The Relationship Between Macroeconomic Factors and Mortgage Market Growth in Kenya

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Abstract

The mortgage market is the market for financing real estate assets. Mortgage financing is vital in financing the property market. This study seeks to determine the relationship between selected macro factors and mortgage market growth in Kenya. The study is based on the arbitrage pricing theory, capital assets pricing theory, title theory and lien theory of mortgages. The study utilizes descriptive research design and quarterly secondary data for a period of 10 years from 2007 to 2016. Analysis of data is carried out through descriptive and inferential statistical techniques. Inferential statistics such as linear correlations and multiple linear regressions are used to draw conclusions and make predictions on the relationship between the independent variables and the dependent variable. The research establishes that there is a positive and significant relationship between interest rates, inflation and the mortgage market growth. The research also finds that there is insignificant relationship between exchange rates, gross domestic product and the mortgage market growth. The research concludes that the mortgage market growth in Kenya is influenced by interest rates and inflation. The research recommends that the central bank of Kenya should ensure that interest rates are stable and inflation levels are low to ensure that they do not affect the mortgage market growth.

Keywords: Macro-economic Factors, Mortgage Market, Growth

Introduction

Mortgage is the security for the performance of an act. It involves a mortgager, the performer of the act, and the mortgagee - the holder of the mortgage (Schmudde, 2004). However, the word mortgage is often used to mean mortgage loan. Mortgage loan refers to a loan used for the purposes of raising the required funds to purchase real estate or to alternatively use an existing property as security for a commercial loan for whatever purpose (Dorah, 2012).

The arbitrage pricing theory (APT) proposes that the economy experiences various forms of risks which cannot be removed through diversification of assets. The risks emanate from economic variables such as inflation, exchange rate fluctuations, interest rates fluctuations and changes in aggregate output (Iqbal and Haider, 2005). According to the APT, microeconomic factors affects all sectors in the economy hence they can also effect the mortgage market growth. The capital assets pricing model (CAPM) indicates that the assets returns are functions of the market beta hence any economic activity is affected by the market risk and not several macroeconomic factors (Isenmila & Erah, 2012).

In Kenya, there are various institutions which provide mortgage financing including commercial banks, pension funds, trusts and other real estate investments. Commercial banks, however, dominate mortgage lending in Kenya (Ariemba, Mboya & Kamau, 2015). However, despite having the advanced mortgage market in the East Africa region, the country cannot meet the excess demand for housing financing in the country due to the ever increasing rural to urban migration in the country (Kariuki, 2015). Indeed, Aghionet (2011) observes that economic factors are concerned with the economy as a whole and could affect an entire nation or the globe. These include the macroeconomic factors which ranges from national output, income, government budget balances, finance among other factors (Ariemba et al, 2015). This study will consider four macroeconomic factors; *interest rates, exchange rates*, *economic (GDP) growth* and *inflation.*

Interest rate is the amount charged by the financing institutions for the amount advanced (Boamah, 2010). High interest rates lead to high prices in the properties market and could scare away buyers' hence low demand for funding. High interest rates make renting relatively more attractive to buying. This is made even worse if there are other competitors providing the services in the region or the country (Kariuki, 2015). High interest rates have also been associated with high repayment terms of the loans to high level that was unattained to the majority of potential homeowners. The unstable interest and inflation rates have impacted significantly on the mortgage growth. High interest rates are known to cause huge number of Non-Performing Loans (NPLs) as the borrowers become unable to make payments (Boamah, 2010).
Exchange rate can be defined rate of exchange as the prevailing unit price of another country currency against domestic currency. According to Reid and Joshua (2004), exchange rate is the value of the one unit of foreign currency

against local currency. Omagwa (2005) posit that exchange rates like any other commodity are explained by the law of demand and supply. Supply of currency is explained by changes in fiscal policies whereas currency demand in influenced by a wide range of aspects like the interest rates. Murthy and Sree (2003) argued that exchange rate enables comparison of prices of commodities quoted in diverse currencies. Exchange is determined by pegging a countries currency to another currency. **Economic growth** creates a legitimate expectation among consumers and investors of continued economic development (Addae-Korankye, 2014). This encourages consumer spending and business investment which in turn increases the demand on the money supply moving through the economy. Periods of economic growth have some important features that influence the mortgage market (Ariemba et al, 2015). GDP for Kenya is measured by the annual economic growth rate (Isenmila & Erah, 2012). **Inflation** is the continued rise in the prices of goods and services. This is caused by availability of so much money in the economy chasing limited resources. Due to high money supply in the economy, it drives the prices of goods and services upwards hence forcing citizens to spend more on commodities hence reducing their earnings especially to those citizens earning less who have high marginal propensity to consume. Inflation was measured by average annual rate of inflation. Average inflation is the arithmetic mean for of the month by month inflation normally reported by KNBS for each of the twelve months forming one year (Addae-Korankye, 2014). High inflation leads to high interest rates as lenders seek to compensate loss of purchasing power of their money (Ariemba et al, 2015).

The number of mortgage facilities service providers is key in the determination of the mortgage market growth. Amongst the critical service providers of the mortgage services are the building societies. The building societies are key to the issuance of mortgage loans and facilities in the country. They often hold the largest market share in the mortgage market in diverse countries around the world (Scanlon & Whitehead, 2011). In the building society method, the building societies mobilize funds from their members for the purposes of mortgage lending. This is line with the loanable theory. The theory brings together three players in an economy that is the providers of funds labeled as savers, the utilizers of these funds (loanable funds) labeled as borrowers and the institutions or systems that pool funds from savers and lends it to borrowers (Mutisya, 2016). The savers supply funds for lending through diverse actions such buying of bonds, opening of fixed accounts in commercial banks and depositing of funds in a financial institution for later use. The borrowers then consume these funds that have been deposited in terms of loans.

There are diverse ways in which macro factors influence mortgage growth. The ability to raise long term funds is a critical component in determining the amounts of funds available for lending (Messai, 2013). In cases where a majority of the corporate real estate only had access to short term loans which made the commercial sense of long term housing projects difficult to be financially sustainable (Nelson & Asamoah, 2014). The real estate developers often face challenges to sell their products in the required timelines to make profits. The process of real estate development takes a long period through different stages including land acquisition, development stage, construction, and leasing or sale of the property (Messai, 2013). This means that real estate developers have to wait for a longer period to get return on their investment.

The availability of the loanable funds impacts on the mortgage growth through diverse ways. According to the loanable funds theory, the amount of interest rate is determined through the supply and demand for loanable funds that is available in the credit market (Scanlon & Whitehead, 2011). Low supply of loanable funds leads to high interest rates and vice versa. The theory states that the level of interest rates determines the appetite for loanable funds amongst borrowers. High interest rates act to limit the capacity of borrowers to take up the mortgage facility hence restraining mortgage market growth.

The mortgage industry in Kenya started with the establishment of the Housing Finance on the 18th of November, 1965. The mortgage industry has over the years been dominated by the Housing Finance, which continues to control over 20% of the mortgage industry in Kenya. Changes in the Banking Act in 2002 enabled commercial banks to offer loans that were more than five years thus enabling them to get into the mortgage business. As per Central Bank of Kenya Statistics (2016), a total of 34 commercial banks are offering mortgage services, with the Kenya Commercial Bank being the largest lender. Central Bank of Kenya, (2016) noted that the mortgage loan assets stood at 203.3 billion as of December, of 2015. The mortgage loan book of the 2015 financial year had an improvement of 23% mortgage loan book sizes (Central Bank of Kenya, 2016). However, despite the incremental growth in mortgage industry the Central Bank of Kenya noted that the growth was not adequate to cater for the market and diverse measures needed to be taken to stimulate growth in the sector (Central Bank of Kenya, 2016). The mortgage industry is also affected by the Central Bank Rate which offers the benchmark for the mortgage rate and which are positively correlated with the interest rates offered by banks (Mohamed, 2012). The central bank of Kenya determines the liquidity in the economy through adjusting the Central Bank Rate. To reduce the liquidity in the economy, the central bank increases the CBK rate which results in an increase in the interest rates offered by the commercial banks in pricing of the loan products including mortgages. This in turn, increases the costs of borrowing for the borrowers resulting into slow mortgage uptake. In this context, Ngigi (2015) noted that in 2011 the CBK was forced to sharply increase the Central Bank Rate in order to tame the high inflation.

The income levels and nature of employment contract are key determinant of mortgage uptake. The mortgages are long-term loans which often lock out persons who are employed for short term contracts as the installments for such loans cover long periods. Ngigi (2015) argues that the income levels of the customers determine the amount of loan that they can qualify for as well as the duration of such loans. The economy has an influence on the mortgage growth. According to Messai (2013), the availability of excess money in the economy leads to an increase in money supply and therefore a possibility of inflation. The inflation has a negative consequence on the mortgage terms such as interest rates that vary because of inflation levels.

Research Problem

There are diverse ways in which the macro factors influence mortgage growth. Availability of long term funds for lending is critical to the mortgage growth (Messai, 2013). The availability of loanable funds impacts on the mortgage growth through diverse ways. According to the loanable funds theory, the amount of interest rate is determined through the supply and demand for loanable funds that is available in the credit market. Low supply of loanable funds leads to high interest rates and vice versa. Nelson and Asamoah (2014) indicated that an increase in interest rates on mortgage facilities pushed the repayment terms of the loans to high levels that were unattainable to most potential homeowners. The mortgage loans requirements such as down payment play a significant role in the mortgage market growth. Mortgage industry is often restrained by high required down payment (at least 30 percent of the property value), and high interest rates. This high down payment led to the decline of the mortgage market growth (Green & Wachter 2015).

In Kenya, changes in the Banking Act in 2002 enabled commercial banks to offer loans that were more than five years thus enabling them to get into the mortgage business. As per Central Bank of Kenya Statistics (2016), a total of 34 commercial banks are offering mortgage services, with the Kenya Commercial Bank being the largest Lender. The Central Bank of Kenya noted that mortgage growth was not adequate to cater for the market and diverse measures needed to be taken to stimulate growth in the sector (Central Bank of Kenya, 2016). The central bank rate affects the interest rates offered by the commercial banks in the loan products including mortgages. The economy also has an influence on the mortgage growth. According to Messai (2013), the availability of excess money in the economy leads to an increase in money supply and therefore a possibility of inflation. The inflation has a negative consequence on the mortgage terms such as interest rates that vary as a result of inflation levels.

Diverse studies have been undertaken in respect to the factors influencing mortgage uptake. Ellah (2013) undertook a study on the enhancement of economic growth through mortgage financing and capitalization. The study found that economic growth stabilized the inflation rates hence impacting positively on mortgage development. Ijaiya, Lawal, & Osemene (2012) undertook a study on microfinance and mortgage financing in Nigeria. The study found that access to long-term funds was key to development of mortgage industry. Green & Wachter (2015) examined the American Mortgage in historical and international context. The study indicated that the creation of government back bodies such as Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation have gained an increasing role in the mortgage industry but the study focused on historical development of mortgages

In Kenya, Mogaka, Mboya, and Kamau (2015) examined the influence of capital market deepening on mortgage market growth in Kenya. The study found that the pension funds availability was positively correlated with the long-term funds availability and mortgage market growth but the study focused on financial sector deepening and its effect on the mortgage market. Kigomo (2016) examined mortgage rates in Kenya and its implications for homeownership. The study established that mortgage providers should undertake diverse risk management practices. These risk management practices include mortgage insurance, and use of the title as security amongst other aspects. His study however focused on mortgage rates and not the effect of macroeconomic factors on mortgage growth.

The mortgage growth is a critical factor in enabling home and property ownership in Kenya. Access to shelter is a basic human right as outlined in the universal declaration of human rights and Kenya’s 2010 constitution. The knowledge on the factors influencing the mortgage growth is critical in enabling Kenyans and the policy decision makers understand on the measures that need be taken to ensure that there are adequate mortgage facilities in a sustainable manner and affordable to the Kenyans. However, majority of the empirical studies have not examined the mortgage growth in the country under the current banking sector operational conditions that involve loan interest capping by the government, preference of lending to the government as opposed to the retail market and reduced profitability of the mortgage service providers. This study therefore seeks to answer the question; what is the relationship between macroeconomic factors and mortgage market growth in Kenya?

Methodology

This study sought to examine the influence of the macro factors on the mortgage growth in Kenya. The study utilized the descriptive research design. The study entailed the use of secondary data. The secondary data was source from various sources. Data on the mortgage growth rate, lending rates and exchange rates was obtained from the central bank of Kenya. Data on inflation rates and gross domestic product growth was obtained from the Kenya national bureau of statistics. The study used quarterly data for a period of 10 years from 2007 to 2016. The multiple linear regression model used to capture the relationship between mortgage market growth rate and the various variables is as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where,

Y = Mortgage market growth rate proxied using the Natural log of total mortgages on quarterly basis

X_1= Interest rates proxied using the weighted average quarterly lending rates

X_2 = Exchange rates proxied by the quarterly rate of Kenyan shilling to the US dollar

X_3= Natural log of the Real GDP proxied by the quarterly gross domestic product

X_4 = Inflation proxied by the quarterly consumer price index

β_0 = Constant

β_1, β_2, β_3& β_4= Regression coefficients

ε = regression error

Results and Discussion

The ANOVA results on table 1 shows that the model is significant and a good predictor of the relationship between macroeconomic variables and mortgage market growth. This is indicated by the F statistics value of 87.094 and the p value of 0.00<0.005.

Table 1: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.189	4	5.547	87.094	.000[b]
	Residual	2.229	35	.064		
	Total	24.419	39			

a. Dependent Variable: Ln Mortgages

b. Predictors: (Constant), CPI, Interest Rates, Exchange rates, Ln GDP

From table 2 the following regression was generated

$$Y = -15.875 + 0.864X_1 + 1.717X_4 + \varepsilon$$

The regression coefficients table indicates that there is a positive and significant relationship between interest rates and the mortgage market growth. The results also indicate that there is an insignificant positive relationship between exchange rates and mortgage market growth in Kenya. Further, the results show that the relationship between the gross domestic product and the mortgage market growth is positive and insignificant. Finally, the results indicate that the relationship between inflation (CPI) and the mortgage market growth is positive and significant. The variance inflation factors (VIF) are 1.763, 6.399, 7.988 and 1.468 which are all less than 10 thus an indication that there is no multicollinearity.

Regression Coefficients

Table 2: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-15.875	7.766		-2.044	.049		
	Interest rates	.864	.423	.139	2.043	.049	.567	1.763
	Exchange rates	1.009	.731	.178	1.380	.176	.156	6.399
	Ln GDP	.896	.713	.181	1.256	.217	.125	7.988
	CPI	1.717	.645	.521	2.663	.012	.681	1.468

a. Dependent Variable: Ln Mortgages

The findings of this research revealed a significant and positive relation between interest rate and the mortgage market growth. The means that there is a direct relationship between the rates of interest and the mortgage market growth in Kenya. Similarly, Avery, Brevoot and Canner (2006) found that there is a positive influence of low interest rates and credit growth of mortgage finance loans. Gerlach and Peng (2005) study on interest rates and mortgage credit facilities in Hong Kong found a positive and significant relation between interest rates and growth in long-term mortgage loans. Therefore, high interest rates push the loan repayment amount up. Thus, unstable interest and inflation rates have impacts significantly on the mortgage growth.

The findings of this research revealed a significant and positive relation between inflation and the mortgage market growth. The means that there is a direct relationship between the inflation levels and the mortgage market growth in Kenya. Similarly, Muguchia (2012) found that inflation had positive effect on mortgage financing. Ijaiya, Lawal, and Osemene (2012) revealed that unstable inflation rates make it commercially unattractive to real estate developers.

The findings of this research revealed an insignificant and positive relation between gross domestic product (GDP) and the mortgage market growth. The means that there is an insignificant relationship between the GDP and the mortgage market growth in Kenya. Ariemba, Mboya, and Kamau, (2015) found that GDP per capita and exchange rates were significant in the model in explaining the variation in mortgage market value. Faida (2013) found that that growth in the economy and the period taken to disburse the mortgage loan impacted on the mortgage growth in Tanzania.

The findings of this research revealed an insignificant and positive relation between exchange rates and the mortgage market growth. The means that there is an insignificant relationship between exchange rates and the mortgage market growth in Kenya. However, Boamah (2011) study on the mortgage market in Ghana found that the major aspect influencing mortgage growth in the country is exchange rate. Boamah (2009) further notes that stability of the currency in a given country leads to a successful mortgage market.

Conclusion and Recommendations

The findings of the research indicate a significant positive relationship between interest rates and the mortgage market growth. The study therefore concludes that there is a direct and significant relationship between the rates of interest and the mortgage market growth in Kenya.

The findings of the research found a positive and significant relationship between inflation and the mortgage market growth. The study therefore concludes that there is a direct and significant relationship between the inflation levels and the mortgage market growth in Kenya.

The research findings also found that there was an insignificant positive relationship between gross domestic product and the mortgage market growth. The research based on this finding concludes that there is an insignificant relationship between the GDP and the mortgage market growth in Kenya.

The research finding also found that there was an insignificant positive relationship between gross domestic product and the mortgage market growth. The research based on this finding concludes that there is an insignificant relationship between exchange rates and the mortgage market growth in Kenya.

The study made the conclusion that there is a direct and significant relationship between the rates of interest and the mortgage market growth in Kenya. The researcher therefore recommends that the central bank of Kenya should ensure that interest rates are stables to ensure that they do not affect the mortgage market growth.

The research also made the conclusion that there is a direct and significant relationship between the inflation levels and the mortgage market growth in Kenya. The researcher thus recommends that the central bank of

Kenya should also come up with strategic policy, mechanisms to ensure that inflation is maintained at the right level.

The research made the conclusion that there is an insignificant relationship between the GDP and the mortgage market growth in Kenya. The researcher however, recommends that the government should ensure that there the economic performance in a country is good since good performance in economic terms influence other macroeconomic variables like inflation and interest rates.

Finally, the study made the conclusion that there is an insignificant relationship between exchange rates and the mortgage market growth in Kenya. The study however recommends that the government and the central bank of Kenya should ensure that currency rates are stable since currency rate fluctuation may have adverse effect on the other macroeconomic variables.

This study considered inflation, interest rates, exchange rates, gross domestic product, and their effect on mortgage market growth. The study recommends an additional research using other macroeconomic variables like money supply, foreign direct investments and the mortgage lending rates.

The study also used specific measures like the CPI for inflation, weighted lending rates to measure interest rate and the real GDP to measure economic growth. The topic can also be assessed using different measure like the GDP deflator as a measure for inflation, treasury bills rates as measure of short term interest rates and the GDP growth rate to measure economic growth. Finally, the study used the basic ordinary least squares method to predict the relationship among the variables of the research. Therefore, the research recommends an additional research using the panel data methodology using either the fixed of random effects method. An additional research can also be carried out using econometric models like the generalized autoregressive conditional heteroskedasticity models.

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