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**ABSTRACT**

*The purpose of this study was to examine the effects of interest rate volatility on mortgage uptake among the selected commercial banks in Kenya. The objectives of the study was to determine the effects of inflation ,credit risk, loan demand and gross domestic product on interest rate and relationship with mortgage uptake. The study found that GDP growth and mortgage uptake in Kenya had a positive and significant relationship. The study also found that inflation and mortgage uptake in commercial banks in Kenya had a negative and significant relationship. The study further found that credit risks had insignificant influence on the mortgage uptake in commercial banks in Kenya. Also the study revealed that loan demand had positive and significant influence on the mortgage uptake in commercial banks in Kenya. The study concluded that inflation rate has a substantial influence on the mortgage uptake of commercial banks in Kenya. Inflation reduces the value of money and hence does not favour the mortgage uptake. Concisely, the findings showed that 68.8 % of the mortgage uptake is explained by the four variables and the remaining 31.2% can be accounted by the standard error and other factors.*

**Key Words:** *Inflation, Credit Risk, Loan Demand, GDP, Mortgage Uptake*

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## INTRODUCTION

Like all markets, the mortgage market is the totality of interactions between suppliers (investors) and consumers (borrowers) with intermediaries (mortgage lenders and brokers) in between, in a framework set by government regulation (Gramlich, 2012). Changes affecting any of these categories affect the characteristics and effectiveness of the market and the key factor is the interest rate fluctuations.

In Kenya the middle class comprises 44.9% of the population (AFDB, 2013). This has exacerbated rapid urbanization and high demand for housing in Kenya. To meet the demand for housing, Kenyan households have resorted to various means to own homes. The most popular means of home ownership among the Kenyan households is house building which is considered low costly and convenient. However, in the urban cities, majority of the middles class resort to mortgages as means to own a house. This has seen rapid growth in housing finance system over recent years in both value of loans and number of loans.

Some of the reasons cited for low market penetration are nested in the lack of affordability due to a combination of low incomes, high interest rates, high inflation and the inability of the financial markets to cater for long-term funding. Only around 11% of the population could afford a Ksh. 3.2 million (USD 37800) mortgage over 15 years (World Bank, 2015). The average mortgage across the country is Ksh 6.6 million (USD 70,500), requiring a repayment of Ksh. 90,000 (USD 1,000) per month over 20 years, well above the means of the majority of the population (CBK, 2011). Thus the focus, the effect of interest rates on mortgage uptake.

In developed countries mortgage financing availability is high and has more subscribers as opposed to developing countries (Hahm, 2004). A study by Deng, Zheng & Ling (2004) established that borrower's characteristics are significant in determining prepayment behavior in residential mortgage

performance in China. Risk-based pricing in residential mortgage lending in China was found to help improve the efficiency of the market and enhance the credit availability to the most needed households. Increase in interest rates were also found to be positively and significantly related to growth in long term mortgage loans in Hong Kong housing market (Gerlach & Peng, 2005). Avery, Brevoot & Canner (2006) also carried out a study on higher priced home lending in 2005 and the result showed that low interest rate. Schemes in commercial banks has a positive impact on the credit growth of mortgage finance loans for loan takeovers from existing lenders. California (USA), the study conducted by (Krainer & Laderman, 2011) showed that adverse changes in house prices leads to mortgage default.

A mortgage is a transfer of a legal or equitable interest in a specific immovable property for the payment of debt. A mortgage document is thus created in a transaction whereby one party pledges real property to another party as security for the purpose of purchasing, renovating or construction of a house. The loan is secured by a mortgage lien over the property (Brueggeman, 2010). A majority of the financing institutions offer mortgage financing for house purchase, construction and refinancing purpose with the mortgage loan uptake largely skewed towards house purchase.

Lwali,(2008) noted that in Kenya, the financial institutions providing mortgages include commercial banks, specialized mortgage firms, insurance companies, government parastatals, pension funds, trusts and other real investment. Few banks in Kenyan locality are able to provide a loan to value of 90% of the property value.

Continuous growth in mortgage uptake over the years is a result of financial market liberalization in Kenya coupled with an increase in number of middle class. Financial liberalization led to many new

entrants of mortgage providers which increased affordability and accessibility of mortgage in Kenya. Stiff competition in the financial market led to a substantive reduction in interest rates charged on mortgage which enhanced mortgage uptake by the consumers (World Bank Report, 2011). A number of indicators have been used to measure the growth of the mortgage market. The Central Bank of Kenya has been measuring the growth of Kenya's mortgage market in terms of total mortgage lending, number of mortgage accounts and the ratio of mortgage debt to GDP. This is captured in the CBK (2011), CBK (2012) and CBK (2013) surveys among others.

In Kenya in particular, the mortgage industry has recorded a steady growth over the last decade, with commercial banks entering into the mortgage market with various products. A Central Bank of Kenya (2011) survey showed that the potential growth stood at KES 800 billion, while the actual volume of mortgage loans disbursed stood at KES 61.4 billion. This showed a market performing at barely 7.6% of its potential. However, there is a low level of home ownership which is of 16% and the demand of low income residential housing outstrips the supply (Ruitha, 2010). The mortgage market in Kenya is facing huge challenges and there exists a large housing gap growing each year and prevalent in the urban areas with a deficit placed at 156,000 units each year (World Bank report, 2011). This problem is compounded by other factors like low incomes, high inflation levels, high costs of developing distribution networks, high interest rates, restrictive repayment periods, complex legal systems and regulatory frameworks, Land and property registration (The multiplicity of forms of tenure and transfer methods creates confusion, increases costs, creates legal uncertainties and lack of a one stop registry system) lack of proper information among other factors, mortgage

funding and general market infrastructures (World Bank 2011).

Mortgage market in Kenya is the third most developed in Sub-Saharan Africa with mortgage assets equivalent to 2.5% of GDP. Kenya like other African countries has a large housing gap which is growing every year and is increasingly prevalent in urban areas. The current annual housing deficit is estimated at 157,000 units per annum based on the population growth and urban migration taking place. There is limited data on current levels of construction but according to the Ministry of Housing, it is 50,000 units a year. The deficit is largely filled by the growth in slum dwellings and continued self-construction of poor quality traditional housing but considering the vision 2030 on the fifth section of the social pillar, that's Housing and Urbanization aims to address the problem of housing, social equity and a secure living environment for the people of Kenya. It is this particular challenging need of Housing that witnessed the rise and growth of Housing financing market. Mortgage uptake in Kenya was be high when the various types of mortgage loan products increase, when the rates of these mortgages are affordable, when mortgage financing is the preferred mode for acquiring housing for companies and individual, when the housing supply meets the demand in the market, when the competition in this market is strong enough to moderate rates through several competitive commercial mortgage providers.

#### **Statement of the Problem**

High interest rate in the commercial banks coupled with high collateral requirement impedes the growth of mortgage uptake. Market interest rates are a significant determinant of payment and prepayment probabilities of mortgage (Green & Shoven 1983). As such, when interest rates rise, the fall in the economic value of assets in savings and loan associations. Portfolios vary from one form of mortgage to another. For either of the fixed interest rate contracts or adjustable rate contracts, the cash

flow from the mortgage is constant as long as it has not been prepaid. If the interest rate rises, the homeowner has a nominal capital gain, since his loan is assumed to be below market interest rate (Brueggeman,1997).The Kenyan market as with many other countries in Africa is characterized by a large demand and undersupply of formal housing. At prevailing property rates affordability of basic housing remains a key constraint. In this respect most housing is financed primarily through debt which is in turn affected by factors such as fluctuating inflation and interest. Also, the population increase in Kenya coupled with influx of migration to urban cities has outstretched the demand for housing in Kenya causing housing deficit (World Bank, 2011).The housing gap can thus be partially financed by mortgages, while other solutions are required for lower income groups such as Housing Micro-finance and rental housing. Thus, if Kenya is to start tackling its unmet housing demand it was need to mobilize large amounts of private capital into the financial institutions.

Many investors are watching rising real estate values with a sense of urgency to purchase while the deals are still good. However, one would argue that while increasing prices are definitely a motivating factor, rising interest rates are just as. Interest rates are definitely less predictable than rising values and can move in either direction much quicker as well. As we all witnessed just this last month, any minor shifts in policy or market demand can have a tremendous effect on mortgage interest rates and can affect future returns on an investment on a moment's notice and leads to investors lack of confidence in the Market. Hawtrey and Liang (2008) studied bank interest variations in 14 Organizations for Economic Co-operation and Development countries for the period 1987 to 2001, they concluded that the two dangers associated with high interest margins, one of them is that it may create general shortage of money leading to restricted borrowing for consumer spending, construction, and business investment to

cause, or worsen, a recession. Second problem is that certain sectors within the economy may bear a disproportionate share of the impact of high interest rates and credit shortages due to high cost of funds. High risk premiums charged on mortgages causes interest rates to be expensive to lenders. Mortgage rate changes affect the amount of mortgage interest payments, leading to a direct cash-flow effect on consumption. Mortgages presents an avenue for home ownership in Kenya. However, obtaining of the mortgage facility in Kenya is bureaucratic in nature with the need to identify a suitable service provider also the credit policies and procedures.(Njiriri and Wanyoike, 2012).A study by Kassam (2012) on the financial reports showed that NPLs increased by 14.1% from 4.5% in December 2012. The increase in the NPL levels was mainly due to the spill-over effects of the high interest rates regime during 2011 and 2012. Interest rates increased in December 2011 after CBK increased its key lending rate to a maximum of 18% to curb inflation rate which had peak at 19.72% in November 2011. High interest rates cause difficulties for borrowers and can double the mortgage cost making repayment unaffordable for borrowers (Pettinger, 2011).

### **Objectives of the Study**

The general objective of this study was to investigate on the effect interest rates volatility on mortgage uptake among the selected commercial Banks in Kenya. The specific objectives were:-

- To analyze the effect of inflation on the mortgage uptake among the selected commercial banks operating in Kenya.
- To determine how credit risk affect the mortgage uptake among the selected commercial banks operating in Kenya.
- To establish how loan demand affect mortgage uptake among the selected commercial banks operating in Kenya.
- To determine the how GDP influence mortgage uptake among the selected commercial banks operating in Kenya.

## LITERATURE REVIEW

### Theoretical Review

#### Liquidity Preference Theory

Liquidity preference theory states that economic units have a preference for liquidity over investing. This theory is applied in explaining the interest rate premium offered in forward rates in comparison to expected future spot rates. Forward rate is used as payment for the use of scarce liquid resources. The preference for liquidity can be accounted for by the fact that economic units need to hold certain levels of liquid assets for purchase of goods and services and the fact that these near term future expenditures can be difficult to predict. The liquidity preference theory is mainly focused on the short term interest rate determination. Therefore, the theory is limited by its short-term nature, the assumptions that income remains stable and like classical theory, only supply and demand for money are considered (Gorder, 2012). This theory explains why commercial banks in Kenya prefer to borrow in order to enhance their liquidity since Commercial banks make payments frequently due to the nature of the industry. Thus interest rates is very important determinant on the liquidity of mortgage lending financial institutions.

#### Interest Rate Parity Theory

The Customary interest rate equivalence theory affirms that market regulates on the exchange rates itself such that a high interest rates are rewarded by an anticipation of currency reduction and the opposite is true. Therefore, there shall be no prospect to profit from interest rate differences and there will be no inducement to borrow at a low interest rate currency so as to invest earnings in a high-interest rate currency. This traditional theory is stood out by facts. In real sense, high-interest rate currencies usually encounter a prolonged duration of high appreciation hastened by capital influxes.

The interest rate parity theory is significant in this study since it helps to explain the reason why business organizations may not achieve high financial

performance because of servicing loans that were acquired at high interest rates due to market rate differentials between forward rate and money market rate (Taylor,1987).Organizations may also not have much incentive to borrow at high interest rates and this is likely to affect the level of mortgage uptake and the financial performance attained.

#### Loanable Funds Theory

Loanable funds theory states that interest rates charged are influenced by loanable funds supply and loans demand. In this theory the demand of loanable funds comes from domestic business, governments, consumers and foreign borrowers. Banks establish creditworthiness of an individual before lending. Market structure in which the banks operates determines the supply of funds which in turn determines the availability of loanable funds (Dennis Robertson and Bertil Ohlin, 1936)

Short term interest rates are determined by financial and monetary conditions in the economy operates .Ownership structure like the government based ownership banks are likely to lend at low interest rate because they are likely to be sort out of financial crisis by the government (Lucas Jr, R. E., 1982). Claeys and Vander (2008) argues that this theory derives the determinants of interest rate variations in the sense that if people do not deposit money in commercial banks, the banks was fail to lend and the high demand was lead to higher charges by banks. This in the end causes interest rate variation to widen as a result of inflation. Ross (1976) criticized the theory in that it fails to address the reasons why people would prefer to save and invest without necessarily having to deposit money in the banks like the fear of unknown, wealth taxation, delay in accessing the banked money among other factors.

#### Efficient Market Hypothesis

Financial theory holds that adjustment in the supply of cash is the primary driver in changes in monetary action. As indicated by fiscal theory, if a country's supply of cash increments, monetary action will

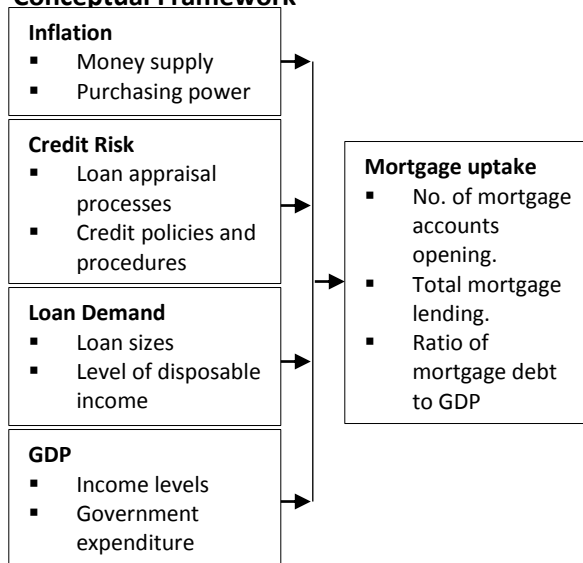
expand; the turnaround is additionally valid. In many creating economies, money related theory is controlled by the focal government, which may likewise be directing the vast majority of the fiscal arrangement choices. Until the center of the twentieth century, most market analysts found no blame with the way that the present keeping money and monetary framework is premium based.

In the mid-sixties of the most recent century, a few financial analysts seen that the current macroeconomic theory is without any palatable and satisfactory method of reasoning for holding cash. Because of his acknowledgment, endeavors were profited expressly into theory, while building the small scale establishments of financial assets. Amid such process, it was normal to investigate the issue of ideal money related arrangements. At exactly that point, they discovered the Friedman’s financial principle that a zero ostensible loan cost is an essential and adequate condition for ideal a locative proficiency. Forcing a positive cost on the utilization of cash would lead merchants to conserve on its utilization, by utilizing genuine assets. In any case, when the rate of premium is zero, brokers had no motivating force to substitute genuine assets for cash. All the more genuine assets can accordingly be coordinated to utilization and speculation. In a customary market economy the rate of premium can be conveyed down to zero just through collapsing the economy at a rate equivalent to the genuine rate of premium, which can be accomplished by consistently getting the cash supply at a rate equivalent to the agent family time inclination. Such strategy decide plainly infers that national financiers should actualize a long-run arrangement of emptying, something that they could never acknowledge (Friedman, Milton, 1969).

With emptying the economy, a few business analysts would stress over the presence of a liquidity trap when the rate of intrigue is zero (Uhlig, Harald, 2000). Others call attention to that money related experts

would have less space with modifying the loan cost downwards even with subsidence if the rate of premium is low. Absolutely, flattening has proficiency issues parallel to those of swelling, even at low loan fees. While numerous financial analysts trust that issues required with zero loan costs are for the most part surmountable, fiscal specialists are not yet inspired. The way that keeping money and back maintains a strategic distance from the utilization of premium based loaning has noteworthy ramifications to fiscal strategy. In dealing with the cash supply, the fiscal specialist would screen the genuine rate of development and set the rate of money related extension to the level predictable with costs dependability and expected genuine development. Some financial experts propose a 100per penny required save proportion with the end goal to give the specialists total control of the cash supply and to proper all seignior age coming about because of fiscal extension to the administration rather than banks. investors (Al-Jarhi, Mabid Ali, 2003).

**Conceptual Framework**



**Independent Variables    Dependent variable**  
**Figure 1: Conceptual Framework**  
**Source: Author (2019)**

### **Empirical Review of Related Literature**

Khawaja and Din (2007) on his investigation on Determinants of Interest Spread in Pakistan presumed that an ascent in expansion builds the credit hazard premium, and consequently the spread that banks request, as higher rates hamper the reimbursement limit of borrowers. High and unstable expansion lessen quickly and eccentrically the capacity of the private division to satisfy their arranged monetary commitments, including obligation commitments. Banks would support against the dangers of high and unpredictable expansion by incorporating into loaning rates a hazard premium that may build the financing cost spread (Samuel & Valderrama, 2006) on banking spreads in Barbados.

Oduor(2012) from the investigation on .the decision of ideal fiscal strategy instrument for Kenya found that, loan costs expanded when the swelling rate was high, and diminished when expansion was low. For this situation, expansion adjustment can be actualized through modification of financing costs in light of yield and swelling.

Mwega (2009) discovered that Kenya experienced credit smash in the period among 1993 and 2002 on the grounds that formal loaning foundations favored less dangerous interests in government securities to the detriment of little to medium undertakings. This circumstance is horrible to development of home loan markets since they would need financing needed. Mwithi (2012) directed an investigation to decide the connection between credit hazard management Practices and the dimension of non-performing advances of microfinance organizations in Nyeri County, Kenya. The investigation discovered that the dimension of credit chance evaluation and the board was high in the MFIs. It was additionally discovered that viable administration of their organizations was influenced by liquidity and gainfulness, and that hilter kilter data in credit

showcase influences the compelling Management of NPLs in MFIs in Nyeri County.

Mannasoo (2012) explores the job of later worldwide budgetary emergency on intrigue spreads in Estonia. The unadulterated spread is clarified by the level of bank hazard avoidance and the market structure of the financial part. The instability of currency advertise loan costs is found to have a long – run sway on the spread. Different components that drive the premium edges are the administrative factors, effectiveness of banks and bank portfolio impacts. Credit hazard was found to assume a negligible job while higher bank liquidity was related with lower premium edge.

Ngugi (2001) and Beck et.al (2010) recognized hazard premium is a key determinant of financing costs spread. Hazard is a circumstance in which elective result exist with known likelihood. These discoveries affirmed past examinations by Croushore (2007) which discovered that when contract loan fees are balanced for a hazard premium and statutory value roofs, territorial differentials vanished.

Concentrates by Sanya and Gaertner (2012) and Grenade (2007) have demonstrated that advertise focus lessens rivalry. Entrop, Memmel, Ruprecht and Wilkens (2012) considered determinants of bank premium edges in Deutsche Bundesbank. They saw that the business aggressive structure is controlled by the degree to which the interest for advances and store supply are inelastic regarding the intermediation expenses charged.

Mwangi (2016) played out an observational research on the impacts of financing cost on the MFIs items in Kenya, a contextual investigation of Kenya Women Fund Trust in Nairobi region. The examination tried to achieve the elements that prompted take-up of advances at KWFT when contrasted with different microfinances and its effect on the borrowers. The examination actualized an elucidating research plan and the information was gathered utilizing organized surveys and meetings .The investigation populace



was the credit officers of KWFT and the specialist utilized stratified inspecting strategy where 150 respondents were acquired. Microsoft exceeds expectations and SPSS PC bundles were utilized to break down the exploration discoveries. The exploration discoveries set up that the advances take-up at KWFT was because of the low financing cost contrasted with different microfinances, very much created and organized items, sizeable advances and adaptable reimbursement periods.

Ong (2013) on is consider on the connection between macroeconomic factors and home loan house costs in Malaysia. The contemplate explicitly researches whether the heightening house rulers had connected relationship to the expansion rate, development cost, GDP, loan cost and population. Secondary information was gathered from the service of Finance from year 2000 to 2010. It was reasoned that GDP, populace and detailing were major contributing variables on house costs.

Ahokpossi (2013) on his investigation on the determinants of premium varieties in standardized savings Administration (SSA) office in USA government utilizing an example of 456 bank. The results showed that while bank explicit factors, for example, credit hazard, liquidity hazard and bank value are indispensable, loan fee spreads are not touchy to financial growth.

## METHODOLOGY

Research design adopted for this study was the descriptive survey design. The target population for this study comprises the forty four commercial banks in Kenya regulated by the Central Bank of Kenya. The sampling frame for this study was the list of commercial banks in Kenya as at December 2017 obtained from the Central Bank of Kenya. Census sampling technique was applied where data on the independent variables was obtained from the Central Bank supervision report and Commercial banks. Data collection in a study can be collected in two ways; Primary and secondary Data collection methods. The study used panel data to collect information from financial statements and reports of listed commercial banks of Kenya. SPSS version 23 was used to process and analysis the data.

## FINDINGS

### Descriptive Analysis

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data (Kothari, 2012). The respondents were requested to indicate their agreement or disagreement with statements based on credit risk effect on mortgage uptake in commercial banks. Concisely, average response and standard deviation were also established.

**Table 1: descriptive statistics for credit risk**

Statements	Mean	Std. Deviation
Has the level of default rate affected the level of mortgage uptake in your company	3.30	1.28
Has the organization adopted proper loan mortgage appraisal	3.62	1.27
Does your company have strong credit policy and procedures when issuing mortgage.	4.07	0.95
<b>Average</b>	<b>3.622</b>	<b>1.26</b>

The exploration mentioned the respondents to show the degree to which they concur the impact of credit hazards on home loan take-up. From the outcomes, dominant part demonstrated that they neither under

concur nor differ that the dimension of default rate influenced the dimension of home loan take-up in your organization appeared by a mean of 3.30. The respondents concurred that the association received

appropriate advance home loan examination as appeared by a mean of 3.62. The respondents concurred that the organization have solid credit strategy and methodology when issuing mortgage s appeared by a mean of 4.07.

What’s more, this section was likewise shows optional information engaging measurements. Table 2 demonstrates the illustrative insights for factors utilized in the study. The results abridged in Table 2 show that GDP development had a base estimation of 0 and a most extreme estimation of 8, mean of 4.7

and standard deviation of 1.897367; credit hazard had a base estimation of 14 and a greatest estimation of 20, mean of 15.85 and standard deviation of 1.888562; Inflation rate had a base estimation of 4 and a greatest estimation of 17, mean of 8.5 and standard deviation of 3.734798; advance demand had a base estimation of 63 and a most extreme estimation of 104, mean of 87.75 and standard deviation of 10.92574 and the Mortgage take-up had a base estimation of - 3 and a most extreme estimation of 5, mean of 1.125 and standard deviation of 2.3771.

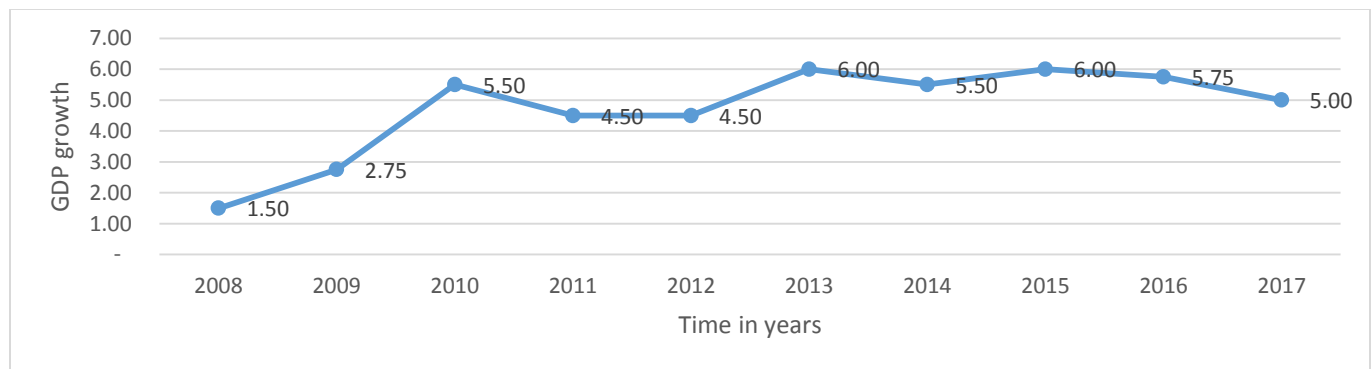
**Table 2: Descriptive Statistics**

Descriptive	N	Min	Max	Mean	Std. Deviation
GDP Growth	44	0	8	4.700	1.897367
Credit risk	44	14	20	15.850	1.888562
inflation Rate	44	4	17	8.500	3.734798
Loan demand	44	63	104	87.750	10.92574
Mortgage uptake	44	-3	5	1.125	2.377100

**GDP Growth**

The study obtained quarterly data for the Gross Domestic Product and extrapolated the data for the

10 years study period. Table 2 showed that GDP had a mean of 4.7 and standard deviation of 1.897367 over the study period. Figure 2 showed the extrapolated trend of GDP over the 10 years study period.

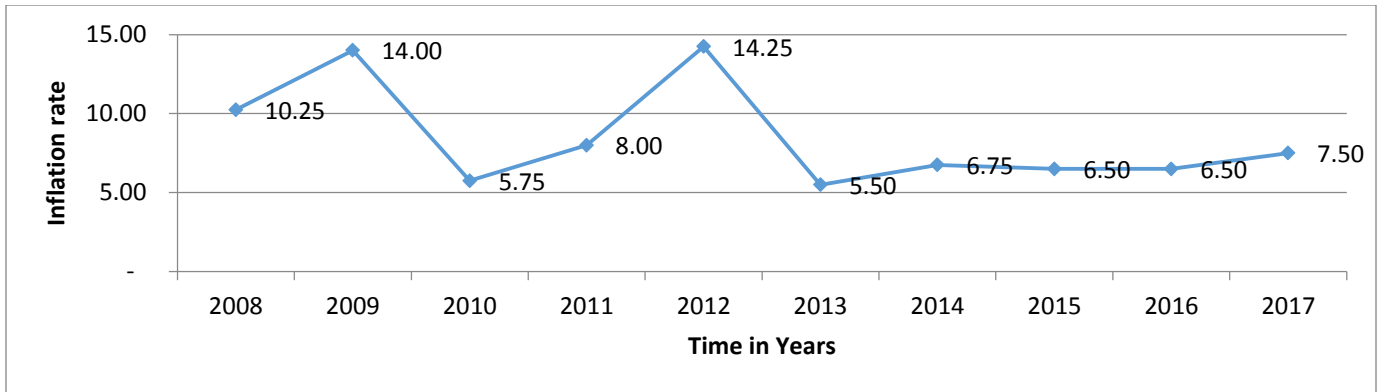


**Figure 2: Quarterly Average for the Gross Domestic Product**

**Inflation Rate**

A total of 44 observations were made of quarterly inflation rate with a mean of 8.5 and standard deviation of 3.734798. Figure 2 shows that the

inflation rate was low in 2010 and 2013. A high inflation rate was witnessed in 2009 and 2012. Figure 3 revealed the inflation rate trend over the study period.

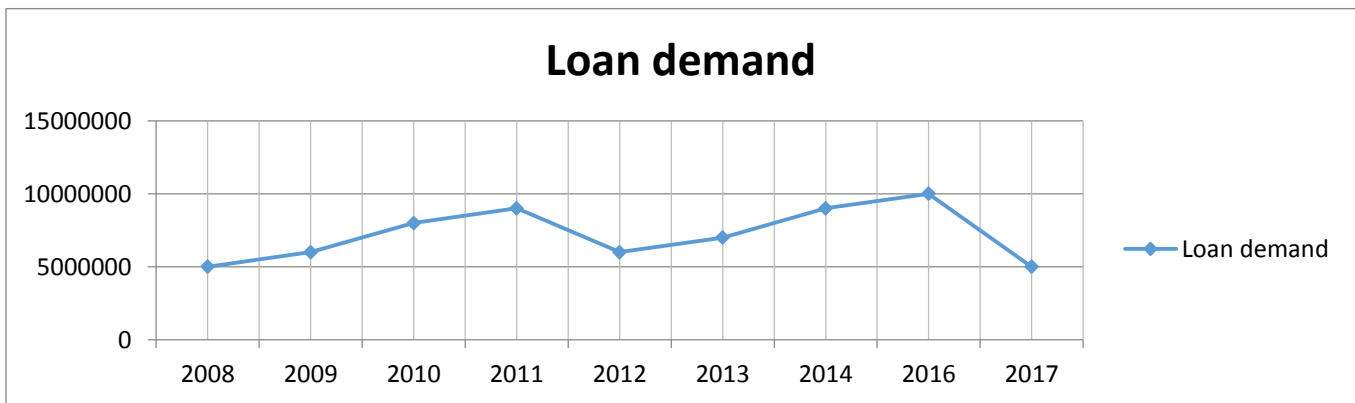


**Figure 3: Average Quarterly Inflation Rate from January 2008 to December 2017**

**Loan demand**

Results in this investigation demonstrate that expanding the credit request builds the supply of cash in the economy consequently expands the home loan take-up, holding different elements steady. The expansive cash incorporates the bank stores and furthermore shows expanded collaboration of the financial segment with the cash holding part,

comprising of family units, nonfinancial partnerships and the general government area. For this situation, contract take-up increments with increment in the wide cash supply, showing that cash supply positively affects the home loan financing. These discoveries were predictable with those by the European Central Bank, which found that advances developed a similar way as cash supply (European Central Bank, 2011).

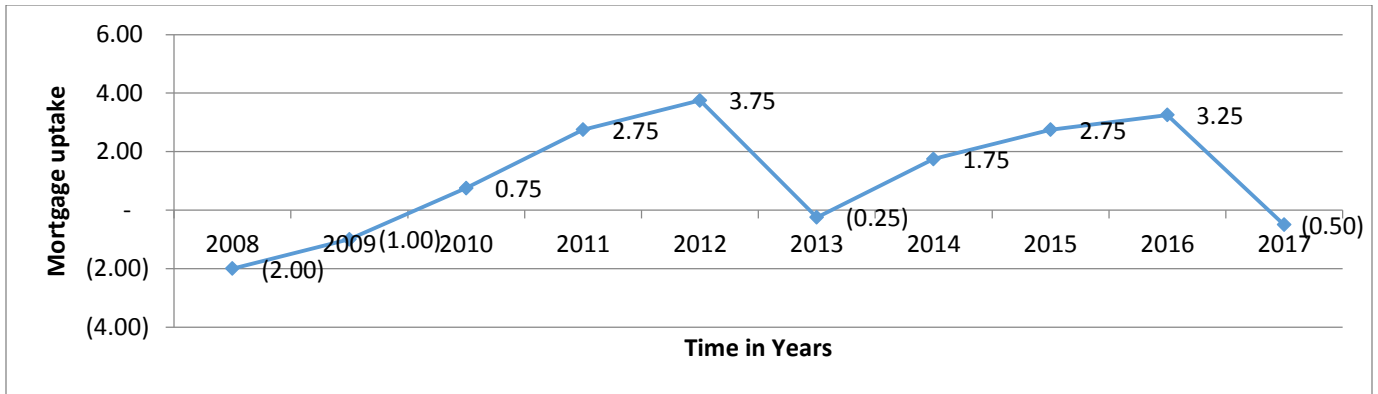


**Figure 4: Average loan demand from January 2008 to December 2017**

**Mortgage uptake**

Table 2 showed that 44 observations were made of the quarterly Hass Index which was used as a proxy for measuring mortgage uptake. The standard

deviation for the Hass index data was at 2.3771 with a maximum rate of 5% and a minimum rate of -3%, while the mean rate was 1.125 % as illustrated in figure 5.



**Figure 5: Average Quarterly Hass Index from January 2008 to December 2017**

### Correlation Results

Connection examination builds up whether there is a connection between factors of study. The investigation does not really clarify causal impact between factors. This examination completed connection investigation so as to build up if there was any critical connection between total national output, credit chance, expansion rate, advance interest and the home loan take-up of business banks.

Connection coefficient draws out the size of the connection between two factors (Mugenda and Mugenda, 2013). A positive coefficient implies that there is a positive connection between factors, while a negative coefficient implies that there is a negative

connection between factors. A zero coefficient implies that there is no relationship between the factors (Mugenda and Mugenda, 2013).

Connection examination results demonstrated that there is a positive and irrelevant relationship between credit dangers and GDP growth ( $r = 0.223$ ,  $p\text{-value} = 0.166$ ). Discoveries likewise uncovered that there is a negative and critical connection between swelling rate and GDP development ( $r = -0.449$ ,  $p\text{-value} = 0.004$ ). The relationship between advance interest and GDP development is certain and critical ( $r = 0.534$ ,  $p\text{-esteem} = 0.000$ ). Results demonstrated that there was a positive relationship between GDP development and the Mortgage take-up ( $r = 0.435$ ,  $p\text{-value} = 0.005$ ).

**Table 3: Correlation Analysis**

	GDPGrowth	Credit risk	Inflation Rate	Loan demand	Mortgage uptake
GDP	1.000				
Credit risk	0.223	1.000			
	<b>0.166</b>				
Inflation Rate	-0.449*	0.287	1.000		
	<b>0.004</b>	0.072			
Loan demand	.534*	0.165	-0.296	1.000	
	<b>0.000</b>	0.31	0.064		
Mortgage uptake	0.435*	0.541	-0.013	0.448*	1.000
	<b>0.005</b>	0	0.937	0.004	

### Regression Analysis

In measurable demonstrating, relapse investigation is a factual procedure for evaluating the connections among factors. It incorporates numerous procedures

for displaying and examining a few factors, when the attention is on the connection between a reliant variable and at least one autonomous factors (or indicators). There are different suppositions for

numerous straight relapses. First it needs the connection between the free and ward factors to be direct. Furthermore, the various straight relapse examinations require all factors to be ordinary. Thirdly, various direct relapses expect that there is next to zero multicollinearity in the information.

The outcomes exhibited in table 4 presented the wellness of model utilized in the relapse model to

clarify the examination marvels. Gross domestic product development, credit hazard, swelling rate and advance interest give a decently solid match in anticipating changes in home loan take-up. This is bolstered by coefficient of assurance otherwise called the R square of 68.8%. This outcome implied that the model connected to interface the relationship of the factors was acceptable.

**Table 4: Model Fitness**

Indicator	Coefficient
R	0.671
R Square	0.68.8
Adjusted R Squared	0.66.9
Std. Error of the Estimate	1.8597

In measurements importance testing the p-esteem demonstrates the dimension of connection of the free factor to the reliant variable. In the event that the importance number found is not exactly the basic esteem otherwise called the likelihood esteem (p) which is factually set at 0.05, at that point the end would be that the model is huge in clarifying the relationship; else the model would be viewed as non-noteworthy.

Table 5 gave the outcomes on the investigation of the change (ANOVA). The outcomes demonstrate that the general model was factually huge. Further, the outcomes suggest that the autonomous factors are great indicators of home loan take-up. This was upheld by an F measurement of 7.181 and the announced p esteem (0.000) which was not exactly the ordinary likelihood of 0.05significance dimension.

**Table 5: Analysis of Variance**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	99.332	4	24.833	7.181	.000
Residual	121.043	39	3.458		
Total	220.375	43			

Regression of coefficients results in table 6 showed that GDP growth and mortgage uptake of commercial banks are positively and significant related ( $\beta = 0.255$ ,  $p = 0.005$ ). The table also indicates that inflation rate and mortgage uptake of commercial banks are

negatively and significant related ( $\beta = -0.554$ ,  $p = 0.004$ ). It was established that credit risk and mortgage uptake of commercial banks were positively and insignificantly related ( $\beta = 0.022$ ,  $p = 0.83$ ).

**Table 6: Model Coefficients of independent t variables**

	Unstandardized Coefficients B	Std. Error	t	Sig.
(Constant)	-14.334	3.386	-4.234	0.000
GDP growth	0.255	0.111	2.29	0.005
Inflation rate	-0.554	0.181	-3.053	0.004
Credit risk	0.022	0.1	0.216	0.83
Loan demand	0.06	0.032	2.727	0.005

Thus, the optimal model for the study was;

$$Y_{i,t} = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \epsilon_i$$
$$Y_{i,t} = -14.334 + 0.255X_{1i} - 0.554X_{2i} + 0.022X_{3i} + 0.06X_{4i} + \epsilon_i$$

Y= Mortgage Uptake  
X<sub>1</sub>= GDP  
X<sub>2</sub>= Inflation  
X<sub>3</sub>= Credit risk  
X<sub>4</sub>= Loan demand  
ε<sub>i</sub>= Error term.

From the relapse show got from table 6, holding the various variables consistent, contract take-up of business banks would be - 14.334. A unit change in GDP would cause contract take-up in business banks to increment by 0.255, a unit change in swelling caused the home loan take-up in business banks to diminish by 0.554, a unit change in credit risk was make the home loan take-up in business banks to increment by 0.022 and a unit change in advance demand was make the home loan take-up in business banks to increment by 0.06. There exists positive connection between GDP development ( $\beta = 0.255$ ,  $p = 0.000$ ), advance interest ( $\beta = 0.06$ ,  $p = 0.005$ ) and the home loan take-up in business banks, there exist a negative connection between expansion rate ( $\beta = -0.554$ ,  $p = 0.004$ ) and the home loan take-up in business banks. There is unimportant connection between credit dangers ( $\beta = 0.022$ ,  $p = 0.83$ ) and the home loan take-up in business banks. The examination discoveries are in help of the investigation discoveries of Omare (2015) who built up a solid positive connection between the total national output and business banks execution.

## CONCLUSION

The examination infers that swelling rate impacts the home loan uptake in business banks in Kenya. Swelling decreases the estimation of cash and consequently does not support the home loan take-up in the market. The investigation likewise presumes that high credit dangers have a negative effect on the home loan take-up in the market. An expansion in

credit hazard implies that business banks has to put higher financing cost to shield the advance default and hence land purchasers pay more to back their activities. Additionally the examination built up that credit request has noteworthy effect on the home loan take-up in business banks. Compactly, total national output significantly affects contract take-up and that a unit increment in GDP development was lead to an expansion in financial development which was animate interest in Real Estate advertise, consequently there is sure relationship between GDP development and the execution of home loan take-up.

## RECOMMENDATIONS

In light of the discoveries the investigation suggests that the administration should go for controlling swelling rate in Kenya by making it for the most part consistent at a low dimension. This may draw in more financial specialists in the Real Estate as it was make the speculation condition increasingly unsurprising.

The investigation prescribes that commercial Banks and other administrative bodies need to methodologies on methods for lessening credit dangers and in substances diminishes the financing cost in advances as it was set up that credit hazards adversely influence the home loan take-up because of high enthusiasm by the banks. Further, cash supply ought to be overseen by the administration so as to animate interest in the Real Estate showcase.

## Area of Further Study

The target of the examination was to evaluate the impact of loan cost instability on mortgage take-up among chosen business banks in Kenya. The investigation was restricted to just four factors that influence contract take-up in business banks in Kenya. It suggested that a comparative research ought to be directed with different factors or of different firms in different parts or industry in the Kenyan market.

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