

**ANALYSIS OF ASSET FINANCING AND RETURN ON INVESTMENT IN  
COMMERCIAL REAL ESTATE INVESTMENT FIRMS IN KENYA**

**BY**

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN FINANCE**

**SCHOOL OF BUSINESS AND ECONOMICS**

**MASENO UNIVERSITY**

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**DECLARATION AND APPROVAL**

**Students' declaration**

This research project is my original work and has not been presented for a degree in any other University.

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## **ACKNOWLEDGEMENT**

First, I thank God for helping me through this project writing. Secondly, special thanks to my supervisor Dr. Robert Kisavi Mule for his guidance and assistance. Finally, I thank my family for supporting me throughout my studies.

## **DEDICATION**

I dedicate this work to my parents Tom and Roseline Koile and my siblings Sam and Sandra.

## ABSTRACT

Real estate commercial environment has guided financial organizations and property developers to examine various financing options given the imperative role that financial markets and developers play in the performance of the real estate sector. The objective of this study was to analyse asset financing and return on investment in commercial real estate investment firms in Kenya. The following aspects formed the particular objectives of the study; to establish the effect of loan uptake on return on investment in commercial real estate investment firms in Kenya, to assess the effect of interest on loan on return on investment in commercial real estate investment firms in Kenya and to analyze the effect of financial solvency on return on investment in commercial real estate investment firms in Kenya. The study was anchored on Simulation Theory, The Pecking Order Theory, Ratio Analysis Theory and Profit Maximization Theory. The population of interest in the study was made up of registered property developers with Kenya Property Developers Association. The research employed secondary sources to collect data. Information that was relied on included the data from published and audited annual reports of the target group. This study employed a correlational research design and utilized panel data for the period 2017-2021. Data was collected from audited reports which are deemed reliable and valid and was tested for stationarity by Levin, Lin, Chu unit root test. The data was tested for normality, heteroscedasticity and multicollinearity condition satisfaction. Data was analysed using ordinary least squares approach and the regression was multivariate panel data in nature at 0.05 level of significance. Data analysis was done with the help of Eviews and presented in tables. The research findings were that loan uptake has a negative significant effect ( $\beta = -0.0738$ ,  $p = 0.0034$ ) on return on investment in commercial real estate, interest on loan positively significantly affects return on investment ( $\beta = 0.0309$ ,  $p = 0.0499$ ) and financial solvency positively significantly affects return on investment ( $\beta = 0.5434$ ,  $p = 0.0132$ ) in commercial real estate investment firms in Kenya. Interest on loan accounts for return on investment of 3.09% and financial solvency accounts for return on investment of 54.3%. The research concludes that the three variables under study had some influence on the return on investment of the commercial real estate as part of explaining their development. This research study recommends that there needs to be awareness created on need to use other financing options that are cheaper in the long run. This study contributes to the body of knowledge by providing the link between asset financing and return on investment in commercial real estate investment firms in Kenya.

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## **ABBREVIATIONS AND ACRONYMS**

<b>CBK:</b>	Central Bank of Kenya
<b>EMT:</b>	Efficient Market Theory
<b>GDP:</b>	Gross Domestic Product
<b>KNBS:</b>	Kenya National Bureau of Statistics
<b>KPDA:</b>	Kenya Property Developers Association
<b>MPT:</b>	Modern Portfolio Theory
<b>PCSE:</b>	Panels Corrected Standard Errors
<b>REITs:</b>	Real Estate Investment Trusts
<b>ROI:</b>	Return on Investment

## OPERATIONAL DEFINITION OF TERMS

<b>Asset finance:</b>	Credit acquired from lending facilities that real estate developers use to finance a project and is secured by the value of a parcel of real estate.
<b>Asset financing:</b>	Taking up credit secured by the value of a parcel of real estate from lending facilities to finance a real estate project.
<b>Commercial Property:</b>	Any property that is attached directly to land and is meant to generate a profit from rental income.
<b>Financial solvency:</b>	The ability of a firm to meet its long term debt and other financial obligations and is measured by asset to loan ratio.
<b>Interest rate:</b>	The rate of the price for the use of funds expressed as a percentage of the principle borrowed for investment in real estate.
<b>Interest on loan:</b>	The amount a lending facility charges a borrower for the asset finance given and is expressed as a percentage of the principal.
<b>Loan uptake:</b>	The action of taking up an asset financing loan that is available. This study will analyze the frequency of loans taken.
<b>Return on investment:</b>	Performance measure to evaluate the efficiency of an investment and is measured by the amount of return on an investment relative to the investment cost.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Investment in real estate is a key indicator of growth and development of various economies (Hamouri, 2020). The sector is internationally recognized to be the driving force towards improving socio-economic conditions of the population as it is known to have a multiplier effect. According to Cytonn Investments (2016) prices of real property in an economic environment are key estimates for demand levels for real property and good predictors of economic growth and development. The property sector occupies a large portion of the economy and is important because of the direct multiplier effect and the significant effect the sector has on the socio-economic environment especially in developing economies (Tsung, Ning & Kuang, 2015). Onyango (2019) states that other than the large occupation the sector has in the economy, it is also significant in the positive externalities and spillover impact in the socio-economic environment. Brueggeman and Fisher (2011) define real estate as property that consists of land, developments on that land and any other natural resources attached to it. Masron and Kepili (2016) categorized real estate among assets which include undeveloped land and any other structures put up on land for purposes of earning rental income. These structures could include industrial buildings, retail stores, rental houses and office building. These investments are classified generally into three based on use namely: Commercial, Industrial and Residential real estate investments. Commercial real estate investment firms are companies involved in obtaining, possession, managing, leasing or renting and selling of real property for revenue. However, the financial obligations for the development of real property is enormous and sometimes inaccessible to most investors in under

developed countries. Therefore, real estate refers to land and any structures or improvements attached to it.

Dymski (2015) defines real estate finance as the financial obligations that have to be met to enable development of projects or purchase of real property and is credit supplied by individuals or financial institutions against some collateral. Lwali (2016) states that there are a number of organizations that are involved in provision of capital for development of real property, some of which include savings and loans cooperatives, financial institutions, insurance companies, mortgage finance companies and even government parastatals. Therefore, real estate financing is the provision of capital for acquisition and development of real property.

Kaliser (2015) defines asset financing as “a type of financing through which a debtor obtains capital secured by the value of real property. Asset financing is a type of credit acquired from lending facilities which finance the development of real property and the property developers give property as security to the loan taken (Smith, 2016). Jia (2016) further states that “asset financing practices are also referred to as bond finances and are short term loaning options that investors can use to back real property development, meaning that this is credit payable within a period of one year or less. In most instances the value of the real property given as security is higher than the amount that the lender offers to the property developer. This is a common practice as it allows the financiers to mitigate on the credit risk in case the borrower defaults payment on the debt given. Wataka (2018) defines asset financing loans as loans secured for purposes of real property development and are obtained from private parties but are usually accessible at greater interest rates”. Therefore, asset financing loans are credit acquired from lending facilities that real estate developers use to finance a project and is secured by the value of real property.

The global commercial setting is currently fast paced since opportunities come and go instantly and it is due to this reality that there is need for investors to be up to task in order not to miss out on any opportunities that may arise. As investors seek new means to access funding as and when opportunities arise, asset financing has become essential for the real estate business sector. Financiers use the real property's value to determine whether to or not to grant the loan unlike conventional bank loans where the ability to obtain funds is determined by the debtors' credit worthiness (Wataka, 2018) and the loan guaranteeing procedures are less intrusive and time consuming than the procedures followed by conventional institutions. Financiers focus on the renovation value as an estimation of the property's value after repair or development of a real estate project is complete. Property developers are warming up to asset financing as it can help them close contracts fast; and this is important in today's market where acquisition of financing must be prompt. Carey (2016) states that "developers use asset financing to finance projects because a debtor can often borrow between 75% and 100% of the acquisition value to uptake." Asset financing then becomes essential when property developers are unable to wait for funding from more conventional institutions.

In a study by Metcalfe (2014), "commercial real estate in Africa is on an upward trajectory." He postulates that development of real estate is volatile through Africa with South, West and East Africa being the most agile. Real estate growth in these countries is largely centered on these counties' urban areas with Accra, Lagos and Nairobi being prominent in development of modern commercial structures such as shopping malls. Wataka (2018) states that demand for housing, business premises among other amenities in the continent are some of the factors that have led to an increase in demand for real property though growth has also been influenced by rapid increase

in the continents prosperous population. The above mentioned social and economic activities have led to the volatile development of the real estate environment in the continent.

Africa Progressive Panel (2018) states that the continents lag in infrastructural development has been a main impediment to growth in the commercial environment of the African continent. The continent must therefore bridge all the infrastructural gaps in order to become more competitive internationally. One of the factors that would lead to the successful bridging of these gaps would be access to financing that would then enable improvement of the continent's infrastructure which real estate development is part of Dymski (2015) suggests that the sectors performance is determined by rental income, risks of tenancy level and net profit. Rental income relates to the proceeds earned from renting out property to individuals or to businesses whereas risks are measured by the variability levels of income. Investors in the sector measure both estimated risks and returns to establish the value of the real estate property before investing.

During the past couple of years, there has been exceptional growth in the real estate sector in Kenya with strengthening property values and various developments rising. These developments however require cash flows to execute (Mwathi & Karanja, 2017). Since property developers need to successfully design financing for improvement in the real estate sector, a great deal of finances must be used to meet expenses even before development starts. The most important stride is preparedness for development. The loans, savings and building Finance Corporation in Kenya are the two establishments that dedicate significant time in land subsidizing.

According to a report by Knight Frank (2018), commercial real estate developments in Kenya have remained positive as they are on the increase and this is attributed to proper guidelines put in place by the Kenyan government, growth in infrastructure combined with increasing consciousness among real estate developers that there is need to launch projects or developments in line with

demand. Onyango (2019) suggests that the current development trend is encouraging and has thus led to increased foreign investment from major firms.

## **1.2 Statement of the Problem**

There has been increased development activities in the Kenyan real estate sector with a general improvement in Real Estate transactions, attributed to the improved commercial environment. Return on investments in the sector stood at 9.8% in 2016, 6.7% in 2017, 6.5% in 2018, 6.7% in 2019, 4.1% in 2020 and 4.9% in 2021. Despite the sluggish growth, profitability of the real estate sector was cushioned by; increased demand given the positive demographics with Kenya's high urban development and population growth rate, continued introduction of affordable housing projects, improved infrastructure opening up areas for investment and Improved access to real estate financing especially through the Kenya Mortgage Refinancing Company (KMRC). Statistics show that the real estate sector's impact to the Kenya's gross domestic product (GDP) stood at 14.1% in 2017, 13.7% in 2018, 15.9% in 2019, 17.1% in 2020 and 16.8% in 2021. The country has experienced an increase in investment in the real estate sector and this is accredited to an increase in the demand for houses which has been caused by rural-urban migration and increased demand for office space due to rapid growth of commerce. Real estate investment is significant in Kenya's economy and is vital in the provision of shelter to households, employment opportunities, poverty lessening and enhancing revenue spreading. The real estate sector continues to be generally underdeveloped in spite of the socio-economic importance it has as recognized by investors in the sector. Whether or not asset financing improves or reduces the return on investment in commercial real estate in Kenya has not been established. Insufficiency of observed evidence for the most part with reference to asset financing and return on investment in commercial real estate investment firms in Kenya further necessitates the need for this study. Therefore, this study

sought to analyze asset financing and return on investments in commercial real estate investment firms in Kenya.

### **1.3 Objectives of the Study**

The main objective of this research was to analyse asset financing and return on investment in commercial real estate investment firms in Kenya.

The specific objectives of the study were:

- i. To establish the effect of loan uptake on return on investment in commercial real estate investment firms in Kenya.
- ii. To assess the effect of interest on loan on return on investment in commercial real estate investment firms in Kenya.
- iii. To analyze the effect of financial solvency on return on investment in commercial real estate investment firms in Kenya.

### **1.4 Research Hypotheses**

The study sought to test the following hypotheses;

H<sub>01</sub>: Loan uptake has no significant effect on return on investment in commercial real estate investment firms in Kenya.

H<sub>02</sub>: Interest on loan has no significant effect on return on investment in commercial real estate investment firms in Kenya.

H<sub>03</sub>: Financial solvency has no significant effect on return on investment in commercial real estate investment firms in Kenya.

### **1.5 Justification of the Study**

The study findings will be favorable to the Government of Kenya policymakers on matters relating to the processes of asset financing to boost economic development. It is also estimated that this study will prompt considerations among real property investors to establish suitable policies of directing financial support to the real property sector and enable investors to eventually earn. Finally, the study findings will contribute to the body of knowledge, identify areas for further investigation and act as a source of reference material for future researchers who may choose to research on similar areas or look further into asset financing and return on investment in real estate.

### **1.6 Scope of the Study**

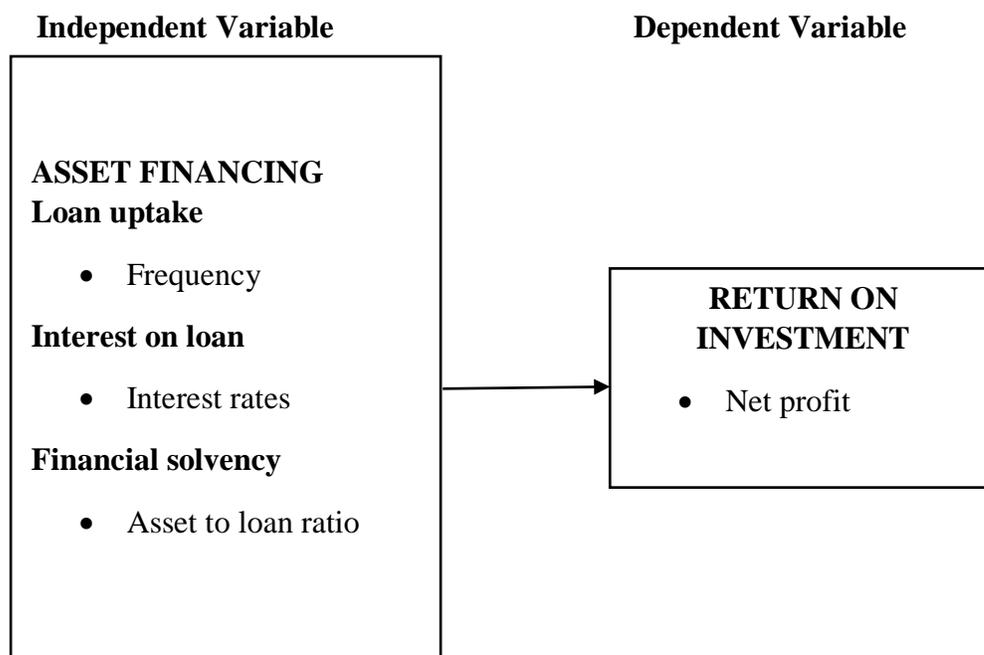
The study was guided by independent and dependent variables. The independent variables include uptake of asset financing loans, interest on loan and financial solvency. Return on investment in commercial real estate investment firms constitutes the dependent variable.

The research was restricted to commercial real estate firms listed as property developers by KPDA in Kenya. The unit of analysis comprised commercial real estate firms in Kenya. The data collected was for the Financial Years 2017 to 2021 thus conveying panel data for 5 years. Given 6 premium members registered as property developers of KPDA, the total points were 6 multiplied by 5 which resulted to 30 data points.

### **1.7 Conceptual Framework**

Conceptual research is a research that has a link with some abstract ideas or theoretical foundation and is used by researchers to construe ideas (Kothari, 2014). Independently, each of the variables below has been studied and has since generated reasonable results. However, little research has been done on asset financing and ROI in commercial real estate investment firms in Kenya.

Each of the specified variables has been operationalized by determinate factors. The background assumes a relationship between the independent variables and return on investments. This study was steered based on this overall hypothesis. Loan uptake was measured by the frequency which is the number of times a commercial real estate investment firm takes up a loan in one year, interest on loan was measured by the levels of interest rates charged on loans payable within that financial year and the proxy for measurement of financial solvency was asset to loan ratio. Wataka (2018) recognized the three factors used in this study as possible factors that affect return on investment.



**Figure 1.1: Asset financing and return on investments relationship**

Source: Adopted and from Wataka (2018)

## **CHAPTER TWO**

### **LITERATURE REVIEW**

This chapter reviews literature relevant to this research with the aim of getting views and opinions on asset financing and return on investment in commercial real estate investment firms in Kenya.

#### **2.1 Theoretical Review**

In this section, theories relating to asset financing and return on investment in commercial real estate are reviewed and discussed.

##### **2.1.1 Financial Intermediation Theory**

Modigliani and Miller (1958) proposed the Financial Intermediation Theory which was later advanced by Fama (1980) and Gertler (1988) among other scholars. This theory postulates that intermediaries serve to minimize transaction costs and information asymmetry. Financial intermediaries act as a link between the loan lenders and borrowers. Commercial banks, savings and loan associations, mutual savings banks are some of the active financial intermediaries in the real estate sector. Due to the risk involved in direct borrowing, loans can only be obtained through intermediaries especially because they can evaluate the feasibility of development projects and consequently advice investors. Intermediaries also look at borrowers' credit worthiness before advancing loans to curtail default in payment. These measures are established to ensure loans are invested in projects that earn reasonable returns on investment.

##### **2.1.2 Simulation Theory**

The theory was proposed by Laibson (1998); it reviews the level to which financial institutions enable the provision of real estate finance internationally. This theory additionally states that developed nations with proper legal rights for creditors and debtors have profound credit information and as a result have more stable economies that then enable real estate financing

systems to thrive. The lack of these factors explain the disparity in real estate financing in developing countries. The low macroeconomic unpredictability and wide ranging financing systems as well as variation in the legal rights explains the extent of real estate financing in more economically stable countries. Adler & Lehmann (2012) state that to a certain extent, a statistical comparison of the loan-to-asset 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 of future interest rates, house prices and changes in income.

### **2.1.3 The Pecking Order Theory**

The pecking order theory relates to a company's capital structure. Stewart Myers & Nicholas Majluf (1984) suggest that organizations tend to make use of finances that can be obtained internally rather than externally by reinvesting retained earnings before opting for external financing. The theory states that management follows the pecking order when considering sources of finance as companies prefer internal financing to external financing. This is because is less prone to cost of information skewdness unlike external sources of finance. External financing is only considered after internal financing is depleted. Wataka (2018) states external financing is only encouraged when a firm makes little to no profits and when equity is underestimated. This theory therefore explains how far real estate investors should go to obtain external financing with the intention of earning return on investment.

### **2.1.4 Ratio Analysis Theory**

Rama Gopal (2009) explains that ratio analysis is a significant technique largely used in analyzing of financial reports and that ratios are used as a measure for estimating the financial well-being of a firm. Examination and analysis of various financial ratios give a better understanding of financial

well-being of a firm in a better manner than the survey of financial statements. Analysis of financial statements which involves vigilant selection from financial statements for the main purpose of estimating the financial well-being of the firm.

### **2.1.5 Profit Maximization Theory**

The profit maximization theory was founded by Marshall (1980) and is based on the argument that the key objective of investments is the maximization of revenues. Every investors seeks to capitalize on investments by working in his self-interest.. The theory is usually used in the economic perspective where firms ensure their returns are maximized by equating marginal income to marginal expenses. A company achieves its objectives when it gets ample returns and more so when its capital is used to come up with products that can be sold to consumers so as to earn returns. The existence of any firm is dependent on the returns got from its investment. One of the key hypothesis is that investors seek to maximize their returns when investing in real property. Investors expect positive returns and therefore have no choice but to conduct business in a way that capitalizes on the returns.

## **2.2 Empirical Review**

This section entails a review of past research studies in relation to asset financing and return on investment in commercial real estate.

### **2.2.1 Loan Uptake and Return on Investment in Real Estate**

Agnello, Castro, and Sousa (2019) analyzed securitization, liberalization of the housing sector and contribution by the government housing finance during seasons of normal, booms, and bust. The research data was from 20 OECD countries during the years 1970-2015 and applied time series data analysis. The research findings revealed that liberalization and securitization of the real estate sector are associated with longer periods of boom. Additionally, the study finding indicates that

extent of busts and booms in housing is dependent on features of financing options though that was not the case during ordinary times. The findings also indicated that regulation of housing finance might be important particularly in guarding against the detrimental effect of housing busts and threats of financial stability linked to booms and that in order to complement financial policies aimed at ensuring stability of the financial system guidelines, intervention of monetary policy would be essential..

Rodríguez-Planas (2018) sought to determine the effect of culture on mortgage financing. He sampled 12,344 immigrants from 41 states of origin living in Spain. The research revealed that high mortgage infiltration in the state of origin had a positive effect on the likelihood taking up a housing loan in Spain. Similarly, high mortgage depth in ones' original state was positively related with high monthly repayments, as one increases, so does the other. Therefore, social practices with respect to mortgage financing in the state of origin is crucial in deciding immigrants' house financing in the host country. The research also revealed that the decision to take up a mortgage is influenced by an individual's social perspective as regards to assets privileges while those relating to credit material are taken into account when explaining the value of the mortgage finance.

Canepa and Khaled (2018) explored the factors of counterparty with attention to the sustainability of risk with attention to the role of sustainable housing while analyzing the influence of loan uptake growth and requirement. The study analyzed panel data. Research findings revealed that sustainable housing and instability had an influence on the credit portfolio of financial institutions. Especially that banks in notably more financially liberalized countries with unregulated economies experienced high risk of default on payment. The study only focused on credit risk and sustainable housing but did not analyze housing financing on return on investment in commercial real estate

Anidiobu, Okolie, and Ugwuanyi (2018) studied effect of financing options on housing delivery in Nigeria. The research assessed the extent to which investment in the real estate sector in Nigeria was influenced by mortgage uptake from 1992-2016. Data was analyzed by the use of ordinary least square method. The study utilized Johansen test to test for cointegrating relationships between the time series data. Research revealed a correlation existed between the study variables during the research period. The study concluded that insufficient housing finance had a negative effect on Nigeria's economy despite how significant the country's housing sector is.

Mbulo and Oluoch (2019) sought to analyze the relationship between loan uptake and price of real estate. The study utilized secondary data which was tested for correlation and a regression estimate derived. The findings revealed a significant relationship between the variables. The study did not however determine the effect of loan uptake on return on investment return on investment in real estate.

In their study, Abdulrehman and Nyamute (2018) examined the effect of housing financing on profitability of commercial banks in Kenya. The study applied a census. The research utilized secondary sources of data and tested the hypothesis by use of correlation analysis and regression analysis. The research revealed a positive significant relationship between loan amounts and financial performance of the studied commercial banks. This study focused on commercial banks and not on real estate investment firms.

Onchomba, Njeru, and Memba (2018) sought to establish the effect of loan uptake on and financial performance of 42 licensed commercial banks in Kenya. Their research was anchored on modern portfolio theory. The research utilized secondary data acquired from annual bank reports for the period 2006-2015. The study used both inferential and descriptive statistics in analysis. The research study revealed that loan uptake had an influence on the returns of the commercial banks

and that the variables were positively associated. The study only focused on the commercial banks while this specific study focused on commercial real estate investment firms

Kioko (2020) sought to ascertain the impact of mortgage financing on the profitability of residential real estate sector in Kenya. Uptake of loans and interest rates and risks constituted the independent variables. The hypothesis was tested through analysis of correlation and multiple linear regression. The study revealed that impaired loans had a considerable impact on performance of residential real estate. The study concluded that none of the independent variables had a significant influence on the independent variable and recommended that investors not to ponder on mortgage financing as the only funding option.

Wataka (2018) examined the effect of external financing on profitability of real estate firms in Nakuru. The study focused uptake of external financing on financial performance of the said firms. The study collected primary data by use of a structured questionnaire and adopted a descriptive research design. The research findings revealed that increased external financing resulted in improved performance of the investments only to a small extent. The research also concluded that there were restricted access to these loans. His study was carried out within Nakuru town in Kenya only while this study investigated real estate investment firms in Kenya as a whole. This study also employed secondary sources of data.

### **2.2.2 Interest on Loan and Return on Investment in Real Estate**

A study by Razali, Jalil, and Nguyen (2020) examined the relationship between macroeconomic aspects on the instability of REITs in Malaysia. In the study, 17 listed real estate investment trusts in Malaysia over the period 2010-2017. The data was tested to ascertain homoscedasticity before regression analysis was carried out. Data was analyzed quantitatively and the findings revealed

that the macroeconomic factors tested including the lending rate significantly impacted the rate of return among Malaysian real estate investment trusts.

In their research, Olanrele et al. (2020) Looked into the effect of macroeconomic forecasters on the profitability of REITs in Nigeria. The study variables included inflation and interest rates. The research design was qualitative in nature and secondary data from the year 2008-2017 was obtained from publicly availed financial statements. The study utilized autoregressive distributed lag and bond tests. The study findings indicate that interest rates had a significant impact on returns on investment trusts.

Chirchir (2021) investigated the contributing factors of profitability of the listed REITs in East, West and South Africa. The research tested the impact that interest rates, firm age & size, GDP and inflation rates had on financial performance. The research was anchored on resource based view theory and the researcher studied from a positivist's point of view. The study employed a descriptive correlation research design. The study applied a census of all 38 real estate investment trusts on the African continent. The researcher collected secondary data from audited financial statements of the said entities for the period 2010-2020. The research findings revealed that interest rates and all the other variables. The variables were responsible for 52.70% of the financial performance of the studied entities. The study recommended that real estate investment trusts should collaborate with regulatory bodies in the development of policies to guide real estate investment trusts during periods of economic prosperity.

Kamweru and Ngui (2017) sought to assess the relationship between interest rates and the performance of Kenya's real estate industry. The research study employed a descriptive survey research design. The study population was made up of registered developers in Nairobi. In the study, findings indicate that lending interest rates negatively significantly affected profitability of

the investments. Interest rates however had a significant effect on the growth of real estate over time. This study however only focused on real estate firms in Nairobi.

Ndegwa (2017) studied the effect of macroeconomic factors on the financial performance of the real estate sector in Kenya. The study employed a descriptive research design and utilized secondary data through desk review during the period 1997-2016. In conclusion, he stated that high interest had a negative effect on the profitability the stated firms and recommended use of fiscal policies by the government to control high interest rates since this would stimulate investments in the real estate business environment in the country.

Kipkurui (2019) investigated Stanlib Fahari real estate investment trust with the intention of determining the impact of select macro-economic variables on return on stock. One of the variables included interest rates among inflation rates and forex rates. The study was anchored on the following theories; efficient market hypothesis, purchasing power parity and arbitrage pricing. The research was correlational in nature and secondary data from the NSE and CBK published reports was analysed between 2016 and 2018. The research indicates that interest rates had a positive but irrelevant impact on returns.

Wainaina (2020) pursued the influence of selected macroeconomic determinants on performance of housing sector in Kenya. Research objectives were to establish the impact of the rate of inflation, the rate of interest and the effect of growth rate of money on the performance of the real estate investment firms in the country. The study adopted correlation research design. The study collected secondary data from Hass Consultants, CBK and KNBS from 2007 to 2016 on a quarterly basis. The findings revealed a positive relationship with the highest interest rate recorded at 20.2% and the least at 13.1% for the periods 2007 to 2016. The research concluded that interest rates indicated a negative impact on the development of the real estate sector in the country and recommended

that it would be essential to control the interest rates that would subsequently reduce the lending rates.

Nduta (2021) examined the impact of introduction of interest rates ceilings on performance of REITs in Kenya. The study objectives were to assess the influence of interest rates on the REIT performance in Kenya; determine the influence of the economy on REIT performance; and assess the influence of government policies on the performance of REITs. A descriptive research design was used and an analysis of information on REITs performance obtained from the respective REIT Managers and past studies. The findings showed that interest rates accounted for 38.7% of the changes in REIT performance in the study period, the relationship between interest rate and REIT performance was significant. The study concluded that controlled interest rates would cause a decrease the cost of borrowings by REITs and thus encourage borrowing, spending and investments.

### **2.2.3 Financial Solvency and Return on Investment in Real Estate**

Dolde (2014) investigated real estates in India. He focused on the problems and prospects of the said entities. The study design was of both analytical and exploratory nature and employed both primary and secondary. The study revealed that the loan amount the financier offers is dependent on the asset to loan ratio of the organization seeking financing. The research also indicated that with external financing a debtor can be facilitated an up to 0.75 of the real property value.

Bardhan and Edelstein (2015) conducted a study between two sectors in Singapore. The sectors were upward mobility and the housing market. The study was of analytical and exploratory nature and employed primary as well as secondary data. According to the research, property developers

with more experience had more positive investment experience and therefore had greater access to external financing and this gave creditors additional confidence. The research also revealed that financial solvency was one of the issues looked into when qualifying debtors for asset financing. Property developers with higher financial solvency were not likely to default on loan payment. The research revealed that as financial solvency increases, a greater credit score was given to creditors and as financial solvency decreases, qualification for credit guidelines became stricter. Creditors also required the debtors of high asset to loan ratio to buy mortgage insurance to safeguard the creditor from the debtor's failure to pay.

Pohan (2020) studied the effect of firm size and financial solvency of earnings per share with profitability as an intervening variable in property and real estate companies in Indonesia for the period 2014-2018. The study examined companies listed in Indonesia stock exchange. The study employed secondary data and was quantitative in nature. The data was analyzed and regression analysis done using statistical package for social sciences. The research findings revealed that financial solvency had a positive and significant effect on earnings per share.

In a research study by Erbas (2015) relationship between universal financial crises on the financial performance of commercial banks offering mortgage financing in Kenya. The study findings revealed that asset financing creditors are more concerned with the investment potential of an individual investment. The study further established that various factors affected the financial solvency of developers since creditors comprehensively evaluated the potential of an investment property for a positive outcome. The study recommended that both parties, the financier and the borrower, ought to properly document the construction plans as well as come up with the best possible financing agreement. The study concluded that the lower the financial solvency, the more likely a borrower to default on payment.

Wataka (2018) investigated the effect of private asset financing loans on financial performance of real estate investment firms in Nakuru town, Kenya. The study variables included uptake of private asset financing loans, interest rates, loan processing time, and asset to-loan ratio on financial performance of the said entities. The study adopted a descriptive research design and collected primary data by use of a structured questionnaire. The findings revealed that asset-to-loan ratio substantively influenced profitability of the stated firms. His study was however limited to Nakuru County while this study's scope covered the whole country of Kenya.

Mburugu, Rintari & Mutea (2021) investigated the impact that leverage risk had on performance of a sample of real estate investment firms in Meru County, Kenya. The research design was descriptive in nature and the study employed primary sources of data. The research data was analyzed by use of statistical package for social sciences and the research findings revealed that there was a significant relationship between leverage risk and performance of real estate investments in Meru County. This study was however only focused on Meru County and not Kenya as a whole.

Most of the global, regional and local studies did not address the association between loan uptake and return on investment in commercial real estate thus presenting a theoretical gap. The studies by Ochomba, Njeru and Memba (2018) and Abdulrhema nad Nyamute (2018) focused on the relationship between loan uptake and profitability of commercial banks and not on return on investment in commercial real estate investment firms. Only the study by Wataka (2018) addressed the relationship but there is an intrinsic conceptual gap because he did not address frequency of loan uptake and its effect on return on investment in commercial real estate. Inadequacy of observed evidence for the most part in relation to loan uptake and return on investment in commercial real estate investment firms necessitated the need for this study. Agnello, Castro, and

Sousa (2019), Rodríguez-Planas (2018), Canepa and Khaled (2018) and Anidiobu, Okolie, and Ugwuanyi (2018) conducted their studies in other jurisdictions and not in Kenya and this presents a contextual gap. There is a methodological gap in the study by Wataka (2018) who employed primary data source. The current study employed secondary data and utilized linear regression to establish the relationship between the two variables.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

This chapter comprises of the study methodology procedure and processes that were used to carry out research. These include how the data was collected and how the data was analyzed.

#### **3.1 Research Design**

According to Mugenda & Mugenda (2003) research design relates to the plan or strategy of a study which is applied in the collection of data, measurement of data and data analyses. Kothari (2010) regards research design as the model that is utilized by scholars in providing answers to research questions or explaining research findings. This study used a correlational research design. Kothari (2004) states that correlational research design is a employed where statistical relationship is determined by using more than two variables from the same group of subjects. The research was quantitative in nature.

#### **3.2 Target Population**

A research should have a population onto which the studies are generalized. Since the real estate sector is a wide field, the study population was narrowed to constitute only the firms registered as premium property developers by Kenya Property Developers Association (KPDA). The data collected was for the financial years 2017-2021 (5 years), given 6 premium property developers registered by KPDA, the total points were 6 multiplied by 5 which resulted to 30 observations.

#### **3.3 Data Collection Procedure**

In a quantitative study where secondary data is involved, it is essential to ensure reliability by sourcing data from official and reliable sources or documents (Herman et al. 2019). This research study used secondary sources of data from published annual financial reports for the population of

interest which were various real estate firms registered as premium members and as property developers by KPDA.

### 3.3.1 Reliability test for data set

Secondary data derived from audited and published annual financial statements is considered to be valid and reliable. Before data was be used, it was tested for stationarity using the Levin, Lin, Chu (LLC) unit root test. The stationarity results are as shown in table 3.1 below;

**Table 3.1: Unit root test results**

<b>Variable</b>	<b>Levin, Lin, Chu (LLC)</b>	<b>Conclusion</b>
Loan uptake	-5.8133 (0.0000)	I (0)
Interest on loan	-6.528 (0.0000)	I (0)
Financial solvency	-2.6634 (0.0000)	I (0)
ROI	-6.3082 (0.0000)	I (0)

Source: E-Views computation, 2022.

From the results, it is evident that independent variables and the dependent variables were stationary at levels. Figures shown on the first row of each equivalent variable are the coefficient estimates while those in brackets are their corresponding probabilities.

### 3.4 Data Analysis

The study used panel regression analysis to establish the effect of the loan uptake, interest on loan and financial solvency on return on investments in commercial real estate investment firms. The study had three descriptive variables hence the regression analysis was multivariate. The influence

of the variables on the ROI was tested by carrying out linear regression of the firms. The model was tested for statistical significance a significance level of 5%.

### 3.4.1 Model Specification

The analysis was done using E-views statistical software. The study used the following linear regression model:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon$$

$i$  = Real estate investment firms (1-6)

$t$  = Time (2017-2021)

$Y_{it}$  = ROI at time period

$\alpha$  = is the regression constant

$\beta_1, \beta_2$  &  $\beta_3$  = coefficients of the variables in the regression model.

$\varepsilon$  = the error term

$X_1$  = loan uptake

$X_2$  = interest on loan

$X_3$  = financial solvency

## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

This chapter presents the results and discussions for each objective. The first section presents descriptive statistics on the study variables, the second section presents the diagnostic tests and subsequently, panel multivariate regression analysis with respect to each objective is presented.

#### 4.1 Descriptive Statistics

Table 4.1 shows the descriptive statistics for study variables across the real estate investment firms sampled. Mean ROI is 0.01 with the highest and lowest ROI of 0.24 and -0.12 respectively. ROI is calculated by dividing the net profit earned on an investment by the cost of that investment and it measures the efficiency of an investment over a period of time, usually one financial year. Mean loan uptake is 0.33 with the highest and lowest frequency of 2 and 0 respectively. Loan uptake is measured by the frequency of the number of loans taken and serviced each year for purposes of real estate development. Mean interest rate was 0.40 meaning the average interest rate charged on loans taken was 0.40 per annum. The mean financial solvency ratio was 0.053

**Table 4.1: Descriptive Statistics**

Date: 10/06/22 Time: 10:53  
Sample: 2017 2021

	ROI	X1	X2	X3
Mean	0.010070	0.331727	0.404397	0.053483
Median	0.003300	0.148750	0.365000	0.000000
Maximum	0.242000	2.000000	1.040000	0.389000
Minimum	-0.124000	0.000000	0.000000	-0.124000
Std. Dev.	0.071793	0.530883	0.319314	0.132605
Skewness	0.579699	2.309358	0.396492	1.063851
Kurtosis	5.209495	7.267087	2.044251	3.396642
Jarque-Bera Probability	7.782588 0.020419	49.42571 0.000000	1.927851 0.381393	5.855551 0.053516
Sum	0.302100	9.951800	12.13190	1.604500
Sum Sq. Dev.	0.149472	8.173281	2.956880	0.509937
Observations	30	30	30	30

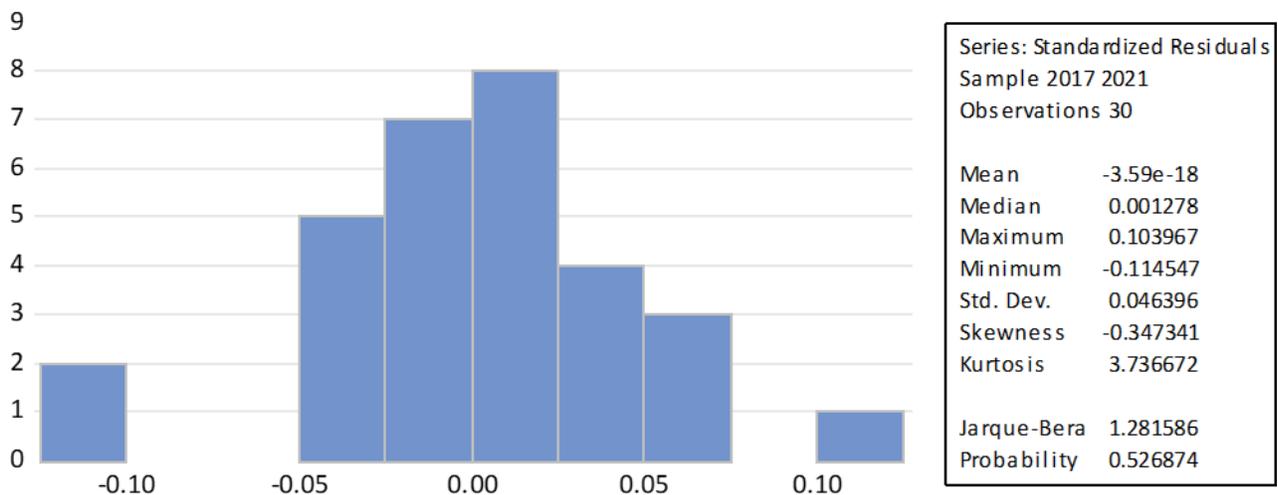
Source: Eviews computation, 2022

## 4.2 Diagnostic Tests

The tests help in examining if the data under consideration meets the requirement of ordinary least squares (OLS) and establishes if the data is satisfactory for regression analysis. The data was tested for normality, heteroscedasticity and multicollinearity condition satisfaction.

### 4.2.1 Test for Normality

The test for normality is used to establish whether data has been drawn from a normally distributed population. Normality tests help to evaluate if there is linear relationship among the variables. Reliability infers to the uniformity of a measurement. Normality was done to assess if the data set as modeled abide by the requirements of a normal distribution. The data from the field was summarized and subjected to normality using the Jarque-Bera test for normality at 0.05 significance level.



**Figure 4.1: Jarque-Bera test for normality**

Source: Field data, 2022.

In the above test, the null hypothesis is that residuals are normally distributed. With a Jarque-Bera probability value of 0.5269 (52%), we accept the null hypothesis that the residuals are normally distributed.

#### 4.2.2 Correlation Analysis

In this part, the relationship which exists between the independent variables and the dependent variables was examined. Through the correlation analysis, Mogaka, Kiweu and Kamau (2015) argue that the relationship existing between groups of subjects is established and also helps in examining existence of multi-collinearity. To perform the correlation analysis, the Pearson correlation coefficient ( $r$ ) and the p-value analysis were applied at 0.05 significance level. The correlation that are close to 0 were considered as having weak relationship while those which are close to 1 meant that there existed a strong relationship. The correlation results are as presented in table 4.1 below.

**Table 4.1: Correlations**

Covariance Correlation	ROI	X1	X2	X3
ROI	0.004982 1.000000			
X1	0.002599 0.070544	0.272443 1.000000		
X2	0.000557 0.025121	-0.041927 -0.255859	0.098563 1.000000	
X3	0.005660 0.615031	0.044168 0.649037	-0.010285 -0.251287	0.016998 1.000000

Source: Eviews computation, 2022.

Where;

X1 – Loan uptake

X2 - Interest on loan

X3 – Financial solvency

According to the results above, ROI and loan uptake are positively related ( $r = 0.0705$ ), ROI and interest on loan are positively correlated ( $r = 0.0251$ ) and ROI and financial solvency are positively correlated ( $r = 0.6150$ ). The correlation values are closer to 0 meaning there is low correlation.

#### **4.2.3 Multi Collinearity Test Analysis**

Multi Collinearity exists in a set of data if correlation is present between two or more explanatory variables. The presence of multi-collinearity, indicates very high chances of analysis problems arising and hence investigation has to be done before regression and interpretation of the data to ensure non multi collinearity. Mansfield & Helms (1982)state that if there are two or more independent variables which have a correlation of at least 0.70, then multicollinearity exists. Table 4.1 shows correlation of all the factors. None of the Pearson correlation values is beyond 0.7 and therefore, there was no multicollinearity among the variables.

#### **4.2.4 Heteroscedasticity Test Analysis**

Heteroscedasticity exists where the research population is not constant and the variance between them is significant. Residuals are homoscedastic when they have constant variance. Breusch-Pagan test for homoscedasticity was used to test the presence of heteroscedasticity at 0.05 significance level. Results on the test for heteroscedasticity are presented in table 4.2.

**Table 4.2: Heteroscedasticity Test**

<b>Breusch-Pagan/ Cook – Weisberg Test for Heteroscedasticity</b>	
Chi 2 (1)	22.67
P > Chi 2	0.000

Table 4.2 shows the  $p < 0.05$ . Homoscedasticity assumption was violated making the model unfitting. Due to the presence of heteroscedasticity, this research used panels corrected standard errors (PCSEs) model that adjusted the standard errors and the factor estimates.

### **4.3 Regression Analysis**

The research employed panel data regression techniques to establish the cause and effect relationship between asset financing and return on investment. The research had three independent parameters hence the regression was multivariate panel data in nature which helps to understand the relationship among variables present in the dataset. In order to establish the effect of asset financing on return on investment, panel regression analysis was used to estimate the study model. The least squares regression was run for the natural logarithm of return on investment against asset financing. Due to the problem of heteroscedasticity, the study rejected conventional least squares panel model and adopted panels corrected standard errors.

**Table 4.2: Panels Corrected Standard Errors Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.056755	0.008068	2.616343	0.0146
X1	-0.073804	0.011879	-6.212946	0.0034
X2	0.030969	0.011145	2.778771	0.0499
X3	0.543493	0.127833	4.249915	0.0132
R-squared	0.582366	Mean dependent var		0.010070
Adjusted R-squared	0.534178	S.D. dependent var		0.071793
S.E. of regression	0.048999	Akaike info criterion		-3.070453
Sum squared resid	0.062424	Schwarz criterion		-2.883626
Log likelihood	50.05679	Hannan-Quinn criter.		-3.010685
F-statistic	12.08156	Durbin-Watson stat		1.221950
Prob(F-statistic)	0.000038			

The panel regression results above examined the relationship between loan uptake, interest on loan, financial solvency and return on investment in commercial real estate investment firms in Kenya. Based on the findings,  $R^2 = 0.5824$ ,  $F\text{-Statistic} = 12.09$ ,  $\text{Prob}(F\text{-Statistic}) = 0.000$ , discloses a positive and significant relationship. The findings established that 58.24% of return on investment in commercial real estate investment firms in Kenya can be determined by the loan uptake, interest on loan and financial solvency.

#### 4.3.1 Effect of loan uptake on return on investment

Results displayed in table 4.2 above indicate that loan uptake negatively affects return on investment in commercial real estate investment firms in Kenya ( $\beta = -0.0738$ ,  $p = 0.0034$ ). The null hypothesis is that loan uptake has no significant effect on return on investment. The significance value obtained in the study of 0.0034 is less than the significant value of 0.05. Consequently, the null hypothesis is rejected. Thus loan uptake negatively significantly affects the return on investment in commercial real estate. Meaning that as frequency in loan uptake increases,

return on investment tends to decrease and as return on investment increases the frequency of loan uptake tends to decrease. This finding differs with that of Wataka (2018) who established that in Nakuru town, loan uptake positively affected profitability of real estate firms. This finding is however similar to those by Kioko (2020) who established that loan uptake had a significant effect on real estate investment and Wambui (2013) whose assertion was that too much reliance on external financing proved quite hard on ROI in developing real estate.

#### **4.3.2 Effect of interest on loan on return on investment**

The results summarized in table 4.2 above indicate that interest on loan positively affects return on investment in commercial real estate investment firms in Kenya ( $\beta = 0.0309$ ,  $p = 0.0499$ ). The null hypothesis is that interest on loan has no significant effect on return on investment. The significant value obtained in the analysis of 0.0499 is less than the significant value of 0.05. Consequently, the null hypothesis is rejected. Thus interest on loan positively significantly affects return on investment in commercial real estate. Interest on loan accounts for 3.09% of ROI. This finding is similar to that by Nduta (2021) who established that controlled interest rates had a significant impact on investment. However, the findings are at variance with those of Kamweru and Ngui (2017), Ndegwa (2017) and Chirchir (2021) who established that interest rates had a negative influence on return on investment in real estate. Wataka (2018) concluded that though interest rates hardly led to fundamental change in financial performance of the real estate firms, its increase was likely to result in a decline in financial performance in the long run.

#### **4.3.3 Effect of financial solvency on return on investment**

Results in table 4.2 above indicate that financial solvency positively affects return on investment in commercial real estate investment firms in Kenya ( $\beta = 0.5435$ ,  $p = 0.0132$ ). The null hypothesis is that financial solvency has no significant effect on return on investment. The significant value

obtained of 0.0132 is less than the critical value of 0.05. Consequently, we reject the null hypothesis. Thus financial solvency positively significantly affects ROI and accounts for 54.35% of ROI when all other factors are held constant. This finding is similar to that by Wataka (2018) who concluded that asset to loan ratio significantly affected financial performance of real estate investment firms.

The model for the relationship between asset financing and return on investment in commercial real estate would be given as;

$$\text{ROI} = 0.0568 - 0.738X1 + 0.0309X2 + 0.5435X3$$

Where;

X1 – Loan uptake

X2 – Interest on loan

X3 – Financial solvency

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents a summary of the findings, conclusions and recommendations of the study, limitations of the study and suggests areas for further research.

#### 5.1 Summary of the Findings

The objective of this study was to analyse asset financing and return on investment in commercial real estate investment firms in Kenya. To achieve the objective of the research, there were three objectives explored which included assessing the effect of loan uptake on ROI; interest on loan on ROI and financial solvency on ROI. The study was anchored on theoretical and empirical studies on return on investment in commercial real estate. Consequently, a conceptual framework detailing the relationship between the independent variables and the dependent variable was developed. The relationship was then tested empirically. The data used was panel data covering the last five years (2017 – 2022) the data was collected from secondary sources and tested for normality, multicollinearity and heteroscedasticity and analyzed with the aid of Eviews. The data was presented in form of descriptive statistics.

From the results, loan uptake had a significant negative effect on return on investment. Increasing frequency in loan uptake would lead to a decrease in ROI. The findings established in this case upholds the pecking order theory which is vital in explaining the magnitude to which real estate developers should go for asset financing with the view of posting positive return on investment.

Interest on loan had a significant positive effect on ROI and contributed to 3.09% of ROI while all other factors are held constant though interest on loan hardly led to substantive change in return on investment. These findings affirm the real estate simulation theory. According to the theory and

the study results, there is significant information in determining constraints that affect the return on investment in commercial real estate.

The study findings were able to establish the existence of a positive and significant effect of financial solvency on return on investment and that financial solvency accounts for 54.35% of ROI when all other factors are held constant. This finding sustains the ratio analysis theory which helps to interpret financial health of a firm by evaluating its performance in terms of return on investment.

## **5.2 Conclusion**

The descriptive statistics obtained from the study show that the dependent variable, return on investment, has been considerable. The independent variables loan uptake, interest on loan and financial solvency also supported return on investment in commercial real estate. All the independent variables were statistically significant. Loan uptake had a significant negative effect on ROI while interest on loan and financial solvency had a significant positive effect on ROI.

The research concludes that the three variables under study had some influence on the return on investment of the commercial real estate as part of explaining their development.

## **5.3 Recommendations**

From the outcome of the study it is recommended that there needs to be creation of awareness on need to use other financing options such as equity financing since it is a cheaper mode compared to asset financing in the long run given that it does not attract interest charge. The researcher also recommends that Government of Kenya should formulate policies that would assist in provision of more affordable means to finance development of commercial real estate.

#### **5.4 Limitations of the Study**

Only KPDA registered commercial real estate investment firms are included in the study leaving out a large proportion of commercial real estate investment firms in the country so the results of the study cannot be indiscriminate for all commercial real estate investment firms.

#### **5.5 Suggestions for Further Research**

Key areas that were not considered during research were the factors which influence the property developers when choosing the financing option. Some of the factors that were never considered included operation efficiency of the firm and the overall economic climate of the country. Therefore, owing to this, the researcher suggests analysis to be done on the effect that the above mentioned factors have on the return on investment in commercial real estate.

The study also recommends that research be done on the other financing options that affect the performance of commercial real estate that were not analyzed in the study.

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## APPENDICES

### Appendix I: Research Data Sheet

Firm	Year	Variables			
		Loan Uptake	Interest on Loan	Financial Solvency	ROI
		Frequency	Rates	Asset to Loan Ratio	Profitability
Britam	2017	1	0.1375	1	0.054
	2018	1	0.1375	0.68	0.071
	2019	1	0.1375	0.18	-0.0004
	2020	1	0.1375	0.18	-0.09
	2021	1	0.1375	0.20	-0.013
Housing Finance	2017	2	0.16	0.67	-0.042
	2018	2	0.187	0.49	-0.12
	2019	2	0.187	0.32	-0.065
	2020	1	0.18	0.58	0
	2021	1	0.18	0.65	0
Home Afrika	2017	10	0.173	0.88	-0.002
	2018	7	0.23	0.92	-0.005
	2019	7	0.185	1.04	-0.012
	2020	8	0.185	0.33	-0.124
	2021	8	0.185	0.40	-0.102
Centum	2017	1	0.085	0.64	0.242
	2018	3	0.0783	0.65	0.054
	2019	4	0.083	0.61	0.054
	2020	3	0.074	0.44	0.039
	2021	4	0.092	0.51	-0.0001
Ilam Fahari	2017	0	0	0	0.07
	2018	0	0	0	0.079
	2019	0	0	0	0.051
	2020	0	0	0	0.043
	2021	0	0	0	-0.036
Acorn	2017	2	0.145	0.196	0.0159
	2018	2	0.145	0.247	0.0574
	2019	1	0.1573	0.389	0.0209
	2020	1	0.1573	0.347	0.0066
	2021	1	0.1573	0.287	0.0558

**Appendix II: Proposal approval by School of Graduate Studies**



**MASENO UNIVERSITY  
SCHOOL OF GRADUATE STUDIES**

***Office of the Dean***

**Our Ref:** MSC/BE/00147/2019

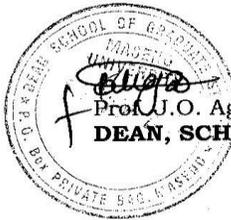
Private Bag, MASENO, KENYA  
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Date: 14<sup>th</sup> September, 2022

**TO WHOM IT MAY CONCERN**

**RE: PROPOSAL APPROVAL FOR KOILE SALIA ROSSI —  
MSC/BE/000147/019**

The above named is registered in the programme of Master of Science in Finance in the School of Business and Economics, Maseno University. This is to confirm that research proposal titled "**Analysis of Asset Financing Practices and Return on Investment in Commercial Real Estate Investment Firms in Kenya**" has been approved for conduct of research subject to obtaining all other permissions/clearances that may be required beforehand.



Prof. J.O. Agure  
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