the impact of per capital income constraints. A higher disposable income generally means that households can afford to borrow more. Household’s income and mortgages generally follow one another, so that one goes up when the other one does. It’s important to note that households obtain their incomes later in life as a result of longer time spent in education and entering the labour market later. Late entry into the labour market increases the need of individual to redistribute his or her income through life. Both rising house prices and later work incomes may have contributed to the increase in household’s average loan-to-value ratios for new loans from 60 to 80 percent during 2000s. If the higher loan to value ratios are due to housing prices rising faster than households disposable incomes, mortgages will increase even more in relation to income (Englund, 2011).

Heterogeneous household derive utility from non-durable consumption and from shelter services which are obtained either via renting or ownership. Household supply labour in elasticity, receive an idiosyncratic uninsurable stream earning in form of endowment, and make joint decision about their consumption of non-durable goods and shelter services, house size, mortgage size and holdings of deposits (Healthcote, 2005). Household prefer home ownership to renting in part because of the tax advantages to home ownership embedded in tax code but may be forced to rent due to the sown payment requirement and stagnant median income.

2.3.3 Tax Incentive Changes and Mortgage Loan Uptake

The theory of portfolio taxation suggests that investor’s portfolio choices are affected by the after-tax return on each asset. Svensson (2013) using user-cost approach model in Norway to calculate how housing prices due to taxation would be affected by the fall in demand finds that in equilibrium, the cost of owning a house will equal the value of house service provided by the house. Svensson assumed the capital gain tax to be zero, which reflects that in Norway tax
system, very few housing sales are affected by capital gain. The empirical literature for the US, as summarized by Poterba (2001) support the view that tax affects asset selection and allocation. Evidence on households’ response to changes in the treatment of debt is far more limited. Jappelli and Pistaferri (2002), study on the effect of changes in the tax treatment of household liabilities by studying the effect of changes in tax treatment of mortgages on the propensity to borrow and the amount borrowed, using the data based on Italian population. They find that there is no evidence that tax considerations shape the demand for mortgage debt. The most likely explanation they give for this lack of financial information and awareness of the specific changes in tax incentives in the mortgage market in particular is poor targeting. Poterba & Sinai (2008) say increase in housing taxation would affect housing demand negatively. They used simple user-cost model which allowed them to model tax induced reduction in housing prices and the effects on house price reduction on distribution. Bourguigon & Spadaro (2006) also in their study on effect increasing tax on housing would likely affect housing loan demand, as the demand for owning a house would decrease due to the higher user cost. Erlend BQ et al (2015) in a paper looking at the effects of Danish taxation on revenue, house demand and distribution, finds that housings prices and house mortgage demand would react to increase in taxation, showing a decrease of 18 percent demand. They used data from congress proceedings and president Obama’s fiscal commission. Citing experience from Switzerland, ownership rates has steadily grown from about 30 percent until 1990 but in recent years (Basten & Koch, 2015). They argue that Swiss households pay taxes on imputed rent but deduct interest payments from their taxable income. As a consequence Switzerland mortgage debt as a percentage of GDP is now one of the highest in the world.

According to study in the USA by Sommer & Sullivan (2016) using stochastic life cycle model they finds that introducing mortgage interest tax deduction increases home ownership and improves overall welfare. The after-tax cost of occupying a square foot of housing reduces. However Gervails (2002) argue that mortgage interest deductions increases the cost of ownership but does not reduce down payment requirements. Rapport (2016) analyzes the incidence and efficiency loss from mortgage subsidies in a theoretical model with endogenous housing supply. He found that the mortgage interest deduction hurts first-time home buyers by increasing house price. While he is unable to quantify the effect on house ownership, he finds that the mortgage
interest tax deduction generates efficiency losses by increasing households leverage and distorting allocation of credit.

Adrian & Shin (2007) perhaps counter intuitive, provides empirical insight that when financial institutions are forced to mark-to-market, this lowers leverage ratio. If banks were passive, their total leverage will fall. However, financial institutions are far from passive; when asset prices are rising it is highly unprofitable for a bank to be “under-leveraged” and they will look for ways to utilize their new “surplus capital”. This search to utilize surplus capital means banks will look to further expand their balance sheet and increase their leverage. This leads to expansion in aggregate liquidity and aggregate leverage in the financial system. A feedback loop is created as sustained rise in asset prices in mortgage-related product increase the net worth of banks, which in turn, funded the search for more leverage and further increased the demand for these assets (read mortgage).

**2.3.4 Inflation Rate Changes and Mortgage Loan Uptake**

According to Dobson (2002), inflation is an increase in prices of basic goods and services in an economy over a period of time. When the general prices level rises, each unit of currency buys few goods and services. Therefore, inflation points to a drop in purchasing power per unit of money. Price inflation is the inflation rate, the annualized percentage change in general price index (normally the consumer price index) over time. Inflation 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. According to Kalls, Martinez-Alier & Norgaard (2009) the fall in prices is also a result of economic depression, which slowdown consumer spending as household no longer borrow in the mortgage market. Higher inflation rate lower the disposal income and lowers purchasing power of borrowers making mortgage repayment expensive for customer (Nassar, 2007). Large inflows of foreign funds create easy credit conditions for mortgage financing. Benos (2004) argues that management of exchange rate is necessary to avoid excessive exchange rate induced inflation. Gachuru (2005) says inflation is a systematic risk factor that affects mortgage delinquency and default by increasing nominal interest rates and hence a repayment burden. In the long run however, higher inflation may dampen housing demand therefore, cause a decrease in mortgage loan demand.
2.3.5 Exchange Rate Changes and Mortgage Loan Uptake
The exchange rate of one currency versus the other is influenced by numerous fundamental factors such as inflation, interest rate, capital flows, and so on. A strong domestic currency exerts a drag on the economy, leading to a higher interest rates. In addition, further tightening of monetary policy at a time when the domestic currency is already unduly strong may exacerbate the problem by attracting hot money from foreign investors, who are seeking higher yielding investments, which would further push up the domestic currency. According to Ariemba et al (2015), the devaluation occurred after baht came under intense speculative attack, forcing Thailand’s Central Bank to abandon its peg to the US dollar and float the currency. This triggered a financial collapse that affected economy of not only Thailand and also South Korea, Hong Kong, Indonesia and Malaysia. The currency contagion led to a severe contraction in these economies as bankruptcies, a drop in demand for loans including mortgage loan plunged.

Boamah (2009, 2011) argues that a stable currency is an essential ingredient for a successful mortgage market. He also noted that resident Ghanaians have been priced out of the mortgage market by high exchange rate levels and the dominations of mortgages in foreign currencies. However his studies failed to incorporate the impact of the exchange rate fluctuation on citizens whose mortgage loans are dominated by domestic currency and their effects on the debts. It also failed to appreciate the role played by central bank in influencing foreign exchange movements through monetary policies measures.

2.4 Research Gap
Locally a few empirical studies have been done on the effects of macroeconomic variables effects on mortgage loan uptake. According to Kibutha (2004) there exist strong negative correlation between lending rates and volume of Mortgage borrowing. Interest rate are important factor determining amount borrowed. Amount borrowed, mortgage loan will increase with decreasing lending rates. Mutisya (2015) in his study of the effect of changes in interest rates on credit granted by commercial banks, in Kenya from 2006 to 2012 used regression analysis to indicate an inverse relationship between the level of interest rates and the amount of credit granted by commercial banks. He observed that when interest rates increase, the amount of credit granted by commercial banks to their customers decrease while the interest rates decline, the amount of credit granted by commercial banks increases. His research findings led to a conclusion that interest has a weak correlation to the demand for mortgage credit.
uncertainties lead to the need to reevaluate the link between housing markets and credit market conditions, to determine if there are compelling conceptual or empirical reasons to believe that changes in credit conditions brought about by macroeconomic variable fluctuations can explain the variation in mortgage loan demand. Why is the mortgage loan demand in Kenya still at 2.5 per cent GDP? The research will try to answers these questions through data collection using Kenya commercial bank and Housing finance Kenya mortgage department employees by confining itself to the research objectives to shed light on these questions.

**Table 2.1 Summary of Empirical Review**

<table>
<thead>
<tr>
<th>Study</th>
<th>Focus of study</th>
<th>Methodology</th>
<th>Main findings</th>
<th>Knowledge gap</th>
<th>Focus of current study</th>
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<tr>
<td>Mutisya(2015)</td>
<td>Analysis of housing affordability in Kenya</td>
<td>Quarterly database from 2006 to 2010</td>
<td>Increasing inflation negatively affects mortgage loan uptake</td>
<td>The research was focusing on the 45 banks there was need to look at individual players in the sector There has been continuous change in the mortgage sector</td>
<td>Intense study of the two dominant players in the mortgage market-KCB, HFCK</td>
</tr>
<tr>
<td>Luca and Petrova(2008)</td>
<td>Relationship between banks access to foreign deposits and mortgage loan demand</td>
<td>Secondary sources-Central bank report</td>
<td>Households will be more likely to request foreign currency mortgage loans if the interest rate differentials between local and foreign is high.</td>
<td>Continuous change in the forex market due to diaspora remittance</td>
<td>Effects of foreign exchange flow on mortgage loan uptake</td>
</tr>
<tr>
<td>Keightley(2009)</td>
<td>Effects of tax benefits on homeownership/mortgage loan demand</td>
<td>Questionnaires</td>
<td>Effect is limited because the deductions are not well targeted to the group that is in need of homeownership-low income</td>
<td>Context variation since the study was applicable to a developed world-USA</td>
<td>Does tax incentives influence mortgage loan uptake in Kenyan mortgage market</td>
</tr>
<tr>
<td>Lacour-Little(2007)</td>
<td>Effect of per capita income on mortgage loan uptake</td>
<td>Longitudinal method. Descriptive study</td>
<td>Low and middle income borrowers are more likely to take loan if it has less down payment and low credit score requirements</td>
<td>Context variation it was done US</td>
<td>Kenya has one the fastest growing urban middle class in Africa Does this explain the growth in the demand for mortgage loans?.</td>
</tr>
<tr>
<td>Gleaser et al(2012)</td>
<td>Cheap mortgage interest rate on housing boom in USA</td>
<td>Panel method Case study</td>
<td>There is no evidence that interest rate change have dramatic effects on demand for mortgage loan</td>
<td>The study was done in environment of stable macroeconomics</td>
<td>Kenya market has volatile macroeconomic environment i.e changing interest rates.</td>
</tr>
</tbody>
</table>

(Source: Author, 2018)
2.6 Conceptual Framework
Conceptual framework is a diagram representing the relationship between the independent variables and dependent variables on macro-economic variable impact on mortgage loan uptake. The independent variables include; changes in interest rates, per capita income, inflation rates and mortgage tax and their effects on dependent variable mortgage loan uptake. A variable is any characteristic that can vary across people or situations and is of different levels and types (Cresswell, 2003 in IKpe, et al 2011). The independent variable is one in which the experiment manipulates or control and as such is the variable whose effect interest the researcher (IKpe et al 2011). Independent variables are also called “explanatory” predictor” variables because they explain or predict the amount of variation that occurs in another variable. A dependent variable other hand, is the behavioral measure by the experimenter. Also called “response” or “criterion” variable, attempts to indicate the total influence arising from the effects of the independent variables.
Independent variable

- Interest rate changes
  - Central Bank rate

- Per capital income changes
  - GDP by population of nation

- Tax changes
  - Average interest paid tax

- Inflation rate changes
  - Consumer price index

- Exchange rates changes
  - Average rate of devaluation of domestic currency (Kenya shillings) against US dollar per

Dependent variable

- Mortgage loan uptake
  - Increased home ownership

- Government increased spending on public housing

Figure 2.2: Conceptual Framework

Source: (Author, 2018)
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter highlights the methodology of conducting research and information on methods used in data collection, data tabulation, data measurement and data analysis needed to accomplish the research objectives. The chapter starts with a description relating to the target population, Nairobi area, and the location of the respondents in the study. The chapter goes on to discuss the research design that was adopted. Highlighting sources and types of data used, the procedures and technique used in deriving the research variable and description of the relevant variables and data that was used in the study.

3.2 Research Design
Research design is a blueprint on how the data is to be collected, analyzed and interpreted. 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 et al, 2006). Descriptive research design was used; it helps to describe the state of affairs as it is as present. The study sought to analyses the relationship between mortgage loan uptake (dependent variables) and independent variables; inflation rate changes, foreign exchange fluctuation, per capita income changes, and interest rate changes. The research also adopted causal study as its research design with a major emphasis on determining the cause and effect relationship between the variations in interest rate changes, per capita income, changes in tax incentives, inflation rate changes and exchange rate changes.

3.3 Empirical Model
Linear regression model was used to indicate the extent to which each independent variable affected mortgage loan uptake. Multiple regression equation, when dealing with more than one independent variables is as follows:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots \]

For this study, the above regression model was modified as follows and used for the analysis

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta 4 X_4 + \beta 5 X_5 + \varepsilon \]
Whereby:

\[ Y = \text{mortgage loan uptake} \]

\[ \beta_0 = \text{the value of } Y \text{ when all } Xs \text{ are zero} \]

\[ \beta_1, \beta_2, \beta_3, \beta_4 \text{ and } \beta_5 = \text{are the coefficients of independent variables} \]

\[ X_1 = \text{Interest rate changes} \]

\[ X_2 = \text{Per capita income changes} \]

\[ X_3 = \text{Tax incentives} \]

\[ X_4 = \text{Inflation rate changes} \]

\[ X_5 = \text{Exchange rate changes} \]

\[ \varepsilon = \text{Stochastic variables} \]

The dependents variables is mortgage loan uptake while independent variables are inflation rate changes, per capita income changes interest rate changes and exchange rate changes. Variable is any characteristics that can vary across situation and is of different levels and types (Cresswell, 2003 in Ikpe et al, 2011). A variable also refers to a characteristic or attributes of an individual or an organization that can be measured or absorbed and that varies among the people or organization being studied. This variance means that scores in a given situations fall into at least two mutually exclusive categories (Thompson, 2006). They are also called criterion, outcome, effects and response variables (Cresswell, 2013). The independent variables that influences mortgage loan uptake will be put to the respondents using structured questionnaires in order to rate and rank them in order of importance. Horizontal numerical rating scale which is the advisable scale to use in judging items on single dimension. Numerical scale of 1-4 representing the two extremes not significant and very significant. The scale provides both absolute measure of importance and also ranking of factors in their order of significance Ho will be the variables
will not be having significant effects on mortgage loan uptake. The alternative hypothesis $H_a$ will be that the variables will be having effects on mortgage loan demand. Failing to accept the null hypothesis means accepting alternative hypothesis. The population is assumed to be normal, the four scores of 1-4 in devised numerical scale, with the population average score of 2.5 on the rating scale. This is appoint higher than less significant on the decision scale and forms the decision point (Masu, 2006). Therefore any variable that will achieve a mean score of above 2.5 will be considered a significant factor affecting mortgage loan uptake.

### 3.4 Target Population
The target populations in the study were the employees in credit sections department in all the branches in Nairobi of the two mortgage lenders, Kenya Commercial Bank and Housing Finance Corporation of Kenya. The two lenders between them command more than 60 percent of the mortgage market in Kenya (see appendix II). The employees were targeted because they solicit, analyse and approve mortgage products to potential loanees. Hence have front seat interaction with all levels of customers. The study area was Nairobi City County. According to Kenya national bureaus of statistics, KNBS (2009) population and housing census, Nairobi county is divided into four zones namely: Nairobi east, Nairobi west, Nairobi north and Westland’s. According to the report, the population distribution is 1.1 million in Nairobi East, 0.68 million people in Nairobi West, 1.06 million in Nairobi North and 0.247 million in Westlands. There are a total of 985,016 households in Nairobi. Home ownership rate in Nairobi is quite low at 7.6 percent compared to 87.9 percent who rent their accommodation (KNBS, 2009). Target population is defined as all members of a real or hypothetical set of people, events or objects to which a researcher wishes to generalize the result of the researcher study (Borg and Gall, 1989). According to Thomas, Nelson and Silverman (2010), a population refers to universal set of all elements in which the characteristics under consideration are studied. The choice of the employee within the Nairobi area was because they were easily accessible and it permitted instant rapport with the informants.

### 3.5 Sampling Design
Cooper and Schneider (2003) defines sampling as a selection of few items (a sample) from a bigger group (population) to become the basic for estimating or predicting prevalence of an unknown piece of information, situation or outcome regarding the bigger group. Orodho (2002) defines sampling as selecting a given number of subjects from a defined population as a
representative of that population. Bryman and Bell (2003) suggests that it less worthwhile to interview or survey more than 1000.

Stratified random sampling method was used to obtain a sample size of 120 respondents from the target population of the two lenders employees within Nairobi city county; 72 employees of Kenya Commercial Bank were obtained using simple random sampling and 48 employees of Housing Finance Corporation of Kenya were also obtained using random sampling in their respective credit section department. Stratification of samples was based on the cadre of employees i.e. managers and junior employees. Attempts was made to reach as many number of employees both managers and junior level employees alike. During the period of December 2016 to August 2017, out of 120 questionnaires 82 were returned. The heterogeneous sample of 120 consisted of men and women ages of 20 years and up to 60 years (this is the official retirement age in Kenya) and mainly employees of these two financial institutions who were Kenyan citizens. This selection for analysis was to ensure exclusion of possible confounding variables (Kerlinger, 1973). In addition, a sample of 120 is reasonable because normalization of data requires large sample for meaningful generalization and according to central limits theorem, a sample greater than 30 tends to be a good estimation of the population parameter of mean, standard deviation and proportion (Roscoe, 1975). Also Mugenda et al (1999) points out that the sample size depends on factor such as the number of variables in the study, the type of research design, the method of data analysis and size of the accessible population.

3.6 Data Collection Instrument and Data Collection Procedure

3.6.1 Questionnaires

The questionnaires (Likert scale) were self-administered and picked by the researcher. This techniques saved time, resources and also due to the fact that the respondents were located in convenient places. All were highly educated to be able to answer the questions without assistance from the researcher. This primary method of data collection is efficient because it allows for data analysis using statistical methods (SPSS) by use of cross tabulation, frequencies and percentage (Cooper and Schindler, 2008). Open ended questions sometimes referred to as open questions (Dillman, 2007) allow respondents to give answers in their own way. Closed ended questions or sometimes referred to as forced choice questions (Devues, 2002) provide a number of alternative answer from which the respondent is instructed to choose. Likert style rating scale in which the respondent is asked how strongly they agree or disagree with the
statement or a series of statement, usually on a four, five, six, or seven points rating scale (Dillman, 2007). But in this study 4 points Likert rating scale was used ranging from 1- not significant, 2- less significant, 3- significant and 4- very significant. The questionnaire collected categorical data and the numerical data. Categorical data refers to data whose values cannot be measured numerically but can be either classified in sets. Categorical according to the characteristics identify or describe the variables or placed in rank order (Berman, Brown and Saunder, 2008). While numerical data are those whose values are measured or counted numerically as quantities (Berman etal, 2008)

3.6.1.1 Reliability of the research instruments

Questionnaires were pilot tested on a sample of 12 colleagues as respondents, with the object of assessing its reliability. Reliability refers to consistency, it is therefore concerned with the robustness of a questionnaire and in particular, whether or not it will produce consistent finding at different times and under different conditions, such as with different samples or in the case of an interviewer –administered questionnaire with different interviewers (Kothari, 2003).

3.6.1.2 Validity of the research instruments

Internal validity in relation to questionnaires refers to the ability of the questionnaire to measure what it is intended to measure (Saunders, Lewis & Thornhill, 2009). Validity on the other hand measures degree to which results obtained from analysis of data actually represents the phenomena under study. The pilot study utilized 12 respondents which represents 10percent of the sample size to be included. The pre- test study was to ensure that the questionnaires are clear with no ambiguity and actually the questionnaire actually assisted in achieving the objective of the study.

3.6.2 Secondary sources of data

Secondary data was also used in the study. Mugenda and Mugenda (1999) define secondary data as any publication by an author who was not a direct observer or participant in the events described., Annual Economic Survey Reports. Secondary data were obtained from internet source, books, journal, scholarly articles and seminar papers.
3.6.3 Administration of the research instrument

The questionnaires were administered by drop and pick method to intended respondent. The researcher went personally to the target bank branches. Also the questionnaires were sent through e-mails especially for the managers. Since the respondents were highly educated they filled the questionnaires without the assistance of the researcher. The questionnaires were then picked within a period of 10 months.

3.7 Data Processing and Analysis

The data was coded and entered into statistical packages for social sciences (SPSS) for data analysis. The descriptive statistic were undertaken in order to identify the characteristic of demographic data of respondents. It was used to provide preliminary analysis of the data and guide the rest of the data analysis process (Cooper and Schindler, 2008). Descriptive statistics provided information about measures of central tendency using quantitative data: The mean, median, mode were computed and also measures of dispersion range, variance and standard deviation and inferential statistics were used to test a number of hypothesized relationships so as to allow generalization of the findings to a larger population. Multiple linear regression models were employed to establish the significance of the independent variables on the dependent variable. Pearson Correlation Coefficient was also applied to establish the strength of linear relationship between each of the variables. Statistic was used to determine the relative importance of each independent variable in influencing mortgage loan uptake. The t-test and F-test were used to test hypothesis and work out the probability of the relationship represented by the regression analysis having occurred by chance. In multiple regressions, the t-test is used to find out the probability of the relationship between the dependent variable and independent variable occurring by chance. In contrast, F-test is used to find out the overall probability of the relationship between the dependent variable and all the independent variable occurring by chance. Absence of correlation between two or more independent variables (collinearity or multicollinearity) makes it difficult to determine the separate effects of individual variables. The rule of thumb is that the presence of high correlation indicate a substantial collinearity. Pearson and spearman rank coefficients were used to explore relationship between variables. Pearson’s r and Spearman’s rho and can vary between 0 and + or -1. They show the strength of relationship and not the direction. Regression coefficient or coefficient of determination (r2) was used to assess the strength of cause and effect relationship between variables.
3.8 Diagnostic Test

3.8.1 Normality Test
This data was subjected to a normality test before correlation and regression analysis because correlation and regression analysis are based on the assumption that the data is normally distributed. If the data is not normal, then the results of correlation and regression will be misleading. The Shapiro-Wilk test and Durban-Watson tests is most appropriate for small sample sizes. If the significance value of the Shapiro-Wilk test is greater than 0.05, the data is normal. If it is below 0.05 the data significantly deviate from normal distribution (Shapiro and Wilks, 1965). Many data analysis methods depends on the assumption that data sampled will be a normal distribution. There are several methods used in order to see whether or not continuous data are distributed normally. In general, the normality assumption can be evaluated by graphical and test methods. However, graphical methods provide us with some information about the shape of the distribution, but do not guarantee that the distribution is normal. It does not test whether the difference between the normal distribution and sample distribution is significant (Shapiro and Wilk, 1965). With large samples, minor deviations from normality may be flagged as statistically significant (Byres, 2004).

In the literature, the main tests that assess the assumption of normality are the chi-square goodness of fit test and Shapiro – Wilk test. In recent times SW test has become preferred test of normality because of its good power properties as compared to a wide range of alternative tests (Cooper and Schindler, 2008).

3.8.2 Multicollinearity Test
Multi-collinearity is a situation where two or more independent variables (predictors) in a regression model are moderately or highly correlated. Multi-collinearity is assessed by examining tolerance and the variance inflation factor (VIF) measures the impact of collinearity among the variables in a regression model. There is no formal VIF value for determining presence of multi-collinearity. Values of VIF that exceed 15 are often regarded as indicating multi-collinearity, but in weaker models values above 2.5 may be a cause for concern. When VIF is high there is high multi-collinearity and instability of the b and beta coefficients (Coakers, Steed, and Price, 2008). According to Wilcox (2005), a condition index greater than 15 indicates a problem of multi-collinearity. Condition indices larger than 100 indicate near dependencies that will make the regression coefficient unstable.
3.8.3 Heteroscedacity Test

Heteroscedasticity is an econometric problem in which the variance of the error terms is not constant across the observations of the variables. The key assumption with regression is that the variance of the error term is homoskedastic across all the observations. Presence of heteroscedasticity has a serious consequence on ordinary least squares estimators in that they become unbiased and consistent, but they are not efficient and the standard errors are inconsistent therefore invalidating statistical test. White heteroscedacity test is used in this test.

When the errors in an ordinary least squares (OLS) regression model are heteroscedastic, hypothesis tests involving the regression coefficient can have type 1 error rates that are far from the nominal significance level. Asymptotically, this problem can be rectified with the use of a heteroscedasticity – consistent covariance matrix (HCCM) estimator. A variance model based on the explanatory variables can produce weights for the weighted least squares estimator (Cook and Weisberg, 1983).

Heteroscedasticity can also occur when one uses OLS to analyze binary or count data, but we do not consider this type of heteroscedasticity, because there are procedures, such as the generalized linear model (Mc Cullagh and Neloler, 1989), that are much better suited to discrete outcome than OLS. However, one cannot simply let Heteroscedacity go uncorrected, even if its form is unknown. Therefore a natural question to ask is whether we can find an alternative variance estimator that remains consistent under heteroscedasticity. If such a variance estimator is available, a symptomatically correct inference can be achieved by retaining the OLS regression coefficients while replacing the OLS standard errors with heteroscedasticity – consistent standard errors. HCCM estimators can ensure an asymptotically correct test size, given high-leverage points among the predictors (Cribari-Neto, 2004).

3.9 Ethical Consideration

Research ethics refers to the appropriateness of researcher behaviour in relation to the rights of those who become the subject of his research on those who are affected by it (Cooper and Schindler, 2008). Research ethics relates to questions about how we formulate and clarify our research topic, design our research and gains access, collect data, process and store our data, analyze data and write our research findings in a moral and responsible way. The research should be guided by social norm, which indicate the type of behaviour that a person ought to adopt in a particular situation (Robson, 2002). Within business and management research there are two
dominant philosophical stand points: deontology and teleology. The deontological view argues that the ends served by the research can never justify the use of research which is unethical. Consequently, the research did not use deception to obtain research data, even if deception was necessary to ensure the data were valid and reliable. Teleological view, which was not adopted in this study, argues that the ends served by your research justify the means. Consequently, the benefits of your research findings would be weighed against the cost of acting unethically (Zikmund, 2000).

The study also sought to comply with the code of ethics of university, which provide statement of principles and procedures for the conduct of research which highlight what is and what is not considered ethical. However Bell and Bryman (2007) point out those codes tend to be written in abstract terms and designed to prevent misconduct. The study ensured privacy of actual participants, voluntary participation was respected and also consent of the participants was obtained. At all-time confidentiality of data provided by individual or identifiable participants and their anonymity was honoured. A consideration was given to the effects on participants of the way in which use, analysis and reporting of data was done to avoid embarrassment, stress, discomfort, pain and harm (Bell and Bryman, 2007). For interviewed individuals, consent was supplemented by a more detailed written agreement in form of a consent form: Kozinets (2002) argue that a researcher need to operate on the basis that informed consent is a continuing requirement in research process. Zikmund (2000) argue that maintenance of objectivity is vital during analysis stage to ensure data collected is not misrepresented. A great deal is placed in each researcher’s integrity as lack of honesty and objectivity will distort analysis, reporting conclusion and recommendations of the study.
CHAPTER FOUR
RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction
In this chapter the researcher present the collected data using tables, pie chart and bar graphs and discuss the result of the findings from the data collected from respondents and secondary sources. The objectives of the research will be considered for analysis using descriptive statistics.

4.2 Summary of the Statistics

4.2.1 Response Rate
Table 4.1 Summary of response rate

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCB</td>
<td>56</td>
<td>68.3</td>
<td>68.3</td>
<td>68.3</td>
</tr>
<tr>
<td>Valid</td>
<td>26</td>
<td>31.7</td>
<td>31.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

The data was on 82 questionnaires out of 120 given out to the employees, which was 70 percent. KCB response rate was 56 which represented 68.3 percent rate while for HFCK the response rate was 26 representing 31.7 percent. It’s considered adequate given the recommendations by Saunders et al (2009) who suggested 30-40 percent response. Sekaran (2010) who documented 30 percent and Mugenda and Mugenda (2003) who advised on a response rates exceeding 50 percent. Based on these assertions, it is implied that the response rate for this study was adequate. Given the level of literacy and experience of the respondents with the mortgage market the reliability of the instrument to collect data was sufficient.

4.2.2 Positions of the Employees
The respondents were asked questions on their position held in the credit department.
Table 4.2: Position of Employees

<table>
<thead>
<tr>
<th>Position</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Manager</td>
<td>2</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Middle Level</td>
<td>17</td>
<td>20.7</td>
<td>20.7</td>
<td>23.2</td>
</tr>
<tr>
<td>Managers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit Officers</td>
<td>35</td>
<td>42.7</td>
<td>42.7</td>
<td>65.9</td>
</tr>
<tr>
<td>Credit Sales</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person</td>
<td>28</td>
<td>34.1</td>
<td>34.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

From the table 4.1 above majority of the respondents were middle level employee (creditsales were 34percent ,middle level managers were 63.4percent and senior managers were 2.4 percent.

4.2.3 Respondent’s Experience
Questions was on how long they had been working in the financial institution. This is to find out on the extent their responses could assess their working experience.

Table 4.3: Respondents Experience

<table>
<thead>
<tr>
<th>Experience</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5 Years</td>
<td>53</td>
<td>64.6</td>
<td>64.6</td>
<td>64.6</td>
</tr>
<tr>
<td>6 - 10 Years</td>
<td>20</td>
<td>24.4</td>
<td>24.4</td>
<td>89.0</td>
</tr>
<tr>
<td>Over 10 Years</td>
<td>9</td>
<td>11.0</td>
<td>11.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

The study findings showed that 64.6 percent of the respondents had worked for 0 – 5 years, 24.4 percent had worked for 6 – 10 years. While 11percent had worked for over 10 years.
This indicated that majority of the respondents had enough work experience to be able to understand technical issues of mortgage finance. This was in agreement with Braxton (2008).

4.2.4 Respondents Gender

Table 4.4: Respondents Gender

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>53</td>
<td>64.6</td>
<td>64.6</td>
<td>64.6</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
<td>35.4</td>
<td>35.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Research data, 2018*

Data was collected on gender. This was to ensure that there was no gender bias. These was supported by Fowler (2009) who argued that for a data to be representative it should be devoid of bias. The research finding indicate that the male gender were 64.6percent while the female respondent were 35.4percent.

4.2.5 Respondents Age

The respondents were asked question on their ages. This was to ensure the respondent were within the legal age of working and also not beyond the retirement age. The minimum age for employment in Kenya is 18 years while employees are expected to retire upon attainment of age 60 years.
Table 4.5: Age of Respondents

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30 Years</td>
<td>35</td>
<td>42.7</td>
<td>42.7</td>
<td>42.7</td>
</tr>
<tr>
<td>30-40 Years</td>
<td>47</td>
<td>57.3</td>
<td>57.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Research data, 2018*

The study finding has indicated that 42.7 percent were within 18 – 29 years, 57.3 percent in 30-40 years, 41-50 years and 51-60 years had no recorded cases.

4.2.6 Educational Levels of the Respondents

Table 4.6: Education Level of Respondents

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate degree</td>
<td>13</td>
<td>15.9</td>
<td>15.9</td>
<td>15.9</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>69</td>
<td>84.1</td>
<td>84.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Research data, 2018*

Most of the respondents’ at 84.1 percent had graduate first degree qualification, while 15.9 percent had post graduate qualification and there were no reported cases of respondents with diploma/certificate qualifications. These were in support of Ngumi (2013).
4.2.7 Response on Average Income of Mortgage Loanee

Table 4.7: Average monthly income/salary of mortgage loanees

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ksh. 26,000 - 69,999</td>
<td>3</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Ksh. 70,000 - 100,000</td>
<td>42</td>
<td>51.2</td>
<td>51.2</td>
<td>54.9</td>
</tr>
<tr>
<td>Ksh. 100,001 - 150,000</td>
<td>28</td>
<td>34.1</td>
<td>34.1</td>
<td>89.0</td>
</tr>
<tr>
<td>Ksh. 150,001 - 200,000</td>
<td>7</td>
<td>8.5</td>
<td>8.5</td>
<td>97.6</td>
</tr>
<tr>
<td>Over Ksh. 200,000</td>
<td>2</td>
<td>2.4</td>
<td>2.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

From the above table the respondents indicated that for one to qualify for mortgage loan product they should command a monthly income of between Ksh70,000-100,000 (51.2 percent). This the average amount per month statistic indicate the average middle class income per month in Nairobi is 300 dollars, about Kshs30,000.
4.2.8 Response on Average Loan Size per Unit of a House

Table 4.8: The average loan size per unit

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ksh. 4 - 6 Million</td>
<td>28</td>
<td>34.1</td>
<td>34.1</td>
<td>34.1</td>
</tr>
<tr>
<td>Ksh. 7 - 9 Million</td>
<td>25</td>
<td>30.5</td>
<td>30.5</td>
<td>64.6</td>
</tr>
<tr>
<td>Valid Ksh. 10 - 12 Million</td>
<td>8</td>
<td>9.8</td>
<td>9.8</td>
<td>74.4</td>
</tr>
<tr>
<td>Ksh. Over 12 Million</td>
<td>21</td>
<td>25.6</td>
<td>25.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

Most of the respondents (64.6 percent) indicated that the average mortgage loan size per unit is between kshs 4-9 million. The rest (35.4 percent) had indicated above kshs 10 million
4.3 Characteristics of the Lenders

4.3.1 Respondents Number per Lender Branches

Table 4.9: Branches of lenders and composition of the respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFCK - Headquarters (HQ)</td>
<td>10</td>
<td>12.2</td>
<td>12.2</td>
<td>12.2</td>
</tr>
<tr>
<td>HFCK - Kenyatta Avenue</td>
<td>15</td>
<td>18.3</td>
<td>18.3</td>
<td>30.5</td>
</tr>
<tr>
<td>Valid KCB - Moi Avenue</td>
<td>31</td>
<td>37.8</td>
<td>37.8</td>
<td>68.3</td>
</tr>
<tr>
<td>Valid KCB - Headquarters (HQ)</td>
<td>15</td>
<td>18.3</td>
<td>18.3</td>
<td>86.6</td>
</tr>
<tr>
<td>KCB - Queen's Way</td>
<td>11</td>
<td>13.4</td>
<td>13.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

From the table above majority of the respondents were from KCB branches (68.3 percent) this is because it has the widest spread of branch network in the financial sector. While HCFK had about 31.7 percent of the respondents.
4.4 Statistical results summary on macroeconomic variables

The respondents were then asked the influence of macroeconomic variables on mortgage uptake.

4.4.1 Interest Rates and Mortgage Loan Uptake

Table 4.10 Response on mortgage interest rate influence on Mortgage Loan Uptake

<table>
<thead>
<tr>
<th>Mortgage interest charge.</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant</td>
<td>16</td>
<td>19.5</td>
<td>19.5</td>
<td>19.5</td>
</tr>
<tr>
<td>Valid</td>
<td>66</td>
<td>80.5</td>
<td>80.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

The findings from the study were as indicated in the table above. Majority of the respondent agreed that interest rate changes had a significant to very significant influence on mortgage loan uptake.

Table 4.11: Mortgage Interest Rates 2006 – 2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Average mortgage interest rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>12.45%</td>
</tr>
<tr>
<td>2008</td>
<td>12.83%</td>
</tr>
<tr>
<td>2010</td>
<td>13.54%</td>
</tr>
<tr>
<td>2012</td>
<td>14.11%</td>
</tr>
<tr>
<td>2014</td>
<td>14.07%</td>
</tr>
</tbody>
</table>

Source: Central Bank of Kenya, 2016
The finding on interest rates between 2006 – 2014 is indicated in the table above. This increasing rate of interest depicted by the table implies mortgage debt increases each year. The weighted average mortgage interest rate reported by the institutions is between 14-18 percent. This is consistent with the lending institutions rates given the higher risk premium associated with mortgage financing.

4.4.2 Tax Incentives Changes and Mortgage Loan Uptake

Table 4.12: Response on Tax Incentive Changes on Mortgage Loan Uptake

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Significant</td>
<td>12</td>
<td>14.6</td>
<td>14.6</td>
<td>14.6</td>
</tr>
<tr>
<td>Less Significant</td>
<td>27</td>
<td>32.9</td>
<td>32.9</td>
<td>47.6</td>
</tr>
<tr>
<td>Valid Significant</td>
<td>35</td>
<td>42.7</td>
<td>42.7</td>
<td>90.2</td>
</tr>
<tr>
<td>Very Significant</td>
<td>8</td>
<td>9.8</td>
<td>9.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Research data, 2018*

From the study finding majority 90.2 percent indicated that tax incentives were not significant in influencing potential mortgages uptake. Melzer (2005) argue on access to housing finance in developing nations including Kenya. In Kenya there is a scheme by national authority of Kenya under Housing Ownership Saving Plan (HOSP) program by the Kenyan government. It provide that contribution to registered schemes designed and established to enable saving for purchase of residences can be deducted from gross income upto a maximum of Ksh 4,000 per month.
4.4.3 Per Capita Income Changes and Mortgage Loan Uptake

Table 4.13: Response on Influence of per Capita Income on Mortgage

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Significant</td>
<td>14</td>
<td>17.1</td>
<td>17.1</td>
<td>17.1</td>
</tr>
<tr>
<td>Less Significant</td>
<td>16</td>
<td>19.5</td>
<td>19.5</td>
<td>36.6</td>
</tr>
<tr>
<td>Valid Significant</td>
<td>51</td>
<td>62.2</td>
<td>62.2</td>
<td>98.8</td>
</tr>
<tr>
<td>Very Significant</td>
<td>1</td>
<td>1.2</td>
<td>1.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

The research finding indicates that 63.4 percent of the respondents indicated that per capita income had a significant influence on mortgage loan uptake. Only 36.6 percent indicated that per capita income had no impact at all.

Table 4.14: Average income to Qualify for Mortgage Loan

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ksh. 26,000 - 69,999</td>
<td>3</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Ksh. 70,000 - 100,000</td>
<td>42</td>
<td>51.2</td>
<td>51.2</td>
<td>54.9</td>
</tr>
<tr>
<td>Ksh. 100,001 - 150,000</td>
<td>28</td>
<td>34.1</td>
<td>34.1</td>
<td>89.0</td>
</tr>
<tr>
<td>Ksh. 150,001 - 200,000</td>
<td>7</td>
<td>8.5</td>
<td>8.5</td>
<td>97.6</td>
</tr>
<tr>
<td>Over Ksh. 200,000</td>
<td>2</td>
<td>2.4</td>
<td>2.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

The research finding indicates that 51.2 percent of the respondents indicated that the average income to qualify for loan is between Kshs 70000-100000. They also indicated that one must have an average income of Ksh70000 per month to qualify for their mortgage products. The CBK
(2009) indicate an middle class income in Kenya is a monthly average of 300USdollar(Kshs 30000 at the current exchange rate).

4.4.4 Inflation Rate Changes and Mortgage Loan Uptake

Table 4.15: Response on Influence of Inflation Rate Changes on Mortgage Loan Uptake in county.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Significant</td>
<td>13</td>
<td>15.9</td>
<td>15.9</td>
</tr>
<tr>
<td>Less Significant</td>
<td>26</td>
<td>31.7</td>
<td>31.7</td>
</tr>
<tr>
<td>Valid Significant</td>
<td>31</td>
<td>37.8</td>
<td>37.8</td>
</tr>
<tr>
<td>Very Significant</td>
<td>11</td>
<td>13.4</td>
<td>13.4</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Research data 2018

From the study findings majority of the respondents 51.4percent indicated that inflation rate changes had significant to a very significant influence on potential mortgage loan up take as shown in table 4.9 above. Looking at the World Bank (2015) report on Kenyan inflation rate,they report that it has been extremely volatile, fluctuating from around 4% to more than 11%. This has had impacts on cost of borrowing and the average size of mortgage loan which has grown from Ksh 2.9 million in 2006 to 4.4 million by 2014.(see appendix I). This means that inflation increases has made more and more potential mortgage loanee to be priced out of market. Inflation has been the major contributor to rising housing prices over the years in Kenya as lenders link the cost of borrowing to consumer price index (CPI) used to compute the inflation rate.
4.4.5 Foreign Exchange Changes and Mortgage Loan Uptake

Table 4.16: Response on Influence of Exchange Rates Changes as (reflected in appreciation or Depreciation of Kenyan Shillings Against US dollar) on Mortgage Loan Uptake.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Significant</td>
<td>17</td>
<td>20.7</td>
<td>20.7</td>
<td>20.7</td>
</tr>
<tr>
<td>Less Significant</td>
<td>44</td>
<td>53.7</td>
<td>53.7</td>
<td>74.4</td>
</tr>
<tr>
<td>Significant</td>
<td>15</td>
<td>18.3</td>
<td>18.3</td>
<td>92.7</td>
</tr>
<tr>
<td>Very Significant</td>
<td>6</td>
<td>7.3</td>
<td>7.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research data, 2018

The finding showed that majority of the respondent 74.4% percent indicated that foreign exchange change had little to no significant impact on potential mortgage loan uptake as shown in the table above. In addition, the questionnaire research finding shows that a very small percentage of the existing mortgage loan outstanding (less than 5% on average) are held in foreign currency domination by financial institution. This has been attributed to the volatility of the Kenyan shilling against the dollar, reducing the hard currency value of any local currency debt. These rapid swings expose international investor to potential financial risks and significant foreign exchange losses, which in turn affect their ability and interest to lend in local currency and home market mortgage. Willey (2010) argues that this stifle the growth mortgage market in Kenya due to starvation of foreign funds either through the banking system or capital market via which the international investors can channel their funds to support the growth of mortgage market in the developed world.
4.5. Descriptive Statistics Summaries

Table 4.17: Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>MEAN</th>
<th>MEDIAN</th>
<th>MODE</th>
<th>STD DEVIATION</th>
<th>VARIANCE</th>
<th>SKEWNESS</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate</td>
<td>82</td>
<td>3.80</td>
<td>4.00</td>
<td>4.00</td>
<td>0.399</td>
<td>0.159</td>
<td>-1.567</td>
<td>1</td>
</tr>
<tr>
<td>Inflation rate</td>
<td>82</td>
<td>2.73</td>
<td>3.00</td>
<td>3.00</td>
<td>2.342</td>
<td>5.483</td>
<td>6.998</td>
<td>21</td>
</tr>
<tr>
<td>per capita income</td>
<td>82</td>
<td>2.58</td>
<td>3.00</td>
<td>3.00</td>
<td>0.789</td>
<td>0.623</td>
<td>-0.922</td>
<td>3</td>
</tr>
<tr>
<td>Tax incentives</td>
<td>82</td>
<td>2.48</td>
<td>3.00</td>
<td>3.00</td>
<td>0.864</td>
<td>0.746</td>
<td>-0.159</td>
<td>3</td>
</tr>
<tr>
<td>Foreign exchange rate</td>
<td>82</td>
<td>2.48</td>
<td>3.00</td>
<td>3.00</td>
<td>0.906</td>
<td>0.820</td>
<td>-0.488</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Research data, 2018

From the above table from a response of 82 respondents the mean rating for mortgage interest charged is 3.8 which is above the average 2.5 hence it’s a significant determinant of mortgage loan uptake. It has standard deviation of 0.3999 showing that the responses are less dispersed. Also the mean rating for inflation rate according to the responses is 2.73 indicating a figure above 2.5 therefore it’s a significant determinant of mortgage loan uptake. Its positively skewed at 6.998 to indicate majority of responses were above the mean. From the above table the per capita income mean response rating is 2.58 indicating the significance of the determinant as factor in mortgage loan uptake. The rating is above the mean which is at 2.5. Moreover skewness is negative indicating that mode is greater than the mean. Tax incentive changes and foreign exchanges had a mean rating of 2.48 each which is below the mean rating of 2.5 indicating that they have insignificant influence on mortgage loan uptake according to the respondents in the study. Their skewness are negative at -0.159 and -0.488 respectively indicating that majority of
the response were in the region of less significant to not significant to the dependent variable (mortgage loan uptake).

4.8 Correlation Analysis

To be able to quantify and define the relationship between the variables, the study used Pearson’s correlation coefficient of correlation. Correlation matrix is an important indicator of a linear association of the explanatory variables and helped in determining the strengths of association in the model, that is, which variable best explained the relationship between house price returns and its determinants and is denoted by r. The Pearson correlation coefficient (r) can take a range of +1 to -1. A value of 0 indicates that there is no association between the variables. A value greater than 0 indicates a positive association implying that as the value of one variable increases so does the value of the other decreases. The results are represented in table 4.19 below.

Table 4.18 Pearson’s Correlations Coefficient Matrix

<table>
<thead>
<tr>
<th>Model</th>
<th>interest rate</th>
<th>percapita</th>
<th>Tax changes</th>
<th>Inflation rate</th>
<th>Exchange rate mortgages uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td>-0.524</td>
</tr>
<tr>
<td>Per capita</td>
<td></td>
<td>1.000</td>
<td></td>
<td></td>
<td>0.709</td>
</tr>
<tr>
<td>Tax changes</td>
<td></td>
<td></td>
<td>1.0000</td>
<td></td>
<td>0.211</td>
</tr>
<tr>
<td>Inflation rate</td>
<td></td>
<td>-</td>
<td></td>
<td>1.000</td>
<td>-0.612</td>
</tr>
<tr>
<td>Exchange rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td>Mortgage uptake</td>
<td>-0.524</td>
<td>0.709</td>
<td>0.211</td>
<td>-0.612</td>
<td>0.097</td>
</tr>
</tbody>
</table>

a. Dependent Variable: mortgage loan uptake

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

From the above table there is a strong positive correlation between percapita income and mortgage loan uptake at 0.709. Also there is strong negative correlation between inflation rate and mortgage loan uptake. At -0.612. Moreover from the table there is strong negative correlation between mortgage interest rate and mortgage loan uptake at -0.524. However there is weak positive correlation between tax incentives and mortgage loan uptake. There is insignificant correlation between mortgage loan uptake and tax changes at 0.211 and foreign exchange at 0.097 respectively.
4.6. Multiple Regression Analysis
In analyzing the study the researcher user model is presented algebraically as follows

Table 4.19 Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R square</th>
<th>Adjuste R square</th>
<th>StdErrorEstimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.8650a</td>
<td>0.74825</td>
<td>0.709</td>
<td>0.07104</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Interest rate, per capita income, inflation rate, foreign exchange rate changes, tax rate changes

From the table above, R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by a correlation factor, R 0.865 at 5% significance level. The Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the table above the value of adjusted R squared was 0.7482256 an indication that there was variation of 75% on real mortgage loan uptake due to changes in per capita income, foreign exchange rate changes, tax rate changes and Inflation rate at 95% confidence interval. This is an indication that 75% of the changes in mortgage loan uptake could be accounted for by the independent variables.

Table 4.20 ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum ofsquares</th>
<th>Df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>0.9</td>
<td>4</td>
<td>0.227</td>
<td>44.544</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>0.024</td>
<td>5</td>
<td>0.005</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0.921</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Mortgage loan uptake

b. Predictors: (Constant), Interest rate, per capita income, inflation rate, foreign exchange rate changes, tax rate changes.
From the table above on the processed data, which are the population parameters, the model had a significance level of 0.7% which shows that the data is ideal for making a conclusion on the population’s parameter as the value of significance (p-value) is less than 5%. The F critical at 5% level of significance, 4 d.f, 5 d.f was 5.192, while F computed was 44.544, since F calculated is greater than the F critical (value = 5.192), this shows that the overall model was significant, hence there was a significant relationship between the independent variables and the dependent variable.

**Table 4.21: Regression statistics**

Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>-333.140</td>
<td>.000</td>
<td>.000</td>
<td>3.114</td>
</tr>
<tr>
<td>Mortgage interest charge.</td>
<td>14.980</td>
<td>.000</td>
<td>.109</td>
<td>2.953</td>
</tr>
<tr>
<td>Inflation rate .</td>
<td>186.100</td>
<td>.000</td>
<td>1.359</td>
<td>3.002</td>
</tr>
<tr>
<td>Tax incentive .</td>
<td>-26.000</td>
<td>.000</td>
<td>-.277</td>
<td>3.052</td>
</tr>
<tr>
<td>Exchange rates changes</td>
<td>-31.200</td>
<td>.000</td>
<td>-.434</td>
<td>2.976</td>
</tr>
<tr>
<td>Per capita income.</td>
<td>18.500</td>
<td>.000</td>
<td>.107</td>
<td>4.578</td>
</tr>
</tbody>
</table>

*Source:Research data,2018*

Regression and correlation coefficients of mortgage loan uptake

\[ Y_1 = -333.14 + 0.109X_1 - 0.277X_2 + 0.107X_3 - 0.434X_4 + 1.359X_5 + \varepsilon \]

Where;

Y1=Mortgage loan uptake

Coefficients of the key macroeconomic variables are;
\[ \beta_1 = \text{Interest Rate changes} \]
\[ \beta_2 = \text{Tax Incentive} \]
\[ \beta_3 = \text{Per Capita Income changes} \]
\[ \beta_4 = \text{Foreign Exchange changes} \]
\[ \beta_5 = \text{Inflation Rate} \]
\[ \epsilon = \text{error term} \]

From the above table the regression equation connects dependent variable (Y) and independent variables (X). 1 unit increase in interest rate lead to 0.109 unit increase in mortgage loan uptake. 1 unit increase in tax incentives lead to 0.277 unit decrease in mortgage loan uptake. 1 unit increase in per capita income increases mortgage loan uptake by 0.107 unit. 1 unit increase in foreign exchange rate against domestic currency lead to 0.434 unit decrease in mortgage loan uptake. 1 increase in inflation rate leads to 1.359 unit increase in mortgage loan uptake.

At 5% level of significance and 95% level of confidence, inflation Rate had a 0.018 level of significance; per capita income had a 0.012 level of significance, foreign exchange rate had a 0.023 level of significance, tax incentive changes had 0.022 while interest rates had a 0.027 level of significance. All the variables were significant since (p<0.05).

**Table 4.22: Test of normality**

<table>
<thead>
<tr>
<th>Standardized residuals</th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistics</td>
<td>df</td>
</tr>
<tr>
<td>Standardized residuals</td>
<td>0.067</td>
<td>82</td>
</tr>
</tbody>
</table>

*This is a lower bound of the true significance

From the test of normality table Shapiro-Wilks gives \( p = 0.941 \) which is greater than 0.05 and Kolmogorov-smirnov gives \( p = 0.200 \) which is also greater than 0.05 (5% level of significance). Therefore there was no significant deviation from normality of residuals hence the distribution from which the sample was drawn is normal. We don’t have enough evidence to say that the population is not normally distributed.
Table 4.23: White heteroscedasticity Test:

<table>
<thead>
<tr>
<th></th>
<th>F-statistics</th>
<th>Probability</th>
<th>Obs*R-Squared</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.65479</td>
<td>0.066745</td>
<td>18.75341</td>
<td>0.074122</td>
</tr>
</tbody>
</table>

The results given in table above indicate that the p value is 0.066745 hence non-significant at 5% level of significance. This is an indication that the errors are homoskedastic and independent of the regressors, therefore we accept the null hypothesis of constant variance.

4.7 Collinearity statistics

Table 4.24 Collinearity statistics

<table>
<thead>
<tr>
<th>Model</th>
<th>Collinearity Statistics</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mortgage interest charged.</td>
<td>.094</td>
<td>10.667</td>
</tr>
<tr>
<td></td>
<td>Inflation rate changes.</td>
<td>.125</td>
<td>8.000</td>
</tr>
<tr>
<td></td>
<td>Tax incentive change.</td>
<td>.176</td>
<td>5.667</td>
</tr>
<tr>
<td></td>
<td>Exchange rates change.</td>
<td>.052</td>
<td>19.333</td>
</tr>
<tr>
<td></td>
<td>Per capita income changes.</td>
<td>.300</td>
<td>3.333</td>
</tr>
</tbody>
</table>

Source: Research data, 2018

In the above table multicollinearity is assessed using Tolerance and Variance inflation factor (VIF) which measures the impact of collinearity among variables in a regression model. According to Wilcox (2005) a VIF greater than 15 indicates a problem of multi-collinearity. All but one independent variable have figures of VIF below 15. Only foreign exchange variable is 19.333. Therefore the regression model is not unduly affected by multi-collinearity.

4.9 Discussion and interpretation on Research Findings

4.9.1 Mortgage interest rate changes and mortgage loan uptake

From research findings the mean numerical rating is mean of 3.8, standard error of mean is .044, standard deviation of .399. The author found in the research finding that respondents indicated that interest rate changes had significant effects on mortgage loan uptake, coefficient of skewness is +1.576 which indicate that respondents showed that interest changes had significant effects on mortgage loan uptake. According to regression equation 1 unit increase in mortgage interest rate had a positive impact of increasing mortgage loan uptake by 0.109 unit. While the
correlation coefficient indicated negative relationship of -.524. Other findings support the research findings, Chiquier et al (2004) identifies interest rate risks as major factor that negatively affects mortgage loan uptake. Butter et al (2009) talk of negative effects of increasing interest rates. out of which business or borrowesr will be unable to pay. Boleat(2003) argues that long term economic and interest rate stability. International Development Bank,IDB (2005) argues that high interest rate is what explain low demand for mortgage in emerging markets. According to Walley(2010) 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 costs of funds. This discourage mortgage loan uptake in the financial market. According to the respondents and the World Bank report (2010) that Kenya mortgage products are variable interest rate product.

Ho: There no significant effect of interest changes on mortgage loan uptake   Ha: There is significant effect of interest rate changes on mortgage loan uptake. From research findings the mean numerical rating is 3.8 which is above 2.5 which is the acceptance level hence we accept alternative hypothesis and reject the null hypothesis that interest rate has no significant influence on mortgage loan uptake.

4.9.2 Per capita income changes and mortgage loan uptake

From research the mean numerical rating is 2.58 .The author found in the research finding that respondents indicated that per capita income changes had significant effects on mortgage loan uptake with a coefficient of skewness is +0.922 which indicate that respondents showed that inflation changes had very significant effects on mortgage loan uptake and standard deviation is 0.789. In the regression equation 1 unit increase in per capita income leads to 0.107unit increase in mortgage loan uptake. Also a strong positive correlation between mortgage loan uptake and per capita income at 0.709. One of the factors that significantly determine the uptake of mortgage is per capita income as reported by respondents. Positive economic conditions due to increased economic growth have an effect on the behavior and risk behaviour of households on loading of mortgage debts. According to the research finding the respondents indicated that increase in per capita income due to good economic performance had a positive impact on mortgage loan uptake.In support of this results Bakpathway & Saha (2009) found that more than 90 per cent of the borrowers belonged to the category of “employed” while the remaining borrowers were either self-employed, unemployed or pensioners. It indicates the high value that lenders place on
regularity of income in sanctioning loans. Demir et al (2003) argue that if unemployment level in an economy is low, the potential house buyer’s ability to engage with housing finance market increases. Mugambe (2007) found a mismatch between mortgage tenor and the tenor of employment in the Egyptian mortgage market. The empirical existence generally corroborates the theoretical prediction of the basic life cycle and as to the age profile of household debt. Chambers, Gariga & Schlagenhauf (2009) argue that as income and wealth rise while the cost of financing falls and house prices are unchanged, marginal households move from renting to home ownership. Also in support of these results are Ando and Modigliani (1963) expectation of high income in future increase immediate subjective feeling of optimism about the future. Long periods of sustained per capita growth accompanied by the easing of credit constraints and therefore overshadows the likelihood of a possible down turn of business cycles strongly affecting the susceptibility of households to take on credit and further fuelling the economy and hence income expectation. The loop of long periods of economic growth and high income expectations tends to increase the likelihood, almost exponentially of households taking on more credit, which increases asset prices, bringing about the peak of the leverage debt levels that are almost by definition transformed into a debt overhang in long term.

Ho: There is no significant effect of per capita income changes on mortgage loan uptake Ha: There is significant effect of per capita income changes on mortgage loan uptake. From research the mean numerical rating is 2.58 which is above 2.5 which is the acceptance level hence we accept alternative hypothesis and that per capita has significant influence on mortgage loan uptake.

4.9.3 Tax incentive changes and mortgage loan uptake
From research findings the mean numerical rating is 2.48, The skewness is -0.488 and the standard deviation is 0.906. Taxes had mild positive correlation with the mortgage loan uptake at 0.211. In the regression equation 1 unit increase in taxes leads to 0.277unit decrease in mortgage loan uptake. The respondents indicated that tax incentives changes had no significant effects on mortgage loan uptake. The demand for mortgage is also affected by the way the tax system is designed. Taxes can affect the housing cost both directly in the form of tax deductions for interest on loans (interest deductions) and indirectly if they are related to home services. However, property taxes waiver explain rapid growth in housing prices and demand for housing citing Swedish mortgage market (Englund etal, 2015). However in the study the respondents were
categorical that tax incentive changes had no significant impact in mortgage loan uptake in Kenyan mortgage loan market. This is contrary to research finding by Gervails (2002) who argues that tax incentives does not reduce down payment requirements. Rapport (2016) reports that tax incentives hurt first time house owners. However other research finds positive effects of tax incentives. (Chambers, Garriga & Schlagenhauf, 2009). Instead, in their model under the assumption of revenue neutrality, eliminating the mortgage interest deduction lowers average tax rates in the economy and leads to increase in household income and wealth and lower interest rates and hence increase mortgage uptake. In Kenya regarding the consumer housing loan there are three stages where taxes appear: acquisition, tenure and selling. While HOSP (Home ownership saving plan) within income tax code that permits home owners to deduct the interest on up to ksh 4000 per month of mortgage debt, income tax codes in other countries permit no such deductions have higher home ownership higher than Kenya. For example, South Africa is 52percent, Namibia is 22percent of GDP, while Kenya is 2.5percent of GDP hence solidify the research findings that tax incentive changes has no significant impact on mortgage uptake. Perhaps the most pernicious aspects of this government policy of subsidizing investment in homes are that it’s lavished primarily on the rich and upper middle class. Majority of Kenyans do not qualify for the home mortgage deduction because it doesn’t exceed their standards deduction and also a great majority are unaware of its existence as was reported by respondents on the study. Melzer (2005) and Muli (2009) also concurs with the research findings.

Ho: There is no significant effect of tax incentive changes on mortgage loan uptake.
Ha: There is significant effect of tax incentive changes on mortgage loan uptake. From research findings the mean numerical rating is 2.48 which is below 2.5 which is the acceptance level hence we reject alternative hypothesis and accept the null hypothesis that tax incentive changes has no significant influence on mortgage loan uptake.

4.9.4 Inflation rate changes and mortgage loan uptake
The author in the research finding found that respondents indicated that inflation rate changes had significant effects on mortgage loan uptake with a coefficient of skewness of +6.998 which indicate that respondents showed that inflation changes had very significant effects on mortgage loan uptake and standard deviation 2.342. Inflation rate changes had a negative correlation to mortgage loans uptake at coefficient of -0.612. In the regression equation 1 unit increase in inflation rate leads to 1.359 unit increase in mortgage loan uptake. The findings are in agreement
with the study done in USA, Case and Shiller (2003) suggest in their study of housing bubble and boom in USA suggests that home buyers went for mortgage loan in wild expectation of future price appreciation fuelled by inflation. One of the factors that significantly determine the uptake of mortgage is inflation rate as reported by respondents. Majority of the respondents reported that inflation rate changes had significant impact on mortgage loan uptake. In a research in agreement with our findings, high inflation shifts the burden of interest payment and repayment to the initial phase of the loan, with negative effect on mortgage loan uptake (Nickel, 2002). High inflation variability, which usually increases with inflation, also, may explain dampening effect on mortgage uptake. On the other hand, to the extent that households’ income increases in line with inflation, it may reduce the debt to income ratio and thus create room for additional mortgage debt uptake. Furthermore, as our study indicates in appendix(II) where increase in mortgage loan has been witnessed (2006-2014) inflation may rise due to additional housing demand from investors that regards real estate as a reasonably inflation –safe hedge. Isatsaronis and Zhu (2004) argues that this can be the case in particular if the prevailing pension financing system is of a pay as you earn type as this hinders the coming into being of an equity investment culture.

High house price may choke off mortgage demand, but may spur demand by current owners as it creates room for equity withdrawal were allowed. In addition, households may see current house price increase as indicating an upward trend, creating incentive to buy and finance the dwelling to profit future capital gain. Indeed research by Case and Shiller (2003), which support results of the research, in USA 2013 reported that the reasons for not being able to purchase a house is the rising inflation rate. The average median income has not risen faster than house price to enable affordability. Demand levels are also dependent on local conditions. Nairobi rates of house price increase are higher than Mombasa or Kisumu due to zoning restrictions limiting the supply of land and high cost of living in the major cities of Kenya. This explain the high cost of a unit of mortgage house in the study in the case of Nairobi city county in the study as reported by respondents in the study.

Ho: There is no significant effect of inflation rate changes on mortgage loan uptake Ha: There is significant influence of inflation rate changes on mortgage loan uptake. From research the mean numerical rating is 2.73 which is above 2.5 which is the acceptance level hence we accept alternative hypothesis and that inflation rate has significant influence on mortgage loan uptake.
4.9.5 **Foreign exchange and mortgage loan uptake**

The standard error of mean for foreign exchange in the descriptive statistics table is 0.1, skewness is -0.488 which indicated that most respondents indicated a rating mean 2.5 and the standard deviation is 0.906. From the regression equation 1 unit reduction in the value of Kenyan shillings leads to a drop in mortgage loan uptake by 0.434 units. The correlation coefficient indicate that at 0.097 foreign exchange has insignificant correlation to mortgage loan uptake. The author found in the research finding that respondents indicated that exchange rate changes had no significant effects on mortgage loan uptake. Bandyopadhyay etal (2009) is in support of research findings. Boamah (2009,2011) argues in support that a stable currency is an essential ingredient for a successful mortgage market.. He also noted that resident Ghanaians have been priced out of the mortgage market by high exchange rate levels and the dominations of mortgages in foreign currencies.

Ho: There is no significant effect of foreign exchange changes on mortgage loan uptake  
Ha: There is significant effect of foreign exchange changes on mortgage loan uptake. From research findings the mean numerical rating is 2.48 which is below 2.5 which is the acceptance level hence we reject alternative hypothesis and that foreign exchange has no significant influence on mortgage loan uptake.
CHAPTER FIVE
SUMMARY OF THE MAJOR FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction
In this chapter the researcher discuss the summary of the study, conclusions, recommendations and the area for further research.

5.2 Summary of study
The overall objective of the study was to investigate the effects of macroeconomic variables on mortgage loan uptake in Nairobi City County using responses from a sample of 120 employees of Kenya Commercial Bank and Housing Finance Corporation of Kenya. Secondary data was obtained from CBK, KNBS, World Bank and Economic surveys. Limitation of the Study Was that it was conducted in banks where information is regarded with confidentiality and employees are not allowed to disclose it to anyone. The researcher used an introductory letter that stated that the research specifically is for academic purposes. The choice of two financial institutions, who are the market leaders, ensured that in event of scaling down it was still a representation of the entire mortgage market.

The respondents indicated that increasing mortgage interest rates made the cost of borrowing high hence discouraging a greater population from taking up mortgage loans. Weakening of Kenyan shillings against the major global currencies, widening of balance of payment deficit. Increasing government spending occasioned by increased borrowing in the domestic market are observed to have exacerbated the cost of borrowing over the last ten years. On the other hand, per capita income was indicated by respondents to have a very significant influence on mortgage loan uptake. Lenders require a proof of regular, verifiable income from potential borrowers before considering extending a credit. An average mortgage is about Kshs. 4 million (or 40,000 dollars) and the median per capita income for a middle class in Kenya is about 3,600 dollars per year or 300 dollar per month. This explains the 2.5 percent ratio of mortgage loan to GDP in Kenya.

Also tax incentives were indicated in the research findings to have no influence on mortgage loan uptake. This could be due to potential consumer not being aware of their existence (information asymmetry), it can also be explained on the basis of government agencies like Kenyan Revenue Authority (KRA) not being effective in targeting the incentive products. Inflation rate was cited by the respondents to have a significant influence on mortgage loan
uptake. Kenyan inflation situation has been extremely volatile leading to unstable macroeconomic condition. Commodities prices have been on the upward trend in the last decade. The cost of construction materials, labour and hence price of houses have been on the upward trend. The weakening of the Kenyan shillings, increased government spending and widening balance of payment deficit has been blamed for the runaway inflation. The average size of mortgage loan has grown by 89 percent between 2006 to 2014 (Appendix I).

From the study the respondents indicated that an average of 95 percent of mortgage loans is originated in domestic currency (Kenya Shillings) while 5 percent were in foreign currency. This was attributed to the volatility of the Kenyan shillings against the dollar/ euro. According to research finding foreign exchange rates fluctuation had less significance to mortgage loan uptake. This is because foreign investors’ interest in the mortgage market is minimal to insignificant due to the rapid swings of Kenyan currency against foreign currencies. Willey (2010) argue that this stifle the growth of mortgage market in Kenya due to starvation of foreign funds either through the banking system or capital market.

5.3 Conclusion
This research investigation identified the roles played by the five independent variables affecting mortgage loan uptake in Nairobi City County. Given the influence of these variables, mortgages loan uptake is responsive to change in interest rate and inflation rate. This, especially when an increase in interest rate is in response to increase in inflation rate. This had the impact of increasing the cost of houses, down payment to be made and also slows down repayment of existing mortgage loans. The total mortgage debt responds significantly to changes in real per capital income. The median income has not been increasing as fast as the house prices. This has also made the mortgage loan uptake not to increase on average as fast as it would have been expected. It does appear that tax incentives and changes in foreign exchange rates does not play significant role in increasing mortgage loan uptake. This could be due to the lenders not originating their mortgage loans in foreign currency and foreign investors not being interested to invest in the local mortgage market through the capital markets. Also tax incentives have not been effectively targeted by the government agencies like Kenya Revenue Authority to prop up uptake of mortgage loans.
The research has also shown that mortgage loan debt makes the biggest component of household’s investment and households wealth further emphasizing the place of this market Kenyan financial system. Moreover it was discussed that over years and in the context of ongoing globalization and increasing integration of the world market, mortgage market is becoming increasingly important for the broader economy as was illustrated by the recent global economic crisis, which originated from the collapse of the US real estate market. Therefore, given the great significance of the mortgage sector and its development in the broader economy and the various direct and indirect market participants and stakeholders, further research in this area would prove particularly beneficial for policy makers, investors and households alike. Through more extensive research and market analysis, a deeper insight will be gained into the factor affecting this very important sector of the economy, thus enabling better informed and targeted decisions to be made both by government policy makers and financial institutions.

5.4 Recommendation
The research found that Kenya mortgage market has not developed to the level of its peers in the African region, South Africa at 52percent of GDP and 22 percent of GDP. Existing mortgage outstanding is about 70 billion Kenyan shillings with about 20,000 mortgage loanee. According to Walley (2010) the potential is 990 billion Kenyan shilling and potential loanee portfolio of 249,000. Because of this, the study recommends in the light of financial innovation, the introduction of possible alternative options by lenders to enhance increased mortgage loan uptake. First, lenders to move away from relying on deposit base to finance the mortgage market, but to tap in the capital market, this will enlarge their capital base hence reduce the cost of mortgage, represented by interest rate. Securitization may lead to increased competition in primary market leading to introduction of new products and technology for cost cutting. Secondly, another option for Kenyan mortgage is covered bonds, based on Swedish mortgage market model, which has one of the highest mortgage debt outstanding to GDP to over75percent this will shield the mortgage sector from vagaries of inflation impact. The Kenyan government can consider using the financial system to introduce legislation on covered bonds as alternative to funding mortgage debts. In Sweden according to Englund (2011) the collective pension scheme can be used as a source of funding the market. The covered bonds can act as additional source of funding for the mortgage market. (Armelius et al, 2014).
Thirdly, through financial innovation and legislation Credit Default Swaps (CDS) should be introduced. These are financial instruments used as a hedge and protection for debt holders in particular mortgage backed securities (MBS) investors, from the risks of default or by speculators to profit from default this will rope in foreign investors. Insurance companies due to exposure of inventible losses have to seek additional funds (capital) to offset their exposure to CDS losses as they are always the originators of these financial instruments. Fourthly, Capital Market Authority, the government regulator in the securities market should encourage, real estate instrument trust (REITS) which are collective investments vehicles which hold rental properties should aggressively be marketed to Kenyan target mortgage population or market. REITS are attractive option for growing the mortgage market because its exempt from corporation tax on qualifying income and gains from rental property subject to a high profit distribution requirement to shareholders. REITS will bring capital to the Kenyan property market, new listing to the Nairobi Stock Exchange and a new risk-diversified property investment option for investors.

Lastly, Past studies on the housing sector suggests that government that pursue housing policies through government regulatory body such as Central Bank of Kenya, Kenya Revenue Authority, based on the enabling market approach have better results than those that pursue traditional policies based on direct public sectors supply and financing of house for middle- to low income families. This consuming market should also take advantage of government funded housing project to obtain affordable mortgage. The Chinese model of funding of house acquisition by the general population should also be explored. Comparative studies should be done by scholars on long-term tenured mortgages payable over duration of two generation of families.

5.5 Contribution of the study and Areas for Further Research
The study highlighted through comparative study that Kenyan mortgage market is hampered by income that is not growing as fast as inflation rate and interest rates. The capital market is having only two companies that are listed that are fully incorporated to provide mortgage related Publicly trade REITS. Comparative studies shows that long-term tenured mortgages payable over duration of two generation of families are the best options to spread the cost of mortgage to increase affordability to the greater population, like in Norway. The research was limited in the scope, in that it was restricted to Nairobi city and the financial institution covered were fewer. further research should be done to include the rural population to know their characteristics with regard to mortgage loan uptake, since 67 percent of Kenyan population stay in rural kenya. In addition the impact of demographic changes on mortgage loan uptake should also be a subject for further studies.
REFERENCES


Svenson, E (2013). The Effect on Housing Prices of Changes in Mortgage Rates and Taxes, Copenhagen, Memo ltd.


Unplished MBA project, university of Nairobi.


www.housing finance .org

APPENDIX I: LETTER OF INTRODUCTION
BARRACK OWIDI
KENYATTA UNIVERSITY
P.O. BOX 43844
NAIROBI

To whom it may concern

Dear Sir/ Madam,

RE: RESEARCH PROJECT

I am an MBA (Finance) student at Kenyatta University undertaking a research project as part of the requirements of degree of Masters in Business Administration. The topic of my research is “Effects of Macroeconomic variables on mortgage loan uptake in selected financial institutions in Nairobi City County, Kenya.”

For the purpose of this study, I have chosen your organization as my case study for this research. I kindly request your assistance by availing time to respond to the questionnaires. Any information provided will be treated with utmost confidentiality and used solely for academic purposes. A copy of the final report will be made available to you at your request.

Your assistance will be highly appreciated.

Thank you in advance.

Sincerely yours,

Barrack Owidi

MBA StudentEmail: bowidi@gmail.comTel: 0723-672908
APPENDIX II: RESEARCH PERMIT

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Ref. No. NACOSTI/P/18/87084/25812

Barrack Omondi Ovidi
Kenyatta University
P.O. Box 43844-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Effects of macroeconomic variables on mortgage loan uptake in selected financial institutions in Nairobi City County, Kenya” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for the period ending 29th October, 2019.

You are advised to report to the County Commissioner and the County Director of Education, Nairobi County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.
APPENDIX III: LETTER OF APPROVAL

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel: 810901 Ext. 4150

FROM: Dean, Graduate School
TO: Barnack Omondi Owidi
     C/o Accounting & Finance Dept.

DATE: 14th November, 2016
REF: D33/OL/CTY/24048/2014

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 10th November, 2016 approved your Research Project Proposal for the M.B.A Degree Entitled, “Effects of Macro-Economic Variables on Mortgage Loan Uptake in Selected Financial Institutions In Nairobi City County, Kenya”.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking forms are available at the University’s Website under Graduate School webpage downloads.

Thank you.

JACKSON LIJPUSI
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Accounting & Finance Department.

Supervisors:

1. Dr. Ambrose lagongo
C/o Department of Accounting & Finance
KENYATTA UNIVERSITY
IV: AVERAGE MORTGAGE LOAN SIZE IN KSHS MILLIONS

Source: World Bank economic outlook, 2014
APPENDIX V: MORTGAGE LOAN ASSET OUTSTANDING (KSHS BILLION)

Source: World Bank indicator, 2014
# APPENDIX VI: MORTGAGE LENDERS DISTRIBUTION

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>KCB</td>
<td>Large</td>
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<td>HFCK</td>
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<td>Commercial Bank of Africa</td>
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<td>National Bank of Korea</td>
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<td>Cooperative Bank</td>
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<td>379,780,000</td>
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</tr>
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<td>Prime Bank</td>
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<td>109,026,000</td>
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<td>Imperial Bank</td>
<td>Large</td>
<td>N/A</td>
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<td>Bank of Africa</td>
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<td>42,931,681</td>
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<td>Bank of Baroda</td>
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<td>133,516,944</td>
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</tr>
<tr>
<td>Citi Bank N.A</td>
<td>Large</td>
<td>54,960,180</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: CBK Report, 2010
APPENDIX VII: RESEARCH QUESTIONNAIRE

Dear Respondent,

I am conducting a study on “Effects of Macroeconomic variables on mortgage loan uptake in selected financial institution in Nairobi City County, Kenya.” Kindly fill in this questionnaire by responding to the questions concerning mortgage information.

Please tick the appropriate box that suits your answer the most or provide brief explanation where appropriate.

The information gathered shall be treated in confidence and shall be used for this research only. Do not write your name anywhere in the questionnaire.
SECTION A: GENERAL INFORMATION

1. Position held in credit section (Mortgage loan department)
   - Senior manager
   - Middle level manager
   - Credit officer
   - Credit sales person

2. Number of years of service in the mortgage credit section
   - 0 – 5 years
   - 6 – 10 years
   - Over 10 years

3. Gender
   - Male
   - Female

4. Age of respondent
   - Below 30 years
   - 30 – 40 years
   - 41 – 50 years
   - 51 – 60 years
   - Over 60 years

5. Education level of respondent
   - Postgraduate degree
   - Undergraduate degree
   - Diploma/ certificate
   - Others
SECTION B: INFORMATION ON MORTGAGE FIRM

6. Please state the following:

Name of lender/ bank…………………………………………………………………

Branch of lender/ bank………………………………………………………………..

7. For your mortgage loan product, please indicate the following about your mortgage loans.

a) The average loan size per unit
   - Kshs 4 – 6 million □
   - Kshs 7 – 9 million □
   - Kshs 10 – 12 million □
   - Kshs over 12 million □

b) Period of loan repayment
   - 10 years □
   - 15 years □
   - 20 years □
   - Greater than 20 years □

c) What is the approximate loan to value ratio of your mortgage products? (express as percentage)

   ..............................................................................................................

d) What is the approximate mortgage interest rate charged by your firm in 2016 (average per year?)

   ..............................................................................................................

e) What is the approximate composition of your foreign currency to domestic currency domination of your mortgage loan portfolio?
Foreign current  □ percent (%)  
Domestic currency □ percent (%)  

8. What is the down-payment charged by your organization on mortgage/ borrowers?  
(express as a percentage of total loan value)  
…………………………………………………………………………………………………………………..

9. What is the individual minimum mortgage loan given by your organization? 
Ksh…………………………………………………………………………………………………………

10. What is the period of mortgage loan repayment? (Tick only one)  
  10 years □  
  15 years □  
  20 years □  
  Greater than 20 years □  

11. What is the current mortgage interest rate charged by your organization? (Tick only one)  
  10 – 12 □  
  13 – 15 □  
  16 – 18 □  
  19 – 21 □  

12. From your experience as a lender, what is the average gross salary/ income per month for 
those who qualify for your mortgage loan products? (Please tick the appropriate box)  
  Kshs. 26,000 – 69,999 □  
  Ksh. 70,000 – 100,000 □  
  Kshs. 100,001 – 150,000 □  
  Kshs. 150,001 – 200,000 □  
  Kshs. Over 200,000 □
SECTION C: FACTORS AFFECTING MORTGAGE LOAN UPTAKE/DEMAND

13. In your opinion and based on your experience with your mortgage loanees, which of the following factors in from their application for the mortgage loans (tick in the box all that apply)

i) Mortgage interest charged by lender/ bank

ii) Inflation in country as reflected by C.P.I (changes in prices of basic commodities)

iii) General economic performance of the country as reflected by changes in per capita income

iv) Tax incentives/ benefits like mortgage interest tax deductions on interest paid by loanee

v) Exchange rate changes as reflected in depreciation or appreciation of Kenyan shillings against US dollar

vi) Amount of down payment charged by lender

vii) The type of mortgage instruments used by lender i.e. fixed rate or adjustable rate mortgage

viii) Any other additional factor(s)

...........................................................................................................................................................

14. In the factors you have selected in 8 above which ones do you think have significant impact in a client decision to take mortgage loan? (Rank by ticking where appropriate)

1- No significant

2- Less significant

3- Significant

4- Very significant
<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Mortgage interest charge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii. Inflation in country.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii. General economic performance (per capita income).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv. Tax incentive (i.e. mortgage interest tax deductions).</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>v. Exchange rates changes as reflected in appreciation or depreciation of Kenyan shillings against US dollar.</td>
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<td>vi. Amount of down payment instrument used by lender (FRM or ARM).</td>
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<td>vii. Any other additional factors.</td>
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</tbody>
</table>

“Thank you for taking your time to answer the questionnaire.”

-End