Credit Risks Management Practices, and Performance of Real Estate Construction Housing Projects in Kenya

Credit Risks Management Practices, and Performance of Real Estate Construction Housing Projects in Kenya; A Case of Real Estate Construction Housing Projects in Busia County

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ABSTRACT

Purpose: The purpose of this study was to establish how credit risk management practices influence performance of Real Estate Construction Housing projects in Busia County.

Methodology: The data for this study was collected using questionnaires, focus group discussions and interview schedules. Data was analyzed using descriptive and inferential statistics. Descriptive statistics involved quantitative data analysis therefore it used measures of central tendencies such as frequency, percentage, and mean standard deviation, composite mean and composite standard deviation, while inferential statistics involved testing of research hypotheses using spearman correlation and regression analysis.

Findings: During data analysis the study found that credit risk influences performance of real estate construction housing projects in Busia County; implying that using the Likert scale, the respondents agreed that credit risk influences performance of real estate construction housing projects in Busia County. The overall correlation coefficient for credit Risk Management and Performance of real estate construction housing projects in Busia County was found to be 0.580 with a p-value of 0.000 < 0.05 implying that from the views of participants in the study the results indicated that there was a significant relationship between Credit Risk Management and Performance of real estate construction housing projects in Busia County; leading to rejection of the null hypothesis and acceptance of the alternative hypothesis. The simple linear regression coefficients as well as the Pearson correlation results indicated that there was significant influence of Credit risk management on Performance of real estate construction housing projects in Busia County.

Unique Contribution to Theory, Policy and Practice: The study contributed the theory that revealed that past statistics show that higher interest rates on credit have not necessarily misguided real estate total return performance but property performance has often remained resilient in the face of rising rates. The study also informed the practice that real estate development is a capital intensive investment and thus developers have to explore alternative sources of capital which can be affordable to them. Finally, the study informed the policy makers that to deliver the high numbers of affordable housing units required, the process of land and real estate transactions needs to be much faster.

Keywords: *Credit risk, Management practices, Performance of Real Estate Construction Housing Projects.*

1. Introduction

Management of credit risk is key in the success of any business. According to (Ajello, Andrea, Thomas, David & Taiske, 2015), if the real estate construction housing entrepreneurs do not manage their credit risks well, the business is likely to fail to meet its social and financial objectives. When poorly managed risks begin to result in financial losses, donors, investors, lenders, borrowers and savers tend to lose confidence in the organization and funds begin to dry up. When funds dry up, real estate construction housing projects will not able to meet their social obligation of providing services to their customers and quickly go out of business or affect real estate construction housing project performance (Ajello *et al.,* 2015). Effective risk Management practices enhance the performance of real estate construction housing projects such as increased production of housing units and increased number of housing units occupied (Ajello *et al.,* 2015).

The real estate sector has immensely contributed to the development and progress of many economies in the world and is often considered as the leading indicator of the economic health of any economy. Real estate refers to any physical property or improvements affixed to the land and other developments on it including land itself (Ajello *et al.,* 2015). Real estate property development is a multifaceted business, encompassing activities that range from the renovation and release of existing buildings to the purchase of raw land and the sale of improved land or parcels to others for a profit (Ajello *et al.,* 2015). Real estate investment plays a crucial role in providing job opportunities, sheltering households, enhancing income distribution and alleviating poverty (International Monetary Fund, 2016). Moreover, since real estate construction industry is seen as the most significant industry in any economy there is need to prioritize address of a myriad of risks that may lead to huge financial losses right at the initial stage of the projects or else they will impact on the successful completion of these projects within time, budget, in accordance with specification and satisfaction of stakeholders (Nguyen, Ogulana & Lan, 2017).

1.1 Background conceptual and contextual discussion

Globally, real estate development has played a profound role in growing the economies of nations over time. For instance, organized real estate in the United States of America (USA) and Canada is almost as old as the countries themselves (Svensson, 2019). As it is today, more than half of the world's population lives in urban centers and more than one third of them live in slums and is expected to further increase by over one billion in a decade. Slums are expected to grow at an accelerated pace unless 35 million housing units are made available annually to accommodate the fast growing population (UN-Habitat, 2019).

Increased cases of abandonment of real estate development projects are raising concern to real estate creditors because the same creates several negative effects to real property values, the owners, residents, the built environment and the economy as a whole (Natthakon, 2017). When the general level of credit default rises, Toni, Robert, Adrian and Jayson (2020) argue that banks

typically experience a loss in economic value as the value of assets decreases more than the value of liabilities as mostly experienced by most countries during the 2008 US Recession which made many credit borrowers default the payment of their loans. The financial instability brought about by low levels of credit, increased housing taxes and increased costs decreased the marginal cost of acquiring a house as experienced in France, Greece, in the Netherlands, and Estonia during 2007/2008 US Recession period (European Union, 2017). During that time the major factors that played a major role in real estate home acquisition, include household income, credit availability and interest rates, home ownership rates, and demographic factors (European Union, 2017).

As estimated by UN-Habitat (2019), by 2050 the population of the world will increase to two billion and 60% of them will live in urban areas. When viewed upon the development in terms of construction, there is evidence that cities, all over the continent, are rapidly growing. Reflecting back by 1950 only two African cities had a population of more than one million in comparison to 48 cities today. African cities are growing rapidly in terms of development as evident in Kampala, Uganda, which is one of the fastest growing cities in Africa and it has taken all directional growth during the last two decades. As such the urbanization process of Uganda has been clogged by a number of challenges for example in Kampala there is a problem of inadequate infrastructure and expansion of slum areas are now covering at least 21% of the city area (Vermeiren, 2019). However, this growth has also contributed to opportunities for the real estate construction sector as the number of construction projects are increasing in the capital. These opportunities have contributed to a booming construction industry making it, after agriculture, the second largest employer and a major contributor to the economic recovery of the country attracting both domestic and international companies (Otim; Alinaitwe; Tindiwensi & Kerali, 2018).

Real estate investment in Kenya has done very well in terms of provision of employment opportunities, offering shelter to households, enhancing income distribution and alleviating poverty although it has continued to fail to fulfill this fundamental role due to a number of unique factors that affect investment in the sector. First, interest rate increase reduced the growth of real household credit by 40% in early 1990s resulting to increase in house prices due to inflation in Kenya and the ratio of household debt to Gross Domestic Product (GDP) consequently affecting performance in this sector (International Monetary Fund, 2016).

In the recent past, Kenya has witnessed an upsurge in real estate investment because of reduced mortgage loans rate according to International Monetary Fund (IMF) (2016). This is strongly associated with a slowdown in real house prices and driven by a number of factors notably the quest for Kenyans to own homes, rural urban migration, increased diaspora remittances among others (Nzalu, 2017). Kenyan real estate property encompasses single and multi-family residential dwellings, commercial and agricultural land, office space, go-dawns and warehouses, retail outlets and shopping complexes (Lynn, 2018). Real estate is seen as an asset with limited

liquidity in relation to other investment. Apart from being capital intensive, it is highly cash flow dependent so if the factors affecting the growth in the investment are not well understood and managed by an investor, real estate becomes a risky investment. It is against this background that the researcher will carry out a study on credit risk management practices and performance of real estate construction housing projects in Kenya focusing mainly to real estate construction housing projects in Busia County.

2. Literature Review

In a study conducted in Kenya on effects of financial risk management on the financial performance of construction housing projects financed by commercial banks, (Akong'a, 2019) argues that the risk associated with a borrower's ability to complete successfully a proposed project on time and within budget constraints is taken up by Banks that commit their finance to construction housing projects. The objective of the study was to determine whether budget overruns of construction housing projects financed by banks affect project performance. The methodological approach employed during the study was a survey. In this case a cross-sectional survey research design was employed with a target population of 2800 construction housing projects financed by commercial banks and a sample of 280 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that total costs that exceed the property's value when completed results in budget overruns occasioned by construction issues during project implementation. The findings were closely supported by Yakup and Asli, (2017) who pointed out that inaccurate budgets cause project delays beyond the stipulated time because of increases in the cost of materials, transportation expenses, lack of enough materials or labor shortages, low quality work performed by the borrower's employees or subcontractors that must be done again to satisfy contract performance conditions or to meet local building conditions, increased interest expense, or delays caused by poor weather conditions.

Furthermore, in a study conducted by William (2017) on influence of financial risk management on financial performance of commercial banks in Kenya showed that economic feasibility of existing and proposed real estate projects are affected by Regulatory changes at the national or local level, zoning, changes in tax legislation, environmental regulation, or similar external conditions which affect property values. Moreover, the cost of construction and the financial viability of real estate projects are affected by interest rates in the sense that when a project has floating rate debt and fixed rents, increasing interest rates may have a negative effect on repayment capacity.

In another study conducted in Pakistan on Risk Management Practices Followed by the Commercial Banks to assess construction housing project performance, Shafiq and Nasr (2017), insists that the major causes of a property's negative performance is tenants' deteriorating credit strength and lease expirations in times of softening demand which comes about as a result of poor economic conditions or poor supply conditions. The objective of the study was to determine

whether market conditions affect performance of construction housing projects financed by commercial banks. The methodological approach employed during the study was a survey. The target population was 920 construction housing projects financed by Commercial Banks and a sample of 92 of these projects were administered with questionnaires. The data Collected was coded and analyzed for descriptive and inferential analyses using SPSS.

2.1. Credit Risk Management practices

Natthakon (2017) conducted a study in Switzerland on credit risk management of small real estate management firms. The purpose of study was to investigate how small real manage their credit risks. The methodological approach used in the study was survey. The study found that many real estate credits banks incurred major loses in Switzerland during the 2008 US recession period due to defaulting of the loan repayment as it was estimated that 35% of the real estate developers firms did not pay their debts. Consequently, most real estate projects were abandoned hence affecting their performance. The study further found that during that time most developed units were not sold in time as it was expected due to very poor circulation of income in the economy and the market conditions were very unfavorable hence affecting the project performance. The study recommended that in order to avoid such loses in future, there is need for credit firms to subject any real estate firm interested in getting finance from them to complete credit application so that such firm's credit worthiness is determined before the credit is approved. This finding was supported by European Union (2017) which found that during the recession period real estate business performed very poorly in most economies because of difference in structural features such as reduction of housing taxes which reduced the marginal cost of acquiring a house in the Netherlands and Estonia, increase of housing costs substantially as experienced in France and Greece and difference in mortgage maturity period as it was more than 40 years in Sweden, while it was only 15 years in Hungary.

Moreover, European Union (2017) conducted a study on residential real estate and financial stability. The purpose of the study was to investigate the value of residential real estate and financial stability. The study found that European Union member states differed widely in terms of structural features and residential real estate and financial stability. For instance, housing taxes decreased the marginal cost of acquiring a house in the Netherlands and Estonia, while increase of the costs substantially were experienced in France and Greece; the average mortgage maturity was more than 40 years in Sweden, while it was only 15 years in Hungary. According to the study, factors that influence demand which include household income, credit availability and interest rates, home ownership rates, and demographic factors played a major role in real estate home acquisition. The report further indicated the possibility of early warning indicators of a real estate boom including but not limited to cyclical indicators of credit and/or real estate prices, combined with their corresponding structural indicators, relevant indicators for the bust phase which include decreases in loan supply and house prices, and rising non-performing loans and bankruptcy rates. The objective of the study was to assess factors affecting performance of real

estate projects in EU member countries and the methodological approach employed during the study was survey. In this case a cross-sectional survey research design was employed with a target population of 2600 real estate firms and a sample of 260 real estate firms was selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study recommended that the best credit risk management approach that would have been employed to avert such losses would be setting realistic credit limits and terms.

Moreover, Shafiq and Nasr (2017) conducted a study in Pakistan on Risk Management Practices followed by the Commercial Banks to assess construction housing project performance. The purpose of the study was to determine the major causes of a property's negative performance. The objective of the study was to determine whether market conditions affect performance of construction housing projects financed by commercial banks. The methodological approach employed during the study was a survey. The target population was 920 construction housing projects financed by Commercial Banks and a sample of 92 of these projects were administered with questionnaires. The data Collected was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that when the economic condition comes down, tenants may fail to make payment of rent altogether. It also found that tenants' deteriorating credit strength and lease expirations in times of softening demand comes about as a result of poor economic conditions or poor supply conditions. The study recommended that in order to hold the debtors responsible for their credit matters, financial institutions should use clearly worded contracts that would act as the key credit risk management practice available at their disposal and use updated and reevaluated claim forms regularly as another credit risk management practice to claim their debts.

Finally, (Akong'a, 2019) conducted a study in Kenya on effects of financial risk management on the financial performance of construction housing projects financed by commercial banks. The purpose of the study was to investigate the risk associated with a borrower's ability to complete successfully a proposed project on time and within budget constraints. The objective of the study was to determine whether budget overruns of construction housing projects financed by banks affect project performance. The methodological approach employed during the study was a survey. In this case a cross-sectional survey research design was employed with a target population of 2800 construction housing projects financed by commercial banks and a sample of 280 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that budget overruns of construction housing projects financed by banks affect project performance. The study recommended that to achieve successful housing projects, budget overruns of construction housing projects financed by banks should be avoided at all costs.

2.2. Performance of Real Estate Construction Housing Projects

The demand for real estate construction housing projects has played a major role in performance of real estate construction housing projects all over the world since it defines its rate of turn over (Sanders, 2019). Europe by the European commission (2018) conducted a study on influence of demand on real estate construction housing projects performance in the United States of America. The purpose of the study was to investigate how demand of real estate construction housing projects influenced performance of the projects. The methodological approach employed during the study was a survey. In this case a cross-sectional survey research design was employed with a target population of 2100 construction housing projects financed by commercial banks and a sample of 210 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that increased demand for real estate construction housing projects increases its performance while decreased demand decreases its performance as witnessed in 2008 recession period. According to the study, high circulation of income within the economy influences housing demand, hence influencing real estate construction housing project performance.

Moreover, Sanders (2019) conducted a study in Pakistan to evaluate the value of quality project production on performance of real estate construction housing projects. The purpose of the study was to investigate how quality production of real estate construction projects influence performance of real estate construction housing projects. The methodological approach employed during the study was a survey. In this case a cross-sectional survey research design was employed with a target population of 1650 construction housing projects financed by commercial banks and a sample of 165 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that increased demand for real estate construction housing projects increases its performance while decreased demand decreases its performance as witnessed in 2008 recession period. According to the study, high circulation of income within the economy influences housing demand, hence influencing real estate construction housing project performance. The found that quality of construction projects was performance to standards or value paid for the price. The study further found that adopting quality production measures in real estate construction housing projects has significantly contributed to positive impact on project success as project staff is able to identify and take measures to mitigate occurrence of risks to a greater extent. The study recommended that observation of quality production of real estate construction housing projects, utility of risk management strategies and deeply understanding the business area are critical success factors and had a significant impact on project performance.

Safety in the working place is a complex phenomenon, and the subject of safety feelings and safety influences performance of real estate construction housing industry to a greater extend all

over the world. Himalayan News Service (2016) conducted a study in Nepal to investigate risk management in real estate construction housing projects. The purpose of the study was to investigate the influence of real estate construction housing project safety on performance of real estate construction housing projects. The methodological approach employed during the study was a survey. In this case a cross-sectional survey research design was employed with a target population of 1200 construction housing projects financed by commercial banks and a sample of 120 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that construction industry bears five times more fatalities than the manufacturing industry. The study further found that lack of project safety negatively affects the project time, cost or quality hence influencing its general performance. The study recommended that there is need to put strong safety measures in place before commencement of any real estate construction housing project if effective project performance has to be achieved.

European commission,(2018) conducted a study in Switzerland on influence of risk management on performance of small real estate project firms. The purpose of the study was to investigate how risk management of small real estate project firms influences their performance. The methodological approach employed during the study was a survey. In this case a cross-sectional survey research design was employed with a target population of 800 construction housing projects financed by commercial banks and a sample of 80 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that increase on price of land in the cities and consequently the price of housing made more people invest their money in real estate. Consequently, many houses were developed to an extend that some houses were left unoccupied due to poor quality work that informed lack of safety during their development hence affecting performance of this projects. The study recommended that overdevelopment and lack of safety of real estate construction housing projects are the main cause of poor performance in this sector.

Muhoma and Kwasira (2016) conducted a study in Kenya on influence of innovative strategy practices on project team effectiveness in real estate construction firms' performance. The purpose of the study was to assess how innovative strategy practices on project team effectiveness influences real estate construction firms' performance. The methodological approach employed during the study was a survey. In this case a cross-sectional survey research design was employed with a target population of 1300 construction housing projects financed by commercial banks and a sample of 130 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that real estate development was a multifaceted business, growing rapidly across urban areas therefore innovative strategy practices on project team effectiveness influences real estate construction firms' performance. Moreover, found that there

is a strong positive correlation between all the four strategies namely; communication planning, technology adoption, project leadership and team cohesion all influencing real estate construction housing project performance.

2.3. Credit Risk Management and Performance of Real Estate Construction Housing Projects

Credit risk management are eventualities that can affect a bank's likelihood of receiving repayment as expected for loans financing Real Estate Construction Housing Projects and they include the following: Construction issues management practices, Market conditions management Practices, Regulatory changes management practices, Interest rate management practices , and Environmental liability management Practices. There is always the possibility for the borrower to default from his or her commitments for one or the other reason resulting in crystallization of credit risk to the bank (Comptroller's Handbook, 2018). The losses can come as a result of creditors failing to make their loan payment as a greed leading to poor performance in repayment procedure. In a study conducted in Kenya on effect of financial risk management on the financial performance of construction housing projects financed by commercial banks, the risks associated with a borrower's ability to complete successfully a proposed project on time and within budget constraints were taken up by banks that commit their finance to construction housing projects (Akong'a, 2019). The objective of the study was to determine whether budget overruns of construction housing projects financed by banks affect project performance. The methodological approach employed during the study was survey. In this case a cross-sectional survey research design was employed with a target population of 2800 construction housing projects financed by commercial banks and a sample of 280 of these projects were selected and administered with structured questionnaires. Collected data was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that, total costs that exceed the property's value when completed results in budget overruns occasioned by problems that may arise during project implementation hence affecting performance of real estate construction housing projects. The findings were closely supported by Yakup and Asli (2017) who pointed out that inaccurate budgets cause project delays beyond the stipulated time because of increases in the cost of materials, transportation expenses, lack of enough materials or labor shortages, low quality work performed by the borrower's employees or subcontractors that must be done again to satisfy contract performance conditions or to meet local building conditions, increased interest expense, or delays caused by poor weather conditions hence affecting performance of real estate construction housing projects.

Moreover, in another study conducted in Pakistan on risk management practices followed by the commercial banks to assess construction housing project performance, Shafiq and Nasr (2017) insist that the major causes of a property's negative performance is tenants' deteriorating credit strength and lease expirations in times of softening demand which comes about as a result of poor economic conditions or poor supply conditions. The objective of the study was to determine

whether market conditions affect performance of construction housing projects financed by commercial banks. The methodological approach employed during the study was survey. The target population was 920 construction housing projects financed by commercial banks and a sample of 92 of these projects were administered with questionnaires. The data collected was coded and analyzed for descriptive and inferential analyses using SPSS. The study found that when the economic condition falls, tenants may fail to make payment of rent altogether. Moreover, the study found that construction housing project performance was also influenced by its geographical location. Basing on the geographical location aspect, the study found that the demand for complete units is determined by many aspects such as accessibility of the place, security of the place, social- economic ability of the residents and the quality of the development projects hence affecting performance of real estate construction housing projects.

Furthermore, a study conducted by William (2017) on influence of financial risk management on financial performance of commercial banks in Kenya showed that economic feasibility of existing and proposed real estate projects are affected by regulatory changes at the national or local level, zoning, changes in tax legislation, environmental regulation, or similar external conditions which affect property values. Moreover, the cost of construction and the financial viability of real estate projects were affected by interest rates in the sense that when a project has floating rate debt and fixed rents, increasing interest rates may have a negative effect on repayment capacity. In addition, reduction in property value which arises from higher capitalization rates is due to higher interest rates. However, mitigation of high interest rate is difficult for construction facilities due to the changes in the outstanding loan amount during development, but borrowers can hedge their interest rate risk sensitivity by using interest rate derivatives hence affecting performance of real estate construction housing projects.

A comparative study of credit risk management on financial performance of commercial banks in Kenya carried out by Ogilo (2019) used causal research design to undertake the study which facilitated the use of secondary data obtained from the Central Bank of Kenya publications on banking sector survey. Multiple regression analysis was used for data analysis and the findings were presented in tabular form and regression equations. From the findings, there was a strong relationship between the capital adequacy, asset quality, management efficiency and liquidity on real estate construction housing project performance and financial performance of commercial banks hence affecting performance of real estate construction housing projects. Liyuqi (2017) conducted study to examine what brings about banks profitability and what happens on risk management practices in the United Kingdom. The objective of the study was to examine the determinants of banks profitability and their implication on credit risk management in the United Kingdom. Regression analysis on a time series data between 1999 and 2006 was employed. Six indicators of bank's profitability such as liquidity, credit and capital were employed as internal determinants of bank's performance and gross domestic product (GDP) growth rate, interest rate and inflation rate were used as external determinants of banks profitability. The six variables

were combined into one overall composite index of bank's profitability. Return on Asset (ROA) was used as an indicator of bank's performance. It was found that liquidity and credit risk have negative impact on bank's profitability hence affecting performance of real estate construction housing projects.

Finally, Githinji (2018) did a study on credit risk management and profitability of commercial banks in Kenya. The objective of the study was to assess the degree to which the credit risk management in practice had significantly contributed to high profits in commercial banks of Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. There was no relationship between profits, amount of credit and the level of nonperforming loans as showed by the study. The study found that the bulk of the profits of commercial banks were not influenced by the amount of credit and nonperforming loans suggesting that other variables other than credit and nonperforming loans impacted on profits as revealed by the findings hence affecting performance of real estate construction housing projects.

3.0 Research Methodology

The target population for this study was 166 real estate entrepreneurs who have already developed housing units in Busia County; 1664 tenants who currently occupy some of the units; two managers, one from Kenya National Bureau of Statistics (KNBS) and another one from Ministry of Housing (MoH). This gave a total target population of 1832 participants. The sample size for this study was 298 tenants and 30 real estate entrepreneurs totaling to 328 drawn from a target population of 1664 tenants and 166 real estate entrepreneurs respectively using Yamane (1967) formula $n = \frac{N}{1+N(e)2}$. Where N is the target population, n is sample size and e is the error term. In addition key two personnel officers in charge having prerequisite experience in real estate development one from KNBS and one from MoH Busia County were also included in the study. According to Yamane (1967), the decision about the sample size depends on a number of considerations and there is no one definitive answer, although this is mostly affected by considerations of time, size of the population, cost and the problem of non-response. Since the population for the study is 1832 which is considered large enough for the application of Yamane formula, the sample size of tenants and real estate entrepreneurs was appropriately determined at 95% confidence level (p = 0.05).

A questionnaire was the main data collection instrument, supported with focused group discussions for tenants, interview schedules for real estate housing entrepreneurs and document check list for the documented records for key two personnel officers in charge having prerequisite experience in real estate development, one from KNBS and one from MoH Busia County. Data was analyzed using descriptive and inferential statistics. Descriptive statistics involved quantitative and qualitative data analysis therefore it used measures of central tendencies such as frequency, percentage, and mean standard deviation, composite mean and composite standard deviation. While inferential statistics involved testing of research hypotheses

using spearman correlation and regression analysis. The descriptive research design used in this study helped to explore the link between independent, moderating dependent variables.

4. Findings and Discussions

4.1 Basic Tests for Statistical Assumptions of Regression Analysis

The study was based on a set of assumptions that must be gathered to ensure the data assembled is appropriate for the statistical analysis. When these assumptions are dishonored; the results of the analysis can be wrong. The assumptions include normality, linearity, multicollinearity and test for independent of errors.

4.1.1 Assumptions of Normality

An assessment of the normality of data is a requirement for many statistical tests because normal data is an original assumption in parametric testing. The test for normality of data distribution was run on all the predictor variables, moderating variables and dependent variable using Kolmogorov-Smirnov test statistics (KS-test) and Shapiro-Wilk test (SW-test). The Kolmogorov-Smirnov test statistics (KS-test) and Shapiro-Wilk test (SW-test) test for normality results are presented in Table 4.6.

Table 4.6: Tests for Normality for Financial risk management strategies

Financial risk management strategies,		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
Credit management	risk	0.219	319	**0.191***	0.868	319	**0.095**

Source: Field data work 2021

The results of Kolmogorov-Smirnov test statistics and Shapiro- Wilk Test shown in Table 4.6 indicates that in all the responses tapped on the Likert scale for the independent and moderating variables under investigation (Credit risk management; p-value =0.191>0.05. The P-values were all more than 0.05; and hence it was concluded that the samples were picked from a normal population. In this study, all the SW-test statistics were approaching 1 and >0.05 for the variables under study (Credit risk management; SW-test statistics=0. 095 and hence it was concluded that the samples were picked from a normal population.

4.1.2 Linearity Test of Assumption

Prior to conducting linear regression, a linear relationship ought to exist between the dependent and independent variables (Tabachnick & Fidell, 2017). ANOVA test for linearity was done to establish if significant deviation from linearity was greater than 0.05 or not in order for the

relationship between the independent variable to be confirmed as linearly dependent and admissible. The results are as shown in Table 4.7

Table 4.7: Linearity Test for   Financial risk management strategies

Financial risk management strategies	N	Linearity
Credit risk management	320	**0.580**

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

Source: Field data work 2021

From the results in Table 4.7, all the correlation values of the financial risk management strategies indicated a positive degree of linear relationship with performance of real estate housing construction projects.

4.1.3 Testing for the Presence of Multicollinearity

Presence of multicollinearity was tested using variance inflation factors (VIF), the basis of recommendations by Hair, Hult, Ringle and Sarstedt (2014). The threshold used to test existence of multicollinearity was set at a minimum value of 10. Consequently, a VIF value above 10 was deemed to imply existence of multicollinearity. A collinearity diagnosis of the independent variable was performed and the results are presented on Table 4.8.

Table 4.8: Collinearity Statistics

Variable	Tolerance	VIF
Credit risk management	0.558	1.793

Source: Field data work 2021

From Table 4.8, analysis of collinearity statistics shows that these assumptions have been met, as the tolerance scores were all above 0.2(statistics= 0.558 for credit risk management).The variance inflation factors (VIF) were also all below 10 (VIF= 1.793 for credit risk management). Since multicollinearity is associated with (VIF) above 10 and tolerances below 0.2, all the predictor variables under the study were therefore deemed not to exhibit multicollinearity (not too highly correlated) and were considered fit for analysis.

4.1.4 Test for independent errors in the model

A Durbin-Watson test was used to check whether the residuals in the model are independent (uncorrelated). As a conservative rule, values below 1 or above 3 are cause of concern and may render the analysis invalid (Andy, 2009). The Durbin -Watson statistics results is presented in Table 4.9

Table 4.9: Test statistics for Independence of Errors

Model	Durbin-Watson Statistic (D)	Conclusion
	1.615	Error terms are independent

Source : Field data work 2021

The Durbin -Watson statistics from the model summary table   was 1.615 which was neither below 1 nor above 3 indicating that the residuals were independent and hence the assumption has been met.

4.2 Performance of Real Estate Construction Housing Projects

Performance of Real Estate Construction Housing Projects in this   study was the dependent variable. Both theoretical and empirical review in this study showed that number of occupied housing units, Rate of return on project investment, Demand and supply of housing units, Number of Housing units available, Number of unoccupied housing units are key indicators of Performance of Real Estate Construction Housing Projects (UN-Habitat, 2019). Data was collected to measure ten indicators of Performance of Real Estate Construction Housing Projects. The participants were therefore requested to respond to the Items in the Likert scale of 1-5 where Strongly agree(SA)=5, Agree(A)=4, Neutral(N)=3, Disagree(D)=2 and Strongly disagree (SD)=1. The results were analyzed and presented using frequencies, percentages, means and standard deviations for each response in each item. The item mean as well as the standard deviation were also computed and presented alongside as provided in table form.

4.3 Credit Risk Management and Performance of Real Estate Construction Housing Projects

 Credit risk in this study is defined as the process of controlling the dangers the banks are likely to experience when claiming back their finance that they lent to real estate firms during the implementation of real estate construction housing projects. This was the first objective that the study sought to establish; therefore, the participants were requested to give their opinions on their level of agreements or disagreements with the ten statements of Credit risk on a Likert scale of 1-5 where, Strongly agree(SA)=5, Agree(A)=4 Neutral(N)=3, Disagree(D)=2 and Strongly disagree. (SD)=1. The results were analyzed and presented using frequencies, percentages, means and standard deviations for each response in each item. The item mean as well as the standard deviation were also computed and presented alongside as provided in table form.

4.4 Correlation analysis of Credit Risk Management and Performance of Real Estate Construction Housing Projects

The study sought to examine the relationship between credit risk and performance of real estate construction housing projects. Pearson correlation coefficient was used to test the relationship

between credit risk and performance of real estate construction housing projects; this was done at 95% level of confidence. The correlation results were presented in table form. The overall correlation coefficient for credit risk and performance of real estate construction housing projects was found to be 0.580 with a P-value of 0.000 < 0.05 ,implying that there is a significant relationship between credit risk and performance of real estate construction housing projects leading to rejection of the null hypothesis and acceptance of the alternative hypothesis, and hence the research findings conclude that there is a significant relationship between credit risk and performance of real estate construction housing projects.

4.5 Regression Analysis of Credit risk Management and Performance of real estate housing construction projects

Simple linear regression was adopted to investigate how credit risk influences performance of real estate construction housing projects. It was necessary to get the views of the participants on the influence of credit risk and performance of real estate construction housing projects. The rationale of using the simple regression model was to establish how credit risk as a predictor significantly or insignificantly predicted the performance of real estate construction housing projects. These are further discussed in the subsequent sub-themes:

4.5.1 Model Summary of Credit Risk Management and Performance of Real Estate

Construction Housing Projects

The model summary sought to establish how Credit risk as a predictor that significantly or insignificantly predicted the performance of real estate construction housing projects. The model summary is presented in Table 4.10

Table 4.10: Regression Model Summary Table of Credit Risk and Performance

of Real Estate Construction Housing Projects

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.580[a]	0.336	0.334	0.583

a. Predictors: (Constant), Credit risk

Source: Field data work 2021

The model summary Table 4.10 indicated that there is a positive correlation(R=0.580) between credit risk and performance of real estate housing construction projects and those predicted by the regression model. In addition, 33.6% of the variation in the performance of real estate construction housing projects was explained by credit risk.

4.7.2 ANOVA of credit risk and performance of real estate construction housing Projects

The study sought to establish if the regression for ANOVA model was best fit for predicting performance of real estate construction housing projects after use of credit risk. The regression ANOVA results are presented in Table 4.11

Table 4.11: An ANOVA of the regression of credit risk and performance of

real estate construction housing projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	54.775	1	54.775	161.086	0.000[b]
	Residual	108.131	318	0.340		
	Total	162.906	319			

a. Dependent Variable: Performance of real estate construction housing projects

 b. **Predictor: (Constant), Credit risk**

Source: Field data work 2021

The ANOVA results indicated that F-statistics =161.086 is significant at P value 0.000< 0.05 implying that the predictor co-efficient is at least not equal to zero and hence the regression model results in significantly better prediction of Performance of real estate construction housing projects.

4.7.3 Coefficients for Regression of Credit Risk Management and Performance of Real Estate Construction Housing Projects

The study sought to establish whether there was influence of Credit risk and Performance of real estate construction housing projects. The regression coefficients results are in Table 4.12

Table 4.12: Coefficients for the Regression of Credit Risk and Performance of Real

Estate Construction Housing Projects

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.830	0.170		10.78	0.000
	Credit risk	0.570	0.045	0.580	12.69	0.000

Source: Field data work 2021

The simple linear regression coefficients result indicated that there was significant influence of credit risk on performance of real estate construction housing projects. The unstandardized coefficient of the constant term ($\beta_0 = 1.830$; $p < 0.05$) and credit risk ($\beta_1 = 0.570$; $p < 0.05$) were statistically significant. Using the standardized beta value (0.580), credit risk stood as the fifth best predictor among other predictor variables in predicting Performance of real estate construction housing projects. The regression model for credit risk was $y=1.830 + 0.570X_1$ implying that for each unit   of credit risk, performance of real estate construction housing projects marginally changed by 0.570 units. It was therefore concluded that credit risk on Performance of real estate construction housing projects were positively and linearly related. The study finding support Shafiq and Nasr (2017) study in Pakistan on Risk Management Practices followed by the Commercial Banks to assess construction housing project performance who found that tenants' deteriorating credit strength and lease expirations in times of softening demand comes about as a result of poor economic conditions or poor supply conditions.

5.0 Conclusions

The research objective of this study was to examine the extent to which credit risk management influences performance of real estate construction housing projects in Busia County. The simple linear regression coefficients as well as the Pearson correlation results indicated that there was significant influence of credit risk management on performance of real estate construction housing projects in Busia County. The p-values; implied that there was a significant influence of credit risk management on performance of real estate construction housing   projects in Busia County.

6.0 Recommendations

The study recommended that real estate development is a capital intensive investment and thus developers have to explore alternative sources of capital which can be affordable to them. The capping of interest rates at 13.5% resulted in a decline in credit growth to the private sector as banks tightened their underwriting standards and also on a risk-adjustable basis.
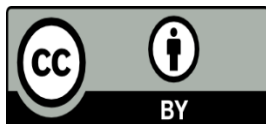
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