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EFFECT OF MORTGAGE FINANCING ON PERFORMANCE OF REAL ESTATE SECTOR IN RWANDA: A CASE STUDY OF NYARUGENGE DISTRICT

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ABSTRACT

The purpose of this project was to examine the effect of mortgage financing on performance of real estate sector in Rwanda: A case study of Nyarugenge District. The study had four objective and this were to evaluate the effect of mortgage interest rates on the performance of real estate sector in Nyarugenge District, Rwanda, to examine the effect of inflation on the performance of real estate sector in Nyarugenge District, Rwanda, to establish the effect of mortgage risks on the performance of real estate sector in Nyarugenge District, Rwanda and to investigate the effect of loan terms on the performance of real estate sector in Nyarugenge District, Rwanda. The study population included all real estate firms in Nyarugenge District, Rwanda. The population consisted of 189 registered real estate firms in Nyarugenge District, Rwanda. Both primary and secondary data were used in the study. Data was analysis using SPSS v24 package. The study findings indicated that all the four variable that is mortgage interest rates, inflation, mortgage risks and loan terms greatly and positively affect the performance of real estate sector in Nyarugenge District, Rwanda.

Key terms: Mortgage Interest Rates, Inflation, Mortgage Risks, Loan Terms

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INTRODUCTION

Institutional investors are increasingly in control of the global real estate market. Private real estate investments are challenged by this since individual properties are not frequently purchased and sold way stocks and bonds are (Fisher, 2005). Mortgage finance is a word used to describe a loan secured by a specific piece of real estate property, as opposed to the developed world's use of stocks and bonds. The borrower is required to repay the loan with a fixed number of installments. (2006) Bienert and Brunauer Typically, the loan is used by people or businesses to buy or build housing estates.

Rural urban migration offers an investment opportunity for the mortgage industry and financial institutions to develop a more effective way of giving clients access to owning an accommodation facility. Currently, over 40 per cent of sub-Saharan Africa populations are residing in cities where there are growing housing challenges, thus, an opportunity for investment and also public-private partnerships (PPP) to curb the situation.

The problem in sub-Saharan Africa has long been a good credit background of clients which prevent financial institutions the chance to provide mortgage or loan services for property acquisition to the people. However, the reality is also that, over 80% of the general population in sub-Saharan Africa cannot raise physical cash to purchase a formal pre-constructed house. According to reports from Centre for Affordable Housing Finance in Africa, the price for owning a formal house in many countries in Africa is (at least) more than five times the income of an average working African and in many cases about ten – thirty times the average income. With this situation, it makes it almost impossible for many people to have access to formal houses. Mortgage services are only provided for just a handful of the population.

Reports from Ghana, Nigeria, Uganda, and other countries in the region also depicts that land acquisition alone could be a struggle for the few percentage of citizens who are able to receive financial support or have the financial liberty to build

a house. Lands in these countries are largely not formally registered – the frequency of land disputes and litigations around lands in cities and towns are simply overwhelming. This is where there is a strong need for PPP in resolving housing crisis in cities – at least. Lands must be registered and easily acquired without fear of litigation, additionally, financial institutions must work closely to provide mortgage services to more of the population either via a secured long-term loan service for public servants

In today's mortgage market, Pittman (2008) claims that getting a mortgage is a difficult process because it entails a number of steps, such as finding the best service provider with the lowest interest rates. Rwanda's real estate market has seen Recently established real estate developers have creatively partnered with several local and foreign banks operating in Rwanda to offer mortgage services to a number of Rwandan real estate companies. It is clear that property owners run the risk of influencing demand and alienating both new and current tenants by maintaining continually high rental rates. The cost of borrowing is represented by the interest imposed on mortgages, which is how most Rwandans finance their homes. Duca, Muellbauer, and Murphy (2008) claim that the interest rates that financiers charge are a reflection of the rate of inflation in the economy as well as other macro-economic factors. The mortgage rates that lenders charge are based on a variety of factors, and because the market is competitive, no one bank can afford to drive potential customers away.

Mortgage financing is still only available to a small majority of the population, according to a report by ventures Africa, which cited a 2010 World Bank study that found that only 11% of Rwandan real estate firms can afford an average mortgage loan of \$150,000. This is despite expectations that a reduction in lending rates by commercial banks would encourage further growth of the real estate market and support an upward movement in home prices (51 million Rwandan francs) A legal system that supports the enforcement of contracts as well as the ability of lenders to foreclose on defaulted

loans and effectively seize and resell collateral is necessary in the development of real estate. Additionally, a stable macroeconomic environment that is favorable to long-term real estate development and subsequently the mortgage market is also necessary. The growth of real estate programs is greatly aided by the availability of liquidity facilities and credit risk management programs (Kelly & McQuinn, 2013, Nyarugamba & Mugisha 2020).

A mortgage is a loan secured by an asset that generates revenue, such as a hotel, office building, retail space, or multifamily residence (Xudong, 2008). A mortgage is a specific kind of financing for real estate, according to MC Donald & Thornton (2008). Additionally, a mortgage can refer to both the legal document that secures real estate as collateral for a debt as well as the action of doing so (Hassanein & Barkouky, 2008). Tuma, 2005 defines a mortgage generally as occurring when owners pledge interest as security or collateral for a loan, in contrast to the aforementioned scholars who define a mortgage in relation to real estate. This means that any type of property, such as a car, piece of land, or even a structure, is eligible for a mortgage. Any charge over an estate or interest in Uganda that is recorded under the Registration of Titles Act is any encumbrance, charge, debenture, or loan agreement, whether legal or equitable.

The mortgage market is divided into two parts: the primary mortgage market and the secondary mortgage market. The primary mortgage market is the origination and servicing of mortgage loans secured by real estate (Hassanein & Barkouky, 2008). Mortgage secondary markets, on the other hand, allow mortgage originators to sell mortgages that they no longer want to hold in their portfolios and ultimate investors to hold mortgage assets without becoming involved in mortgage origination and servicing.

There are several types of mortgages, but the two most common are fixed rate mortgages and adjustable rate mortgages. Fixed rate mortgages are those in which the creditor investor assumes the

interest risk while the borrower typically incurs no prepayment penalty (Yuying An, 2004); adjustable rate mortgages, hybrid mortgages, or interest only mortgages are others. Fixed rate mortgages are advantageous because the monthly repayment is constant for the term of the mortgage and, regardless of market interest rate behavior, the borrower pays the same interest rate for the life of the loan (MC Donald & Thornton, 2008). However, interest rates on adjustable rate mortgages are lower than on otherwise equivalent fixed rate mortgages.

Rwanda is one of Africa's most densely populated but least urbanized countries. The 2016/17 Integrated Household Living Conditions Survey (EICV 2017) found that 38.2% of Rwandans were living below the national poverty line. Urban areas house approximately 18.4% of Rwanda's population. According to the National Transformation Strategy¹, this is expected to rise to 35% by 2024. (NST-1 2021). Informal settlements house approximately 61.3% of Rwanda's urban population. Rwanda has 79 informal settlements, the majority of which are in Kigali and the Nyarugenge District.

In the first three quarters of 2020, COVID-19 caused Rwanda's GDP to contract on average by 4.1%, but the second half of 2020 saw a steady recovery. Up to 2020, the housing and building industries in the nation grew steadily. The real estate industry was adversely impacted by the pandemic's negative effects on economic performance and income losses. The housing industry is thought to make up 10% of Rwanda's GDP. The real estate sector's GDP contribution increased by 3% in the first quarter of 2021. Housing-related inflation decreased from 4.8% in the second half of 2020 to 1.9% in the first quarter of 2021.

The fiscal years 2021/22 budgetary plans of the government are in line with the goals and priorities of NST-1. As a result, the economic transformation pillar received the greatest allocation of budgetary resources, making up 58.7% of the overall budget, while the social transformation and transformational governance pillars would each receive 27.2% and

14.01% of the budget, respectively. Promoting urbanization is one of the priority areas identified for resource allocation in the fiscal year 2021/22 in accordance with the NST-1 strategic objectives. Implementing urban development initiatives in secondary cities and supplying affordable housing projects with essential infrastructure are two ways to achieve this.

According to a recent Center for affordable housing in Africa, 2021, property prices increased by 30% between 2006 and 2011. Mortgage financier Housing Finance, which plans to expand operations to other East African countries, says real estate growth in Rwanda is favored by one major factor: higher returns at a low cost. According to industry reports, better government regulation and proper investment vehicles, augmented by capital availability, are some of the factors that put Rwanda ahead of the rest in terms of property investment. Rwanda, after Kenya, provides investors with higher returns due to high demand for urban housing. According to other property reports, the country's housing advantage is based on cost effectiveness and quick returns to investors in the sector. Rwanda attracts more investors than Uganda and other East African countries due to the high demand for housing in urban areas. (Center for affordable housing in Africa, 2021)

Statement of the Problem

Researchers' views on the relationship between mortgage financing and real estate firm success vary. The effectiveness of mortgage financing and the performance of real estate in various regions of the world have been the subject of numerous studies. Numerous studies carried out by earlier scholars are helpful to investors, policymakers, housing buyers and sellers, as well as investors. Mortgage rates are one of the major factors that make up the property affordability and performance index, and Mc Gibany & Nourzad (2004) claim that as mortgage rates rise, the index falls and vice versa. Similar to this, Vries & Boelhouwer (2005) concluded that factors affecting real estate values include interest rates, mortgage risks, and predicted prices. Previous studies on the

connection between mortgage financing and real estate performance have produced contradictory results. Some claim that the impact of mortgage financing on real estate investment and pricing is minimal. Joe Wong, Eddie Hui, and Seabrook (2003) discovered that throughout the inflationary period, lower mortgage rates were associated by higher home prices and reduced investment. According to property surveys, there is a discrepancy between the mortgage uptake rate and the rate at which new homes are being built all around the city in Rwanda. This leads to reevaluation of the link between housing markets and credit market conditions, to determine if there is compelling conceptual or empirical reasons to believe that changes in credit conditions can explain the past decade's housing market experience in Rwanda. Clearly variances in mortgage financing lending cannot explain the most recent behavior of house prices. The relationship between the four constructs that are examined in this study and the performance of real estate in Rwanda was not fully understood, as evidenced by previous studies. This is the rationale for the study's goal of determining how mortgage financing affects Rwandan real estate performance.

Research Objectives

The main purpose of this research project was to examine the effect of mortgage financing on performance of Real estate Sector in Nyarugenge District, Rwanda. The study was guided by the following specific objectives;

- To evaluate the effect of mortgage interest rates on the performance of real estate sector in Nyarugenge District, Rwanda
- To examine the effect of inflation on the performance of real estate sector in Nyarugenge District, Rwanda
- To establish the effect of mortgage risks on the performance of real estate sector in Nyarugenge District, Rwanda
- To investigate the effect of loan terms on the performance of real estate sector in Nyarugenge District, Rwanda

The research hypothesis were;

- **H₁** Mortgage interest rates does not affect the performance of real estate sector in Nyarugenge District, Rwanda
- **H₂** Inflation does not affect the performance of real estate sector in Nyarugenge District, Rwanda
- **H₃** Mortgage risks does not affect the performance of real estate sector in Nyarugenge District, Rwanda
- **H₄** Loan terms does not affect the performance of real estate sector in Nyarugenge District, Rwanda

RELATED LITERATURE

Theoretical Framework

A theory is a set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena (Copeland & Weston, 2005). Some of the theories which include;

Simulation Theory

The theory was developed by Laibson 1998; it examines the extent to which markets enable the provision of housing finance across a wide range of countries. Housing is a major purchase requiring long-term financing, and the factors that are associated with well-functioning housing finance systems are those that enable the provision of long-term finance. The theory further states that countries with stronger legal rights for borrowers and lenders (through collateral and bankruptcy laws), deeper credit information systems, and a more stable macroeconomic environment have deeper housing finance systems. These same factors also help explain the variation in housing finance across emerging market economies such as Rwanda. Across developed countries, which tend to have low macroeconomic volatility and relatively extensive credit information systems, variation in the strength of legal rights helps explain the extent of housing finance.

To a certain extent, a statistical comparison of the loan to- value and loan-to-income ratios can provide a good indication of the risks that owner occupiers run in financing their own home. At the same time, this kind of comparison ignores the causes of the risks, namely the volatility or uncertainty of future interest rates, house prices and changes in income (Adler & Lehmann, 2012). It also disregards the main mortgage characteristics, the cost of taking out a mortgage, and the direct and indirect subsidies, including interest deductibility, factors that have a big influence on the real costs and risks for homeowners.

Structural-Form theory

This theory was formulated by Pottow in the year 2007. It documents the evolution of mortgage finance in SSA (Sub- Saharan Africa) to determine what steps need to be taken to extend it to the middle-class, to enable them to address their housing needs to the extent of their affordability. The theory revealed that there have been a number of problems when it came to the delivery of formal housing finance amongst most, if not all the countries. These problems are a record of macroeconomic instability, an adverse institutional, legal and regulatory environment which has resulted in inefficient, collateralization of housing assets, a poor record of public sector housing banks, building societies and other specialist housing lenders in that most have been destroyed due to poor management and a lack of funds and limited availability of long-term funding sources to carry out intermediation that would spread the cost of a house over a relatively long period of time(Levy- Yeyati& Sturzenegger,2005).

Arising out of this dismal history is a move to revive and introduce mortgage lending into a number of countries. Moreover, as part of the move to straighten out financial markets, a number of consultants have been sent into SSA countries to begin documenting the specific problems of each country as well as to make recommendations on how to address them. Development agents, in particular, are also putting forth recommendations on what is

required to ensure financial market development and capital market investment necessary to entice the private sector into the delivery of housing finance.

Empirical Review

The National Bank of Rwanda, also known as the NBR, uses its power to change certain key interest rates as a way of controlling economic growth. When the CBK raises the prime rate, often to curb inflation and slow the growth of the economy, mortgage rates rise as a result. On the other hand, when the CBK slashes interest rates to stimulate growth, mortgage rates have a tendency to drop, making them more affordable to investors, thus increasing investment. "Interest rates are the single most critical factor in driving the mortgage market and access to more middle income housing, (Doms, Furlong, & Krainer, 2007)" "The high rates have had a major impact in the short term on both supply of new-build and uptake of mortgages," By influencing the interest rate structure that prevails in Rwanda's financial system, changes in monetary policy therefore affect the interest rates that prevail in the mortgage market. Lenders are able to blend funds and partly use their deposit bases, capital and other funding sources to achieve a lower cost of funds, but over the long term net interest margin will have to reduce if financial access is to improve. (Levy-Yeyati & Sturzenegger, 2005)

If the cost of borrowing to fund the purchase of property rises, then this deters potential buyers from the market, and vice versa. Housing is very sensitive to interest rates indeed residential building is arguably the most interest rate sensitive sector of the Rwandan economy (Allen, Amano, Byrne, & Gregory, 2006). Interest rates are the most critical factor in driving the mortgage market and access to more middle income housing (Ngugi, 2001). Developers and buyers are struggling to meet financing costs occasioned by the high interest rates triggered by aggressive tightening of monetary policy to counter the weakening of the shilling and high inflation. The biggest impact of the high interest rates is in the middle income market where

developers rely largely on mortgage financing from commercial banks. The impact (high interest rates) on real estate has fallen entirely on the supply side.

According to Mc Donald & Thornton, (2008) Mortgage repayment is the same as amortization which derives from the Middle English for "Kill". It refers not to the borrower's murder, but to "killing off" the mortgage by paying it down over time. Repayment schedule is simply how the loan is to be repaid over a given period of time. The loan is repaid in fixed periodic payments usually monthly. The repayment period usually varies from country to country. For example in the USA; it could be between 15-30 years, (Scanlon & Whitehead, 2004) UK can be between 15-20 years. The mode of paying back the mortgage can be scheduled mortgage payment, prepaying through refinancing or resale, delinquency, and foreclosure (Liu et al, 1997). In Rwanda one of the most important factors considered in appraising viability of a mortgage application is the capability of the borrower to repay their mortgage.

In mortgage financing, there are different customers from different backgrounds, and this exposes a lot of risk to both the borrower and the lender (Scanlon & Whitehead, 2004). The major risks include Credit risk (default risk) to the lender that the borrower will default on loan obligations and investment risk where the owner-occupier that the value of the home will fall, and with it the value of the owner-occupier's equity (Lewis & Neave, 2008). Lea, 1990, defines default risk as that risk brought about when the market value of the property falls below the market value of the mortgage. Further there is Interest-rate risk to either party to a loan that the interest rate will move against them and finally prepayment risk to the lender that the borrower will repay a loan (particularly a fixed-rate loan) before the end of its term. In Rwanda, real estate is also faced with the risk of unoccupancy (Agaba et al, 2009)

Ramchander, Simpson and Webb (2003), show a significant relationship between inflation expectations and the level of real estate investment.

in the U.S. Claessens&Laeven, (2004) show similar evidence for Germany. Moderate levels of interest rates are associated with a strong growth performance and steady inflation rates. The authors show how in these countries long-term rates are particularly sensitive to changes in long term inflation expectations that affect the willingness of investors to invest in the real estate sector.

High inflation reduces the value of money and thereby loss of purchasing power. This makes future prices less predictable. Sensible spending and saving plans are harder to make. People increasingly fear that their future purchasing power will decline and erode their standard of living. Inflation causes a loss in the real value of savings, meaning that the savings can buy lesser goods and services than it would have bought before inflation. Individuals with fixed Businesses do not venture into long term productive investments as they are not sure whether the prices will continue rising or will drop at a future date. This causes misallocation of resources by encouraging speculative rather than productive investments.

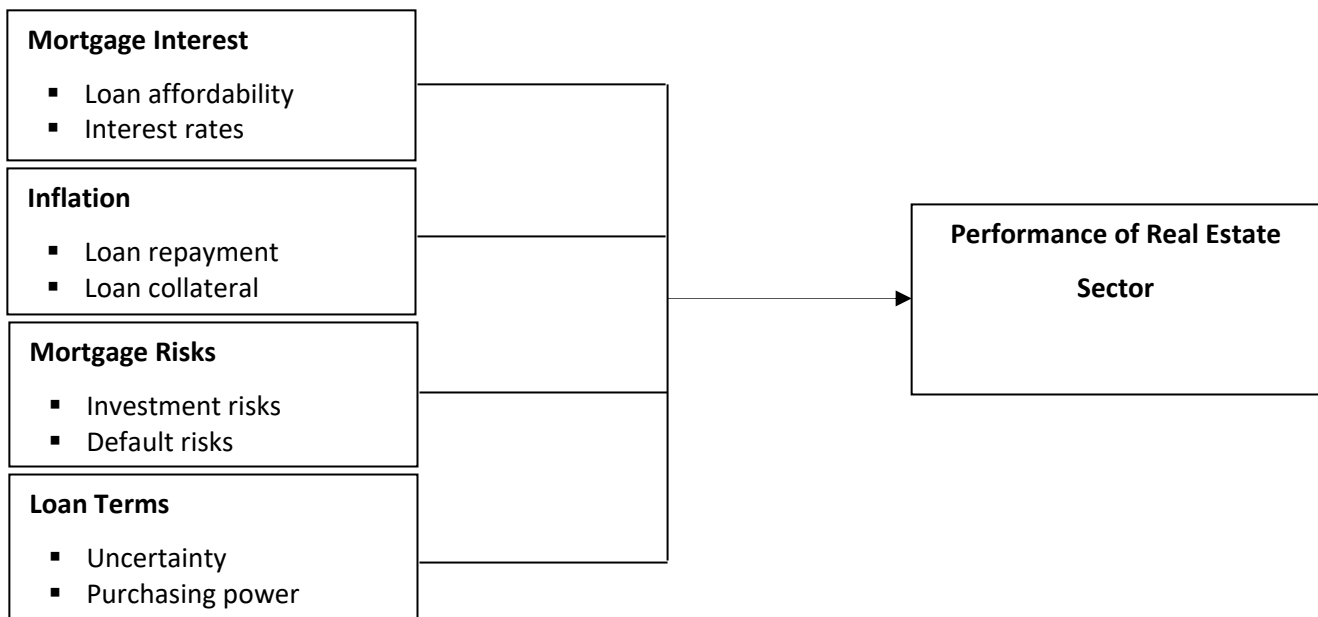
Variation in expected real returns is caused by the variation in expected inflation. Equilibrium expected real returns vary directly with capital expenditures in order to induce equilibrium allocations of resources between consumption and investment. This positive relation between expected real returns and real activity combines with a negative relation between expected inflation and real activity, which is traced to the monetary sector, thus inducing the negative relation between expected inflation and expected real returns. Businesses do not venture into long

term productive investments as they are not sure whether the prices will continue rising or will drop at a future date. This causes misallocation of resources by encouraging speculative rather than productive investments.

Performance measurement enables stakeholders to hold organizations accountable and to introduce consequences for performance (Ross, Westerfield, Jafee, & Jordan, 2008). It helps citizens, customers judge the value that company creates for them, and it provides managers with the data they need to improve performance. (Giovannini, 1995) asserts that the key to ensuring a profitable cash flow in real estate investment is predicated first and foremost upon buyers' ability to select lucrative properties for purchase. Before making the decision to buy, he suggests gathering data from as many sources as possible, including current leases, recent property tax bills, recent utilities bills, and even pertinent sections of the seller's tax returns. He also suggests doing some market analysis by looking at comparable sales in the area, estimating operating costs In the neighbourhood, and researching local capitalization rates.

Gallinelli offers the Profitability Index calculation as an alternate means of assessing investment return. It is closely related to Net Present Value, although it is expressed in a ratio format. Thus, on review of the financial performance measures of Real Estate investment, LTV ratio ROR and number of projects and investment income will be considered as a general measure of real estate profitability.

Conceptual Framework



Independent Variable

Dependent Variable

Figure 1: Conceptual framework

METHODOLOGY

Research Design: According to Khumar (2011), research design is the approach that the researcher develops procedurally and that allows him or her to answer questions correctly, validly, critically, and cost-effectively. A research design, according to Burns and Burns (2008), aims to enhance the researcher's ability to conceptualize an operational plan in order to embark on the various techniques available and necessary tasks for the study's conclusion, while also ensuring that the procedures used are adequate enough to obtain accurate, objective, and specific responses to the research questions. The study used descriptive designs. As indicated by Banerjee and Chaudhury (2010), definition of target population is as the whole set of focus from which a research sample will be selected from. It's a group of people or things from which the sample's results can be extrapolated. A target population may also be described as a set of elements from which deductions are to be made. Cooper and Schindler (Cooper & Schindler, 2008) It's a group of people or things from which the sample's results can be extrapolated. A target population may also be described as a set of elements from which

deductions are to be made (Cooper & Schindler, 2008). The study population consisted of staff in all real estates firms in Nyarugenge District, Kigali Rwanda. A stratified sampling methodology was used. Simple random sampling was used to prevent biased selection and ensure that each item has a fair probability of being chosen, thereby satisfying the statistical regularity principle, which states that a randomly selected sample will have similar characteristics that could be generalized to the entire population.

The study adopted Yamane (1967) formula with assumption of 95% of confidence level to estimate the sample size.

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = population size

e = the level of precision

1 = Constant

$$n = \frac{80}{1 + 80(0.05)^2}$$

= 67 respondents

Substituting these values in the above equation gives 364 respondents that will be used as the sample size

for the current study. The sample size was as shown in Table 1.

Table 1: Sample Size

Classification of SGBs	Population	Sample Size
Managers	14	12
Assistant managers	20	17
Administrators	31	26
Office assistants	15	12
Total	80	67

Source: Nyarugenge District, Kigali Rwanda, 2021

Data Analysis

The questionnaire's primary data was double-checked, modified, and coded. After that, the coded information was entered into SPSS and evaluated through descriptive as well as inferential statistics. Descriptive analysis which involves computation of mean, mode, median, standard deviation, and percentages was carried out to determine frequencies and percentage distributions. Correlations and regression analysis was calculated to draw inferences to the entire population.

Multiple linear regression model was used to analyze the quantitative data since it comprises one dependent variable and multiple independent variables. This was used to analyze if there's any correlation between one dependent variable and one or more independent variables. Correlation and coefficient was calculated from the data to determine if there is a relationship between the variables under investigation. Regression analysis was used thus helped to describe the relationship between the independent and dependent variables.

Table 2: Response Rate

Narrative	Frequency	Percentage
Returned Questionnaire	64	95.5
Unreturned Questionnaire	3	4.5
Total	67	100.0

Source: Primary data, 2021

According to Kothari and Garg (2014), any answer of 50% or more is appropriate for analysis and that 64 questionnaires were collected out of 67 issued surveys, corresponding to a 95.5% response rate.

The below multiple regression model was applied:

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

Where,

Y = real estate Performance

α = Constant Term; When all the predictor values are zero it is equal to Y

$\beta_1, \beta_2, \beta_3$ and β_4 = Beta Coefficient of variable (i) which measures whether there is responsiveness of Y to change in (i)

X1 = mortgage interest rates

X2 = Inflation

X3 = mortgage risks

X4 = loan terms

ϵ = Error term

FINDINGS AND DISCUSSIONS

Response Rate

The study targeted all real estate Nyarugenge District, Kigali Rwanda.

This response rate was achieved after multiple personal calls and visits were made to remind respondents to fill out and return the surveys, as well as to explain the significance of their involvement in

this study. The response rate mostly shows respondents' desire to engage in the survey.

linear regression Model

Regression analysis was done to investigate the effect of mortgage financing on the performance of real estate in Rwanda.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.542 ^a	.294	.268	.130

Predictors: (Constant), mortgage interest rates, Inflation, mortgage risks, loan terms

Table 3 showed that the coefficient of determination R square is 0.294 and R is 0.542 at 0.05 significant level. The coefficient of determination indicates that 29.4% of the variation in the dependent variable. The

performance of real estate in Rwanda is explained by the independent variables (mortgage interest rates, Inflation, mortgage risks, loan terms).

Table 4: ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.575 ^a	3	.192	11.388	.000 ^b
	Residual	1.379	51	.017		
	Total	1.953	54			

a. Dependent Variable: Performance of real estates

b. Predictors: (Constant), mortgage interest rates, Inflation, mortgage risks, loan terms.

Table 4 presented the results of Analysis of Variance (ANOVA) on mortgage financing and the performance of real estate. The ANOVA results for regression coefficient indicate that the significance of the F is 0.00 which is less than 0.05. This implies

that there is a positive significant relationship between mortgage financing and the performance of real estate in Rwanda and that the model is a good fit for the data.

Table 5: Coefficient results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.347	.231		1.973	.106
	mortgage interest rates	.162	.009	.444	1.815	.009
	Inflation	.282	.050	1.231	3.616	.036
	mortgage risks	.194	.017	1.075	3.159	.025
	loan terms	.211	.240	.230	.850	.028

From the data in the above table the established regression equation was

$$Y = 0.347 + 0.162 X_1 + 0.282 X_2 + 0.194 X_3 + 0.211 X_4$$

The regression equation above shows that the performance of real estate in Rwanda is 0.347 when mortgage interest rates, Inflation, mortgage risks and loan terms are constant. Increasing mortgage

interest rates increases the performance rate of real estate by 0.162, and increasing Inflation increases the performance rate of real estate by 0.282. An increase mortgage risks increases the performance of real estate by 0.194 lastly an increase in loan terms units increases the performance of real estate by 0. 0.211.

CONCLUSIONS AND RECOMMENDATIONS

The study looked at the effect of mortgage financing on the performance of real estates in Rwanda. The study concludes that, mortgage interest rates positively affects the performance of real estate in Rwanda. The study therefore indicates that the performance of real estates in Rwanda are greatly affected by the mortgage interest rates set by the financial institutions. This also greatly affects their performance since real estate financing affects their core business. Respondents also showed that Inflation affects the performance of real estate. It was evident also that mortgage risks and loan terms greatly affects the performance of real estate in Rwanda. According to the study findings it was also evident that all the four independent variables greatly and positively affect the performance of real estate in Rwanda.

The study sought to identify the effect of mortgage financing on the performance of real Estate in Rwanda. From the findings the study recommends the following.

The study recommends that financing institutions should relax the set financial regulations available to enable real estate firms access mortgage financing thus spurring them in growth.

Real estates should be made aware of all financial regulations available thus making them compliance in accessing finances.

Real estate firms should also seek for other means to boost their business for example partnering with interested firms

In order to boost the real estate sector the Rwandan government should provide good economic base to enable real estate firms access mortgages and boost the industry.

Areas for further research

The study aimed at identifying the effect of mortgage finance on the performance of real estate in Rwanda. The study recommends that a similar study can be conducted but in a public entity. Further The study recommended that a similar study can be conducted but with the use of different constructs not used in this study.

REFERENCES

- Adler, M., & Lehmann, B. (2012). Deviations from purchasing power parity in the long run. *The Journal of Finance*, 38(5), 1471-1487.
- Allen, J., Amano, R., Byrne, D. P., & Gregory, A. W. (2006). Statistical Appendix for "Canadian City Housing Prices and Urban Market Segmentation." Retrieved from http://qed.econ.queensu.ca/pub/faculty/gregory/ABBG_Appendix.pdf
- Agency (SIDA) Project "Housing Affordability in China. Retrieved from <http://web1.cenet.org.cn/lupfile/96036.pdf>
- Claessens, S., & Laeven, L. (2004). What drives bank competition? Some international evidence. *Journal of Money, Credit and Banking*, 563-583.
- Cooper, D. R., & Schindler, P. S. (2006). Business Research Methods, empirical investigation". *Journal of Service Research*, 1(2), 108-28.
- Doms, M., Furlong, F., & Krainer, J. (2007). Subprime mortgage delinquency rates. *Federal Reserve Bank of San Francisco Working Paper*, 33, 1-29.
- Fischer, S. (2001). Distinguished Lecture on Economics in Government: Exchange Rate Regimes: Is the Bipolar View Correct? *Journal of economic perspectives*, 3-24.
- Giovannini, A. (1985). Saving and the real interest rate in LDCs. *Journal of Development Economics*, 18(2), 197-217.

- Heuson, A., Passmore, W., & Sparks, R. (2001). Credit scoring and mortgage securitization: Implications for mortgage rates and credit availability. *The Journal of Real Estate Finance and Economics*, 23(3), 337-363
- Kelly, R. (2012). House Prices, Unemployment and Irish Mortgage Losses. *Research Technical Paper, forthcoming, Central Bank of Ireland*. Retrieved from http://www.dnb.nl/en/binaries/Robert%20Kelly%20-%20final%20version_tcm47-279034.pdf
- Kelly, R., & McQuinn, K. (2013). On the hook for impaired bank lending: Do sovereign bank inter-linkages affect the fiscal multiplier?
from <https://ifsra.ie/stability/Documents/Distressed%20Property%20Market%20Conference/Session%20/S2P1/Paper.pdf>
- Kennedy, G., & McQuinn, K. (2011). Scenarios for Irish house prices. *Central Bank of Ireland Economic Letter*, (2). Retrieved from <https://ifsra.ie/publications/Documents/Scenarios%20for%20Irish%20House%20Prices.pdf>
- Kothari, S. P., Ramanna, K., & Skinner, D. J. (2010). Implications for GAAP from an analysis of positive research in accounting. *Journal of Accounting and Economics*, 50(2), 246-286.
- Krainer, J. (2009). Recent developments in mortgage finance. *FRBSF Economic Letter*, 33. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.167.8850&rep=rep1&type=pdf>
- Krainer, J., & Laderman, E. (2011). *Prepayment and delinquency in the mortgage crisis period* Retrieved from <http://www.eea-esem.com/files/papers/eeaesem/2012/2777/KrainerLaderman--prepaym.ent.pdf>
- Levy-Yeyati, E., & Sturzenegger, F. (2005). Classifying exchange rate regimes: Deeds vs. words. *European Economic Review*, 49(6), 1603-1635.
- Ngugi, R. (2001). *An empirical analysis of interest rate spread in Kenya* (Vol. 106). African Economic Research Consortium. Retrieved from <http://www.aercafrica.org/DOCUMENTS/rp106.pdf>
- Passmore, W., Sparks, R., & Ingpen, I. (2002). GSEs, mortgage rates, and the long-run effects of mortgage securitization. *The Journal of Real Estate Finance and Economics*, 25(2-3), 215-242.