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EFFECT OF MORTGAGE FINANCING ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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Abstract: Mortgage financing plays a significant role in poverty reduction in the economy and also provides an opportunity for financial institutions offering it to generate more revenue and grow. However, the adoption of mortgage financing has not been fully adopted by financial institutions leading to the institutions recording far from impressive financial performance levels. The study main objective was to determine the effect of mortgage financing on financial performance of commercial banks in Kenya. All commercial banks in Kenya were used as used as target population. Secondary data collected using a data collection sheet from the financial reports of the commercial banks as well as CBK annual reports was used in the study. Both correlation and regression analysis were conducted. The findings revealed a positive significant effect of Amount of Mortgage Offered on financial performance. The study findings also indicated that Interest Charged on Mortgage has a positive and significant effect on financial performance of commercial banks. The study recommended a need for commercial banks to increase the Amount of Mortgage Offered as well as other activities that augment the total value of mortgage loans extended in order to improve their financial performance. The commercial banks should also improve on the quality of mortgage products offered to enhance higher Mortgage loans uptake thereby improving their financial performance. Commercial banks should adjust their mortgage lending rates positively whenever they increase the Amount of Mortgage Offered which will in turn enhance their profitability leading to an improvement in financial performance. Increases in Interest Charged on Mortgage leads to growth in long-term mortgage loans hence improving financial performance.

Key Words: *Mortgage Financing, Commercial Banks in Kenya*

Introduction

One of the main activities of commercial banks in Kenya is lending and this can be enhanced by the loans which forms their assets base. The argument implies that lending is the largest source of revenue for commercial banks and this affects its financial performance through generation of interest income earnings (Karanja, 2013). In the Kenyan context, mortgage financing has been on the increase (Government of Kenya, 2015).Some factors such as economic growth, profitability of the mortgages, the cross selling potential and market liberalization. To be precise, the mortgage sector has grown by three times as compared to how the market was a decade ago. The Kenya Bankers Association report (2015) places the growth rate of the mortgage financing at 34% per year. The need for housing has led to the growth of the real estate financing sector. The availability of mortgages has a favorable impact on quality of housing, infrastructure, and urbanization thus improving living standards (Muri, Frank, Nothaft, 2002). Commercial banks play a critical role in providing financial services to both individual and institutional borrowers. These services drive economic stability and growth.

Mortgage Financing

Mortgages make it possible for individuals who may not have enough cash to purchase an asset like a house upfront. Both the lender and borrower take a risk on these loans - there is no guarantee for the lender that the borrower will pay back the loan in the future and the borrower risks losing the asset after failure to pay (MC Donald & Thornton, 2008). A mortgage consists of collateral, principal, interest, taxes, and insurance. The house itself acts as collateral. The initial amount of the loan is the principal. Taxes and insurance vary by country and are normally calculated as a percentage of the value of the house. The mortgage rate is the interest charged and can be variable or fixed (Carranza and Estrada, 2012).

There are two types of mortgages that is fixed and adjustable as indicated by YuyingAn (2004). In the context of fixed mortgage, interest rate is assumed by the creditor while for the case of adjustable mortgages, the interest rate is normally lower than that of the fixed mortgages. Fixed mortgages are assumed to be of advantage since the repayments rates monthly remain the same for the loan life (MC Donald & Thornton, 2008). Globally, the maturity of the mortgage financing market varies markedly between developed and developing countries. Presently, developed countries have developed advanced mortgage finance systems. Funds are directed from those with fund surpluses to those that are in need of them by the aid of mortgage markets. Although recognized as economically and socially important, mortgage finance has remained underdeveloped in developing countries mostly due to a lack of stable inflation and employment (Hahm, 2004). According to Sabri (2001), the issue of financing in developing economies is a major stumbling block that needs to be subsidized to ensure economic development. He suggests based on his study of Palestine that subsidized housing programs should be offered through public organizations, cooperatives, local businesses and international corporations.

Carranza and Estrada (2012) argue that mortgage financing significantly affects the profitability of commercial banks. The study is anchored on the Mortgage Value Theory which argues that application of mortgage financing should only be considered when a commercial bank aims to maximize profits. The theory links mortgage financing to real profitability. The study also anchors on the lien theory which allows a lender to follow formal foreclosure proceedings to recover their loans when a borrower defaults the loan repayment hence mortgage financing is not termed as a loss but a profit to a lender.

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Mortgage Financing and Financial Performance of Commercial Banks

According to Ombako (2015), loan portfolio is the most dominant source of income for the commercial banks in Kenya and is sometimes termed as the largest asset for the commercial banks. Loan portfolios of banks usually affect their profitability either positively or negatively depending on the management of the non-performing loans. Literature on how mortgage financing affect the profitability of commercial banks is mixed. According to Dirnhofer (2012), mortgage loans significantly affect banks performance. The author examines whether mortgage-backed securities affected the performance of banks in the USA during the 2007 financial crisis. This study was important as it contributed to research by examining how the financial crisis impacted the performance of banks that were engaged in mortgage financing. Its primary limitation was the focus on the US market alone. Hence, its results cannot be generalized to developing countries like Kenya.

Nyambura (2010) argues that mortgage financing, however, affect profitability positively. The argument by Nyambura (2010) is that commercial banks can use the mortgage financing products to improve their market penetration where the competition is stiff as well as gain a competitive advantage through the provision of competitive interest rates on mortgages. This can, in turn, affect their performance positively. Carranza and Estrada (2012), on the other hand, argue that mortgage financing doesn't necessarily lead to an improvement in financial performance of commercial banks. According to them, mortgage financing can affect commercial banks profitability negatively especially when there are scenarios of mortgage loan defaults. A case was the collapse of most financial institutions in Colombia as a result of high mortgage loan defaults.

Research Problem

The role of mortgage financing in the economy cannot be understated. Mortgage financing plays a significant role in poverty reduction in the economy, but at the same time, it provides an opportunity for financial institutions offering it to generate more revenue and grow. However, the adoption of mortgage financing has not been fully adopted by financial institutions (Central Bank of Kenya, 2011; Onyango, 2010). The effect on performance of banks in Kenya is mixed as argued by both Carranza and Estrada (2012); Nyambura (2010). As evidenced in the CBK report (2016), interest in mortgage has seen an upward trend, while the average size of mortgage loans has increased. The mortgage market, therefore, remains an important source of income for commercial banks, both large and small. The Central bank of Kenya has put concerted efforts in ensuring the existence of a favorable financial environment for operation of commercial banks in the country. Consequently, while some commercial banks are performing well, others have experienced declining fortunes and some have even been placed under receivership (Ayako, Kungu&Githui, 2015).

Some commercial banks have collapsed and placed under receivership, for instance, the collapse of the Euro Bank in 2004 (Madiavale, 2011) and placement of Imperial bank, Dubai bank and Chase bank under receivership (Central Bank of Kenya report, 2016). Among the reasons for the poor performance of Chase bank was non-performing loans of which mortgage financing is a part. The study sought to fill contextual knowledge gaps presented by studies conducted in developed economies. For instance, the study by Gerlach and Peng (2005), focused on the relationship between interest rates and mortgage credit of the Hong Kong housing market, while the study by Glenn and Wayne (2007) looked at the profitability of mortgage-oriented banking. These studies have been conducted in developing economies, and hence their findings can't be generalized in Kenya.

The study also sought to fill existing knowledge gap in local research. As an example, the study by Murugu (2003) focused on perceived quality of the mortgage sector in Kenya, while the study by Merab (2012) centered

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on linking mortgage financing to performance of banks in Kenya. The study by Mang'era (2014) linked mortgage interest rate to performance of the mortgage firms in Kenya. Based on this problem and the knowledge gaps, the study therefore sought to answer the question; what is the effect of mortgage financing on financial performance of commercial banks in Kenya?

Research Objective

The primary objective of this study was to determine the effect of mortgage financing on financial performance of commercial banks in Kenya.

Literature Review

Theoretical Review

Mortgage Value Theory

Greenblatt (1989) proposed the Mortgage Value Theory which indicates that among the primary objectives of financial institutions is the maximization of profits and the use of mortgage is among the methods used to maximize wealth. According to the theory, there is a need for the financial institutions to give mortgages only when they aim to maximize wealth but otherwise, they should not. The theory is relevant to this study as it provides a positive effect of mortgage on how banks perform as it argues that application of mortgage financing should only be considered when a commercial bank aims to maximize profits.

Title and Lien Theory of Mortgage

The Title theory argues that the mortgagee is given the title to a property and acts as a custodian until it has been repaid fully by the mortgagor. The commercial banks, in this case, hold the title until the property has been fully paid for by the mortgagee. In short, the mortgagee has alien interest to the property (Buckley and Kalarickal, 2004). The title is held as security and the commercial banks can sell the property in case of loan default. On the other hand, the Lien theory argues that the mortgagee doesn't hold the title but a lien until they have fully paid for the loan. The mortgagor is allowed by law to sue the mortgagee if they fail to pay the loan. The theory is relevant to this study as it links mortgage financing to the profitability of commercial banks in the sense that, commercial banks are not guaranteed of a loss when giving out a mortgage since they are allowed to sell the property in case of loan default and recover their money.

Modern Portfolio Theory

The theory was proposed by Markowitz (1952) and has widely been applied in investment. The theory argues that those investors, who are risk averse, can construct portfolios which can aide them maximize the expected returns from an investment in relation to a certain market risk. The theory argues that the higher the risk, the more the returns (Kaplan and Schoar, 2005). The theory allows for investment in more than one stock or investment to spread the risk. The argument is not putting all the eggs in one basket by diversification of risks. The theory supports this study in that commercial banks diversify their portfolio by investing in mortgage loans which are normally termed as profitable in the long run. With mortgage financing, there is security as it is easy to recover the property in case of loan default hence it is more rewarding. The theory, therefore, justifies why commercial banks engage in mortgage financing as it links to better profits and fewer returns.

Empirical Review

A study by Fang, Gu, Xiong and Zhou, (2016) established how mortgage affects the performance of banks in

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China. The study adopted correlation analysis, and the findings revealed that macroeconomic conditions of China affected the mortgage market. On the other hand, mortgage financing affects the performance of the commercial banks significantly. In Spain, Rubio (2011) focused on establishing how proportion fix and mortgages affected shocks circulations in the Spanish economy. Overall, the study also examined the welfare effect of this scenario by using the New Keynesian stochastic equilibrium model. The results of the study revealed that extremely variable mortgages lead to the interest rate shocks affecting the economy negatively. Wolfgang and Opfer (2003), on the other hand, established a link between macroeconomic factors and to return of mortgages in German real estate industry. The study applied to time series data collected from the year 1974 to the year 2000. The study findings revealed that there exists a greater sensitivity on the commercial banks caused by high variations in the interest rates in the long run. A study by Gerlach and Peng (2005) focused on establishing how interest rates affect mortgage credit of the Hong Kong housing market. They specifically noted that property prices in Hong Kong experienced incredibly huge swings. The findings of the study showed that increases in interest rates leads to an increase in mortgage loans.

A study by Glenn and Wayne (2007) tried to find out how Community Reinvestment Act affects profits. The primary data that was collected was analyzed through inferential analysis s involving correlations and regressions. The findings of the study revealed that those lenders that focused on offering mortgages for lower-income areas or neighborhoods were more profitable than those that targeted rich suburbs. In Kenya, a study was conducted by Murugu (2003) to establish the perceived quality of the mortgage sector using primary data. Both descriptive and correlation analysis was used in the study. The findings revealed that the quality of mortgage products offered by commercial banks in Kenya was of high quality. In another local study, Mwangi (2013) found out how mortgage financing affected banks performance in Kenya. The main focus of the study was on all the commercial banks. Using secondary data and logit model for analysis, the study established that mortgage financing affects profitability of commercial banks positively. The study however also considered other determinants of profitability. Merab (2012) intended to establish the association between mortgage financing and performance of banks in Kenya and revealed that an increase in mortgage financing improves performance significantly.

Mang'era (2014) on the other hand focused on linking mortgage financing rate to financial performance of mortgage firms using secondary data collected through a secondary data collection template. The use of descriptive and inferential methods was used for analysis. The results indicated a strong positive association between bank size and earnings. On the other hand, liquidity, interest rates, expenses management and credit risk indicated no significant effect on ROA. Another study that was conducted by Okang'a, (2015) to find out how mortgage financing interest rates affect the growth of mortgage financing using a causal study design for research. The 30 listed commercial banks that offered mortgage financing between years 2008 to 2012 were taken as the study sample. Secondary data on profitability as well as mortgage lending for the period 2008-2012 was collected and applied in the study. Multiple regression models were used to analyze data by the use of SPSS Version 20. Mortgage financing was found to affect performance positively.

Conceptual Framework

The conceptual framework as shown in Figure 2.1 presents a figurative representation of the relationship between the study variables. The figure also presents the inclusion of other factors such as economic growth and inflation which are the control variables.

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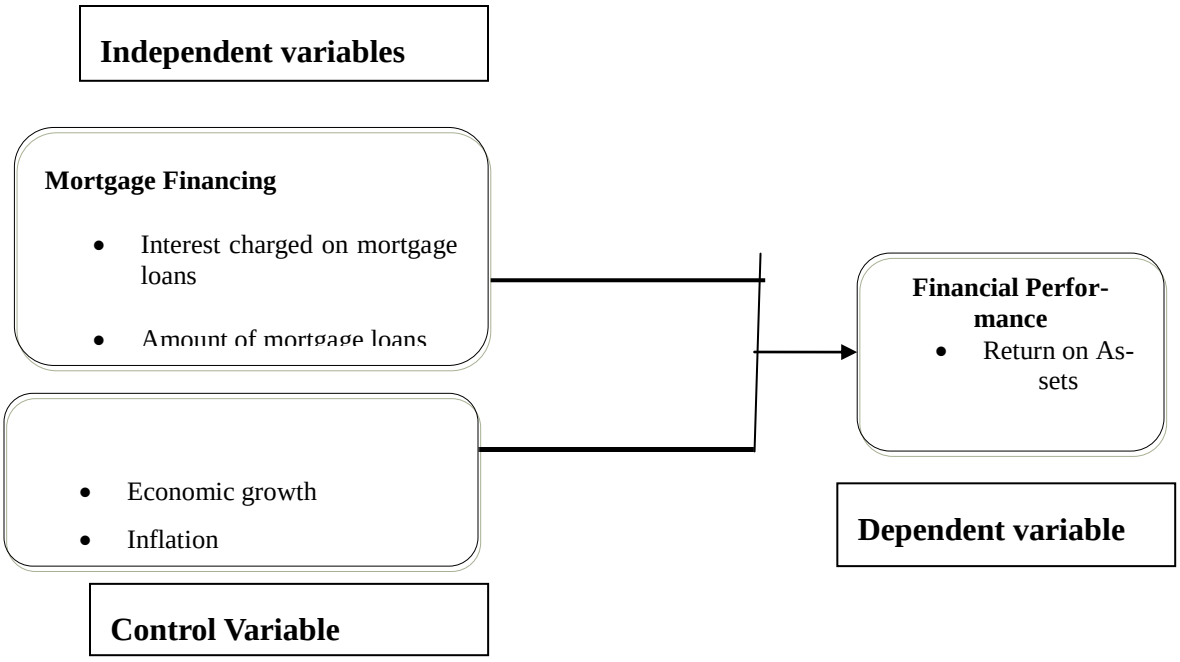

Figure 1 Conceptual Framework

Research Methodology

The study employed a descriptive research design. It was appropriate for this study because it plays a role in answering the "what" and "which" questions that are similar to this study's. The design provides an analysis of description of a state of affairs as it is. The study questions can well be answered if the research design is ap-

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plied (Mugenda, 2008). The study target population was 27 commercial banks in Kenya offering mortgage financing. The study carried a census on all the 27 commercial banks in Kenya hence ruling out sampling. Secondary data collected using a data collection sheet presented in Appendix I was used. The financial reports from commercial banks and Central bank of Kenya were the source of secondary data. Data on mortgages was obtained from the commercial banks while data on economic growth was obtained from the central bank of Kenya. Data was collected for a period spanning 10 years from the year 2007 to the year 2016 so as to cover a wider time scope. Since the data collected was quantitative, the study used descriptive and inferential analysis methods to analyze. Descriptive analysis entailed the use of means, standard deviation, percentages and trends in the study variables over the period of time. The strength of the relationship between the study variables was established through correlation analysis. A multivariate regression model was also used in the study where interest charged on mortgage loans and amount of mortgage loans offered was regressed against return on assets as a dependent variable. In addition, to test the control effect of economic growth and inflation, the study ran another regression model that contained all the four variables against financial performance and tested the significance of economic growth and inflation rate as well as observed the change in R-square between the two regression models. The study regressed the independent variable which is mortgage financing measured by interest charged on mortgage loans and natural logarithm of amount of mortgage loans offered against financial performance measured as returns on assets in the first regression model indicated below. Because of the presence of more than one predictor variable, a multivariate regression analysis was suitable. The model is as indicated:

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

Whereby;

Y is Financial Performance of measured by ROA

X_1 – Interest Charged on Mortgage Loans

X_2 – Natural Logarithm of the amount of Mortgage Loans offered

ε – Is the error term

β – Predictor variables coefficients

To test for the control effect of economic growth and inflation rate, the study ran a second multivariate regression model to establish the change in R-square as well as the significance of economic growth on profitability of commercial banks.

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

Where;

Y – Financial Performance of commercial banks measured as Return on Asset

X_1 – Interest Charged on Mortgage Loans

X_2 – Natural Logarithm of the amount of Mortgage Loans offered

X_3 – Inflation rate

X_4 – Economic Growth

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ε – Is the error term

β – Predictor variables coefficients

Results and Discussion

Trend Analysis

Trend Analysis of Financial Performance

The results revealed that the commercial banks in Kenya experienced unsteady fluctuations in financial performance as provided by fluctuating values of ROA for the study period. There was a steady increase in the trends on performance of finance of the commercial banks in Kenya for the period 2007-2008 and further to 3.75 in the year 2009 that also recorded the highest level of financial performance for the study period of 10 years. Financial performance of the commercial banks declined from 3.570 in 2009 to a low of 3.155 in the year 2011 before recording a significantly impressive improvement to 3.713 in the year 2012. However, the trends revealed that performance of finance by commercial banks in Kenya has been declining unsteadily for the last four years recording a value of 2.727 in the year 2016 which is also the lowest value of financial performance for the study period (2007-2016). Accordingly, the decreasing values of ROA for the period 2012-2016 indicate declining profitability leading to the poor financial performance of the commercial banks. The findings are as shown in Figure 2.

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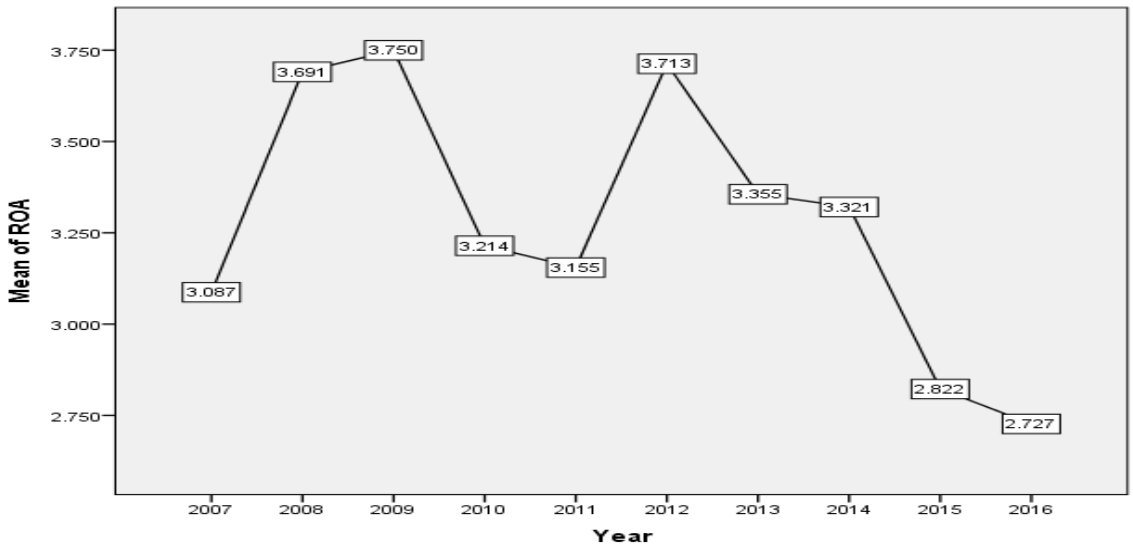

Figure 2 Trend Analysis for Financial Performance of Commercial Banks

Trend Analysis of Amount of Mortgage Loans Offered

The trend results as shown in Figure 3 reveal that the total amount of mortgage loans offered by the commercial banks in Kenya has increased unsteadily for the period 2007-2016 with an initial value of KShs. 1.551 billion increasing to KShs. 7.745 billion in the year 2016. This implies that the total amount of mortgage loans offered in Kenya has been steadily growing for the last 10 years.

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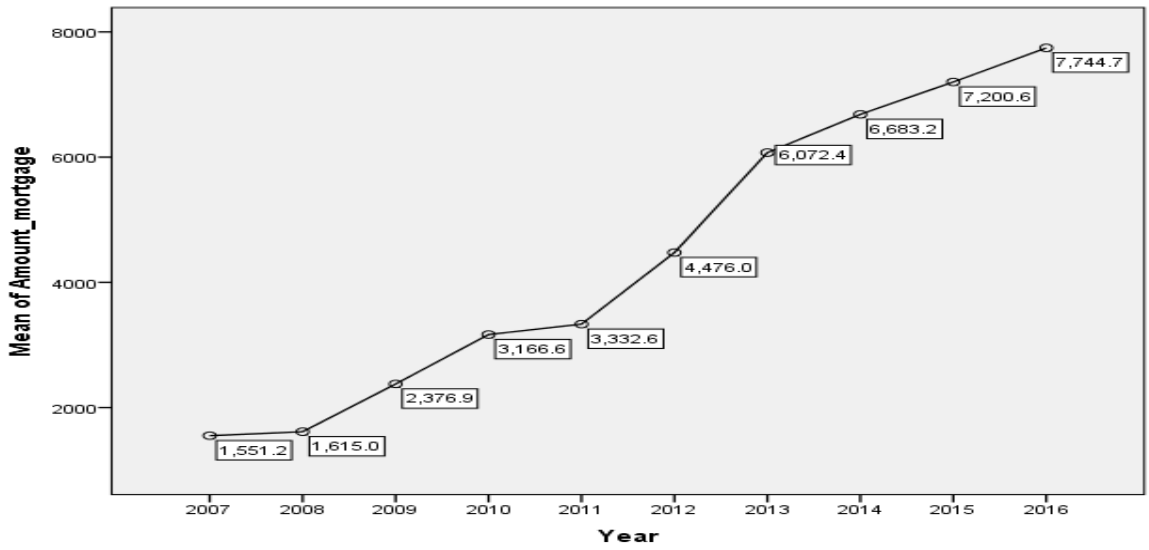

Figure 3 Trend Analysis for Amount of Mortgage Loans Offered

Trend Analysis of Interest Charged on Mortgage Loans

The results of the trends of Interest Charged on Mortgage Loans offered by the commercial banks revealed unsteady fluctuations in Interest Charged on Mortgage Loans for the period 2007-2016. The Interest Charged on Mortgage Loans increased steadily from 16.29 in the year 2007 to 18.69 in the year 2010. The trends however revealed steady decline in the Interest Charged on Mortgage Loans offered by the commercial banks to 16.10 in the following year before steadily increasing to 18.296 in the year 2013. The trends further revealed a steady decline in the value of Interest Charged on Mortgage Loans to 14.5 in the year 2015 before recovering slightly to 15.29 in the last one year. The last quarter of the study duration has therefore recorded an overall unsteady decline in the Interest Charged on Mortgage Loans offered by the commercial banks as shown in Figure 4.

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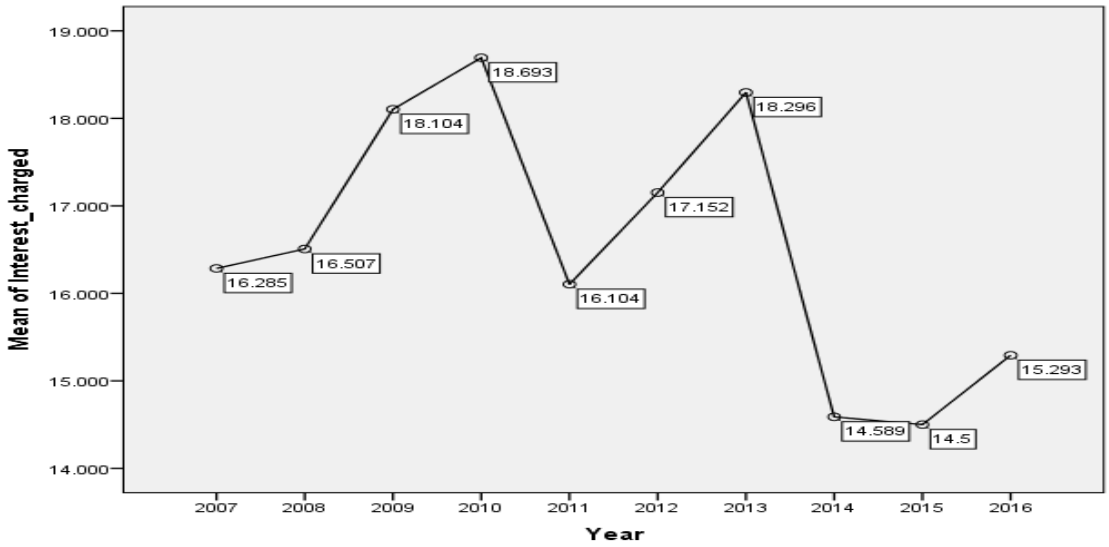

Figure 5 Trend Analysis for Interest Charged on Mortgage Loans

Trend Analysis of Inflation Rate

Further, the results of the trends of Inflation rate revealed a non-uniform fluctuation in inflation rate for the study period. The inflation rate in Kenya stood at 9.759 in the year 2007 but increased steadily to 26.24 in the following year indicating a steady rise in the consumer price index for the consumer goods. The inflation rate however declined steadily to a value of 3.961 in the year 2010 which is also the lowest value of inflation rate registered in the country for the entire study period. The inflation rate in Kenya has relatively remained low for the last 5 years with an unsteady decline to 6.298 in the year 2016. This implies that the inflation rate in the country has fluctuated unsteadily for the last ten years reflecting fluctuating economic environment. The findings are presented in Figure 6.

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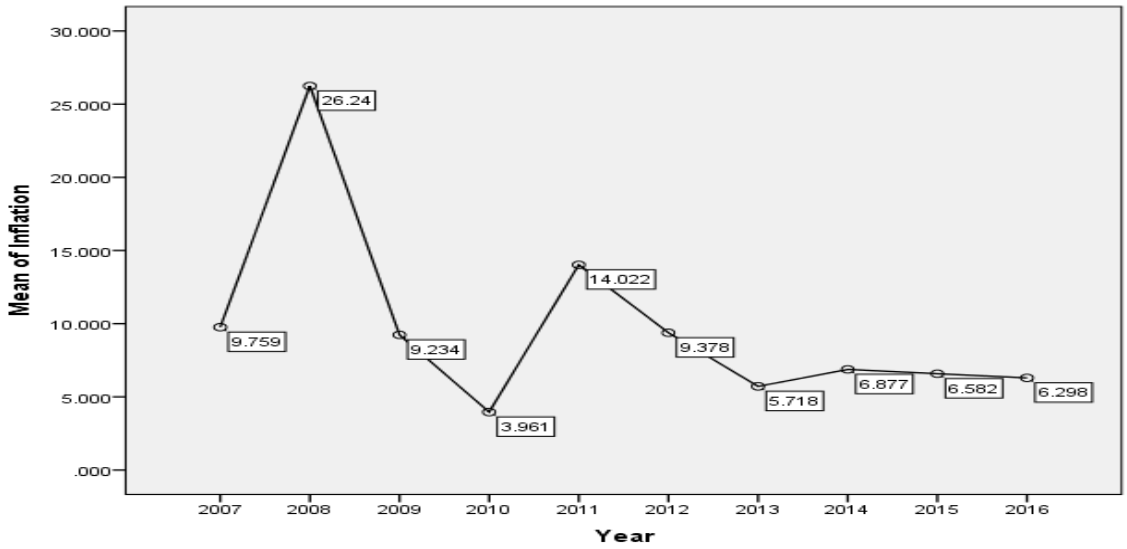

Figure 6 Trend Analysis for Inflation Rate

Trend Analysis of Economic Growth

The results for the trends of economic growth as measured by Gross Domestic Product for the last ten years revealed an unsteady variation with an initial value of 6.851 in the year 2007 declining steadily to 0.232 in the year 2008, after which the level of economic growth recovered significantly to 8.402 in the year 2010. The trends of economic growth further revealed steady decline from 8.402 to 4.563 in the year 2012 before steadily increasing to 5.829 in the year 2016.The findings are as shown in Figure 7.

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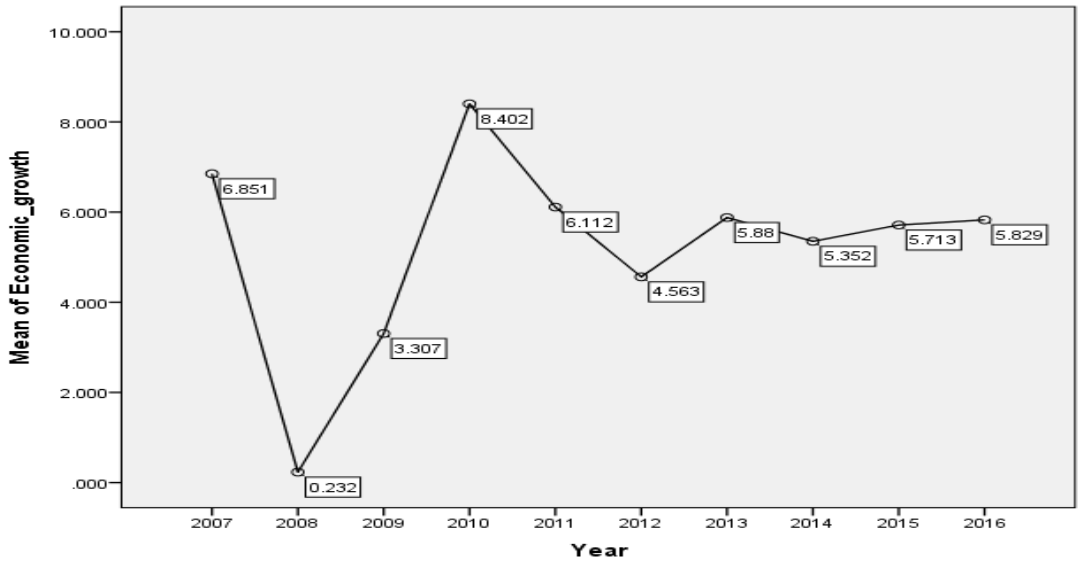

Figure 7 Trend Analysis for Economic Growth

Diagnostic Tests

Autocorrelation and Multicollinearity tests were conducted to ensure that the data fit the assumptions of classical linear regression model. Variance inflation factor was used for multicollinearity while Durbin Watson was used for autocorrelation.

Multicollinearity Test

The existence of Multicollinearity occurs when the independent variables are highly correlated, that is when the correlation value is above 0.8. Unauthentic standard errors and false prediction proves presence of Multicollinearity. Table 1 results shows that there was no multicollinearity problem since the values of VIF were less than ten which is the threshold.

Table 1 Variance Inflation Factor Test of Multicollinearity

Predictor Variables	**Tolerance**	**VIF**
Log of amount of mortgage Loans offered	0.916	1.092
Interest charged on Mortgage Loans	0.938	1.066
Inflation rate	0.338	2.957
Economic Growth	0.344	2.904

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Test of Autocorrelation

Autocorrelation is a situation where the error term is correlated over time. Since the data used in the study was collected over time, this test was conducted using Durbin Watson (DW) test. The results presented in the table below revealed the presence of positive autocorrelation and hence the study adopted robust standard errors in order to correct the problem.

Table 2 Durbin Watson Test of Autocorrelation

Test	Statistic
DW	0.604

Correlation Analysis

A Pearson Correlation analysis was used to establish the association between the variables. The findings as presented in Table 3 revealed a positive and significant correlation between Log of Amount of Mortgage Offered and performance (r = 0.166, Sig = 0.007). This implies that higher amounts of Mortgage loans lead to a significant improvement in performance. The findings also showed a positive and insignificant correlation between Interest Charged on Mortgage and financial performance (r = 0.095, Sig = 0.121) implying that higher Interest Charged on Mortgage will translate to an insignificant improvement in performance. Furthermore, there was a negative and insignificant effect of inflation rate on return on asset (r = -0.069, Sig = 0.257). This implies that high inflation rate in the country leads to an insignificant decline in returns on assets. The findings also showed that high values of economic growth affects ROA positively but not significantly (r = 0.097, Sig = 0.114).

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Table 3 Correlation Results

Correlations		Log of Amount of Mortgage Offered	Interest Charged on Mortgage	Inflation rate	Economic growth
Log of Amount of Mortgage Offered	Pearson Correlation	1			
Interest Charged on Mortgage	Pearson Correlation	-.237**	1		
Inflation rate	Pearson Correlation	-.137*	-0.037	1	
Economic growth	Pearson Correlation	0.063	0.032	-.805**	1
Financial Performance	Pearson Correlation	.166**	0.095	-0.069	0.097
	Sig. (2-tailed)	0.007	0.121	0.257	0.114
** Significance at 1% level of significance					
* Significance at 5% level of significance					

Regression Analysis

The change in the dependent variable attributed to the change in each of the predictor variables was established using an OLS regression. A similar model was also used to establish the control effect of inflation and economic growth.

Effect of Mortgage Financing on Financial Performance

Table 4 regression analysis results reveals that the coefficient of determination (R squared) was 0.047 which implies that only 4.7% of the changes in financial performance of commercial banks is explained by mortgage financing while 95.3% of the variation in financial performance of commercial banks is explained by other factors other than Mortgage Financing.

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Table 4: Coefficient of Determination

R	R Square	Adjusted R Square	Std. Error of the Estimate
.218	0.047	0.04	2.13307
Predictors: (Constant), Interest Charged on Mortgage, Log of Amount of Mortgage Offered			

The study findings also revealed that the overall model was significant. The F statistic for the model of 6.563 was significant (Sig = 0.02), hence an indication that the model connecting mortgage financing to performance was significant. To verify the findings, the study also used the F-distribution table to obtain the F-critical value ($F_{0.05\ (2,266)}$) calculated at α = 5%, using denominator degrees of freedom of 266 and numerator degrees of freedom of 2 and compared against the F-calculated value of 6.563. The rule of the thumb provides that if F-calculated is > the F-critical, then the model is significant. The F-critical value from the F-distribution table was 3.030, which is less than 6.563 hence it confirms the previous findings that the model connecting mortgage financing to financial performance of commercial banks was significant. The results of overall model significance are presented in Table 5.

Table 5: Overall Model Significance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	59.721	2	29.861	6.563	.002
Residual	1201.196	264	4.55		
Total	1260.918	266			
Dependent Variable: Financial Performance of commercial banks					
Predictors: (Constant), Interest Charged on Mortgage, Log of Amount of Mortgage Offered					

The study findings indicated that the association between Log of Amount of Mortgage Offered and financial performance of commercial banks was positive and significant (Beta = 0.236, Sig = 0.001). This implies that one unit increase in the Log of Amount of Mortgage Offered leads to a 0.236 units increase in returns on assets. The study findings also indicated that Interest Charged on Mortgage positively affect returns on assets significantly (Beta = 0.107, Sig = 0.02). This implies that one unit increase in the Interest Charged on Mortgage leads to a 0.107 units growth in returns on assets.

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Table 6: Regression Model Coefficients

Predictors	**B**	**Std. Error**	**t**	**Sig.**
(Constant)	0.165	1.019	0.162	0.871
Log of Amount of Mortgage Offered	0.236	0.073	3.237	0.001
Interest Charged on Mortgage	0.107	0.046	2.349	0.020
Dependent Variable: Financial Performance of commercial banks (ROA)				

Control Effect of Inflation rate and Economic growth

Table 7 regression analysis results shows only 6.1% of the variation in performance is explained by mortgage financing as well as by the control effect of inflation rate and economic growth while 93.9% of the variation in performance is explained by other factors other than mortgage financing and the control effect of inflation rate and economic growth. This shows an insignificant variation in the coefficient of determination (R squared) from 0.047 to 0.061 implying that inflation rate and economic growth do not significantly affect performance.

Table 7: Coefficient of Determination

R	R Square	Adjusted R Square	Std. Error of the Estimate
.247	0.061	0.047	2.125539
Predictors: (Constant), Economic growth, Interest Charged on Mortgage, Amount of Mortgage Offered, Inflation			
Dependent Variable: Financial Performance of the commercial banks			

The study results also showed that the model was significant. The F statistics was 4.273 at (Sig = 0.02), hence an indication that the model linking mortgage financing and control factors of inflation rate and economic growth to performance was significant. To verify the findings, the study also used the F-distribution table to obtain the F-critical value ($F_{0.05\,(4,266)}$) calculated at $\propto$ = 5%, using denominator degrees of freedom of 266 and numerator degrees of freedom of 4 and compared against the F-calculated value of 6.563. The F-critical value from the F-distribution table was 2.406, which is less than 4.273 hence it confirms the significance of the model. The results are presented in Table 8.

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Table 8: Overall Model Significance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	77.224	4	19.306	4.273	.002
Residual	1183.693	262	4.518		
Total	1260.918	266			
Dependent Variable: Financial performance of the commercial banks					
Predictors: (Constant), Economic growth, Interest Charged on Mortgage, Amount of Mortgage Offered, Inflation					

The findings of the study showed that an increase in inflation rate does not significantly increase performance (Beta = -0.01, Sig = 0.789). The findings also showed that economic Growth positively but insignificantly effect performance (Beta = 0.099, Sig = 0.352). This shows that an improvement in the growth of the economy doesn't necessarily lead to a significant improvement in ROA. The results are as shown in Table 9.

Table 9: Regression Model Coefficients

Predictors	**B**	**Std. Error**	**t**	**Sig.**
(Constant)	0.077	1.399	0.055	0.956
Amount of Mortgage Offered	0.250	0.074	3.382	0.001
Interest Charged on Mortgage	0.112	0.046	2.461	0.015
Inflation Rate	-0.010	0.037	-0.267	0.789
Economic Growth	0.099	0.106	0.932	0.352
Dependent Variable: ROA				

Interpretation of the Findings

The trend analysis results revealed that the commercial banks in Kenya experienced unsteady fluctuations in financial performance as provided by fluctuating values of ROA for the study period. The trends also revealed that financial performance of the commercial banks in Kenya has been declining unsteadily for the last four years. Accordingly, the decreasing values of ROA for the last four years indicate declining profitability leading to poor financial performance of the commercial banks. Further, the trend results revealed that the total amount of mortgage loans offered by the commercial banks in Kenya has increased unsteadily for the last ten years implying that the total amount of mortgage loans presented by the commercial banks in Kenya has been steadily growing for the last 10 years. The results of the trends of Interest Charged on Mortgage Loans offered by the commercial banks revealed unsteady fluctuations in Interest Charged on Mortgage Loans for the period covered by the study.

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Interest Charged on Mortgage Loans increased steadily for the first quarter of the study period before steadily declining for the next four years of the study duration before finally recovering in the last quarter of the study duration. The findings of the study showed positive and significant effect of amount of mortgage offered which implies that an increase in the amount of mortgage offered lead to a significant improvement in their returns on assets. The results are consistent with the findings of Merab (2012). The results also showed a positive but insignificant relationship between Interest Charged on Mortgage and financial performance of commercial banks in Kenya implying that an increase in Interest Charged on Mortgage will translate to an insignificant improvement in financial performance of the commercial banks. The results are consistent with the findings of Wolfgang and Opfer (2003). Further, the results indicated a negative but insignificant effect of inflation rate implying that an increase in inflation rate in the country will lead to an insignificant decline in financial performance of the commercial banks. The results are consistent with the findings of Mang'era (2014).

Conclusions

The conclusions of the study were drawn from the results and findings of the study. The study concluded that an increase in the Log of Amount of Mortgage Offered as well as other activities that augment the total value of mortgage loans extended by the commercial banks leads to a significant improvement in financial performance of the commercial banks in Kenya. The study also concluded that an increase in the Interest Charged on Mortgage leads to a significant improvement in financial performance of commercial banks in Kenya. Further, the study concludes that an increase in inflation rate does not significantly improve financial performance of the commercial banks in Kenya. Similarly, the study concluded that an increase in Economic Growth does not significantly improve financial performance of the commercial banks in Kenya.

Recommendations

The study recommends that commercial banks in Kenya should target to increase the Amount of Mortgage Offered as well as other activities that augment the total value of mortgage loans extended in order to improve their financial performance. The commercial banks should also improve on the quality of mortgage products offered to enhance higher Mortgage loans uptake thereby improving their financial performance. The study also recommends that commercial banks should adjust their mortgage lending rates positively whenever they increase the Amount of Mortgage Offered which will in turn enhance their profitability leading to an improvement in financial performance. Increases in Interest Charged on Mortgage leads to growth in long-term mortgage loans hence improving financial performance of the commercial banks.

Conflict of Interest

No potential confict of interest was reported by the authors

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