

**EFFECT OF REAL ESTATE FINANCING ON PERFORMANCE OF COMMERCIAL  
PROPERTIES IN KENYA**

**BY**

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**DECLARATION**

Declaration

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

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**Supervisor’s Declaration**

This research project has been submitted for examination with my approval as university supervisor

Signed..... Date.....

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## **ABSTRACT**

Real estate financing has a significant effect on the value of income-producing real estate as it has on any investment vehicle. The effect is evident as it impacts on one's capability to purchase commercial properties. The current competitive real estate business has led to most financial institutions and investors scrutinizing the financing variances given the important role that credit market and the investors play in the performance of the real estate industry. The aim of this study was to examine the effect of real estate financing on performance of commercial properties in Kenya. The following aspects formed the specific objectives of the study; to examine the effect of mortgage financing; equity financing and savings as financing platform on the performance of commercial properties in Kenya. The population of interest in the study was made up of 12 members of KPDA selected randomly from a total of 69 members. The study employed secondary sources to collect data. Some of the information that was relied on include the data from published and audited annual reports of investments for the target group, KNBS, C.B.K, property indices from the property consultants. The data was obtained through the desk review of mortgage interest rates and savings rate from banks, examination of ROI of commercial properties and their shareholding equity. Analysis of data was done through the help of SPSS (Statistical Package for Social Sciences) and correlational statistics summary provided. The results of the analysis are presented in tables, percentages, graphs and charts. The descriptive results obtained from the study show that the dependent variable, "return on investment as a measure of performance for the commercial property" has been considerable. The independent variables also supported the performance of commercial property. Nonetheless, all the independent variables were not statistically significant. The mortgage interest rate accounts for return on investment of commercial properties by 52.2%, savings rate alone is responsible for 11.06% of commercial property growth and equity shareholding accounts for 35.69% of the growth in commercial properties as per the ROI.

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## **ABBREVIATIONS AND ACRONYMS**

<b>CMA:</b>	Capital Markets Authority
<b>CBK:</b>	Central Bank of Kenya
<b>CMBS:</b>	Commercial Mortgage-Based securities
<b>GDP:</b>	Gross Domestic Product
<b>KNBS:</b>	Kenya National Bureau of Statistics
<b>KPDA:</b>	Kenya Property Developers Association
<b>NSE:</b>	Nairobi Securities Exchange
<b>REITs:</b>	Real Estate Investment Trust
<b>SPSS:</b>	Statistical Packages for Social Sciences

## OPERATIONAL DEFINITION OF TERMS

**Interest Rate:** rate at which interest is paid by borrowers for the use of money that they borrow from a lender. Specifically, the interest rate is a percent of principal paid a certain amount of times per period, usually quoted per annum.

**Mortgage:** a loan secured by the collateral of some specific real estate property that allow home buyers to spread out the cost of the home over several decades by making reasonable monthly payments mortgages vary widely in terms of their interest rates and overall cost.

**Equity:** Equity financing is the method of raising capital by selling company stock to investors. In return for the investment, the shareholders receive ownership interests in the company

**Commercial Property:** any property that is attached directly to land, as well as the land itself and meant to generate a profit, either from capital gain or rental income.



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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

The development of the real estate industry is widely recognized as important façade of economic development. Apart from the large share that the real estate industry occupies in the economy, the significance also is in the positive externalities and the spillover effects as well as social and political climate. In many of the emerging economies, housing represents a significant part of the household's spending and consumes a large chunk of the lifetime income. Often, it is the largest asset owned by households.

As noted by (Chen, 2011), it is increasingly understood that the provision of housing services would rely on a well-functioning housing finance system. Therefore, without the proper functioning housing finance system which operates in an efficient manner, the real estate market would be sub-optimal. In most of the economies, the real estate financing has several beneficial spillovers effects on the entire financial system, and the development of commercial properties hence a far-reaching effect for economic development. Therefore, emphasis is being put on increase of real estate financing.

Globally, the real estate market has the institutional investors as the primary players. Therefore, the private real estate investments find it a bit of a challenge given that individual properties are not bought and sold as regular as stocks and bonds. Kenya Real Estate Investors largely relies on mortgage financing with a few others opting for equity and savings. Interestingly, most of the real estate financing of commercial properties in Kenya is through mortgages (Kioko, 2014).

### **1.1.1 Real Estate Market in Kenya**

Real estate has been one of Kenya's fastest growing sectors over the last decade, fuelled by aburgeoning middle class with higher disposable incomes. Returns on investments in the sector have easily outpaced those of equities and government securities. In 2012, the value of Nairobi's prime real estate grew by 25% while at the Kenyan coast it went up by 20% outdoing other major cities like Miami (19.1%), London (12.1%), Moscow (9.8%), New York (3.1 %), Shanghai (-3.4%) and Singapore (-4.7%)

According to a recent property survey by Hass Consult, property prices rose by 30 percent from 2006 to 2011, Mortgage financier Housing Finance which plans to expand operations to other East African countries, says real estate growth in Kenya is favoured by one major thing: higher returns at a minimum cost. Industry reports indicate that, better government regulation and proper investment vehicles enhanced by availability of capital are some of the factors that put Kenya ahead of the rest in terms of property investment. Kenya besides having a stable economy offers investors higher returns due to high demand of housing.

According to the market outlook done by Knight Frank (2018), Kenya remains positive in 2018 in regards to commercial properties. Government regulations, infrastructure spending (to meet the country's Vision 2030 goals), combined with a growing realization amongst developers that there is a need to phase project launches in line with demand, leads us to believe the real estate market has become more mature and resilient. Kenya's projected GDP growth rate of 5.8% in 2018 is significantly above Sub-Saharan Africa's projected average growth rate of 3.5%, making it an ideal location for local and international investors. Other factors making Kenya an ideal investment destination as per the report include: rapid urbanization at 4.3% per annum versus a global average of 2.0%, an expanding middle class, and positive demographics such as high population growth at 2.6% per annum against a Sub-Saharan Africa average of 2.3%. The positive outlook has led to increased investment from

major foreign firms, in particular from China, with their focus being in and around the country's capital. Examples include a US\$70 million investment by Chinese investors, China National Aero-Technology International Engineering Corporation (AVIC), as well as the acquisition of a 38.9% stake in the Two Rivers development by Jiangxi.

According to Knight Frank (2018) outlook, the Prime residential rents in Nairobi declined during the first half of 2017 albeit at a slower rate of -2.8% compared to -3.2% during the first half of 2016. An oversupply of prime properties for rent is behind the weaker prime rental growth, which has given tenants more leverage to negotiate with landlords. In a market dominated by expatriate tenants, corporate budget cuts by multinational firms have further influenced the performance of this high-end residential market segment. The 2018 report by Knight Frank notes that while there has been much talk in the market about a dramatic decline in residential rents, the residential market is reaching its cyclical trough.

Prime residential prices increased by 0.9% over the first nine months of 2017 compared to a decrease of 1.0% over the same period in 2016. The prevailing market conditions, coupled with the already high capital values of prime residential homes, have however resulted in low transaction volumes. Furthermore, the introduction of interest rate capping during the second half of 2016 led to most financial institutions being reluctant to lend to private individuals. Lenders have since shifted their focus to corporate borrowers and investing in government bonds. This trend has continued into the second half of 2017 as potential sellers and buyers hold off key investment decisions until the election is concluded. However, despite the slowdown in activity, we believe transactional activity will gain momentum in 2018 as the market stabilizes. Nairobi and Mombasa continue to attract interest from both local and international buyers.

According to the real estate market analysis and trends analysis by Cytonn (2011), the Kenyan real estate market has seen an exponential growth. The growth is evidenced by the contribution of the sector to the GDP growth. The growth has moved from 10.5% in 2000 to 12.6% in 2012 and moved to 13.8% in 2016. The growth of real estate sector has primarily been due to a myriad of factors. First, the growth is linked to the infrastructural development such as improvements in roads, utility connections, and improvement in key airports. There has also been stability in the GDP growth which has averaged at 5.4% in the last 5 years against the Sub-Saharan average of 4.1%. Some other notable contributions in the growth of real estate has been demographic trends such as rapid urbanization at 4.4% against the world's rate of 2.5% per annum. Also, the high total returns averaging at 25% against the 12.4% in the traditional asset classes (Cytonn, 2011).

## **1.2 Statement of the Problem**

Various empirical studies done on the effect of real estate financing on performance of commercial properties have not been conclusive in nature. Various gaps have always emerged from the previous studies. Previous researchers conducted many studies that were useful for investors, policy makers, home buyers and sellers.

While studying the effect of real estate financing on real estate, McGibany&Nourzad, (2004) reported that mortgage rate is one of the key components of property affordability and performance index, and the rise in mortgage rate decreases the index and vice versa.

In his research, Debelle (2004) focuses on mortgage financing with a bias on interest rates effects. He notes that most property investments are very sensitive to changes in interest rates, in the countries with variable mortgage rates like Sweden, because of their greater indebtedness in the past two decades. Similarly, Vries and Boelhouwer (2005) concluded that interest rates, mortgage risks and expected prices are determinants of commercial property performance.

Previous research on the relationship between real estate financing and performance shows mixed findings. Some have suggested that real estate financing has little effect on Real estate investment and prices hence performance. Notably the research done previously has had their focus on the mortgage element of real estate financing. Joe Wong, Eddie Hui, & Seabrook (2003) found that lower mortgage rates were accompanied by higher house prices and lower investment during the inflation period. However; during deflationary period, lowering interest rate did not have impact on falling real housing prices. Contrary to this, McGibany & Nourzad (2004) found out that there was no short -term effect of mortgage financing on house price changes, but rather the relationship was found to be long-term. They also argue that empirical studies do not provide accurate enlightenment regarding the relationship between mortgage financing and performance of Real estate investment.

In Kenya property reports indicate that mismatch between the mortgage uptake rate and the rate at which new properties are shooting up everywhere in the city (Cytton, 2016; Cytton, 2011; Knight Frank, 2018). This then leads to need to re-evaluate the relationship that exist between the housing market performance and the market conditions in existence. The re-evaluation assists to examine if there is any compelling conceptual or empirical reasons to believe that changes in the financing conditions and types can explain the performance of commercial properties.

While several research has been done to examine the effect of mortgage financing on performance of real estate industry in Kenya (Mwathi & Karanja, 2017; Muli, 2013; Sirya, 2017), and effect of real estate financing on performance of commercial properties in cities like Nairobi and Mombasa, there has been no previous study done to examine the effect on Kenya with the latest data of 2017 especially after interest rate cap. In fact, most of the studies have only focused on the mortgage financing aspect of real estate financing.

This study then brings a new dimension to the whole research by focusing on real estate financing aspects such as mortgage interest rate, equity shareholding and savings rate and their effect on performance of commercial properties in Kenya. Further, no such study has been done since the introduction of interest caps in Kenya. The study also stands out as unique as it will integrate the latest data, up to 2018, from the secondary sources.

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

The main objective of the study is to assess the effect of real estate financing on performance of commercial properties in Kenya.

The specific objectives of the study are to:

1. Determine the effect of mortgage financing on performance of commercial properties in Kenya.
2. Investigate the effect of savings on the performance of commercial properties in Kenya.
3. Assess the effect of equity financing affects the performance of commercial properties in Kenya.

### **1.4 Hypothesis of the Study**

H1: Mortgage financing has no effect on performance of commercial properties in Kenya

H2: Savings has no effect on performance of commercial properties in Kenya

H3: Equity financing has no effect on performance of commercial properties in Kenya

### **1.5 Significance of the study**

The findings of this study is useful to the following:



The Government: To have better information on some of the challenges facing real estate investors and provide the required incentives since the real estate investment is a high contributor to the economy.

Potential investors: It is anticipated that the data and study will trigger discussions amongst would be investors and stakeholders who in turn will come up with appropriate strategies of channeling financial aid to the real estate business in a manner that will ensure that the investors get due profits ultimately.

Central Bank: There is a controversy about the role played by the evolution of real interest rates in the formation of a bubble in the housing market in certain countries. It also provides additional evidence to assess whether it is appropriate to include the price of certain assets in the central bank's objective function.

The public: will benefit from the information on the real estate investment, an eye opener on the lucrative opportunities in real estate.

Scholars who are interested in further research in this field are able to investigate any research gap in the study not researched or be under researched by the researcher in the course of providing the evidences supporting the research topic and research problems.

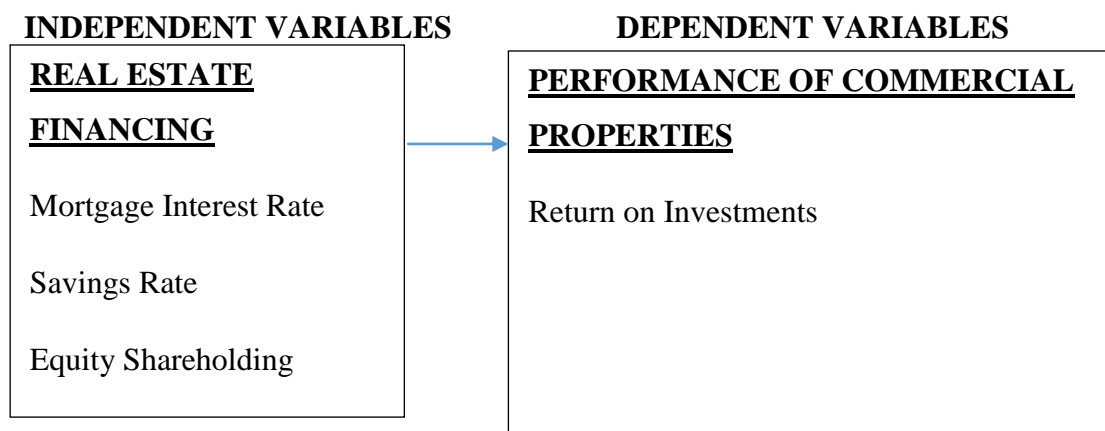
## **1.6 Scope of the study**

The scope of this study is mainly confined to identifying the effects of real estate financing on performance of commercial properties in Kenya. The study focused on registered Real estate

investment firms in Kenya. The data collected will be for the Financial Years 2014 to 2018 hence bringing out panel data for 5 years.

## 1.7 Conceptual Framework

Conceptual Framework alludes to the schematic diagram that comprises of independent variables and the dependent variables. The independent variables in this case will be the mortgage, equity and savings. The dependent variable of the study was the performance of commercial properties which was indicated by the while the dependent variable will be indicated by the number of projects, return on investments and profits.



**Figure 1.1: Conceptual Framework**

While studying the effect of real estate financing on real estate, McGibany&Nourzad, (2004) reported that mortgage rate is one of the key components of property affordability and performance index, and the rise in mortgage rate decreases the index and vice versa. Hence increase in mortgage results in reduction on return on investment as fewer individuals opt for development of commercial properties. The resulting effect is reduced profits.

An increase in the savings implies an increase in the amount for investment projects. The impact is higher number of projects completed, higher return on investment owing to increased profits and vice versa.

Equity growth from cash flow implies higher return on investments. With higher return on investment, there is increased profits. Increase in profits means that investors or developers of commercial properties can put more into projects hence an increase in the number of completed projects.

## CHAPTER TWO

### LITERATURE REVIEW

This section outlines the various theories and opinions propagated by various writers and authors of corporate finance and financial management. It also outlines the various studies done in the discipline of mortgage financing by different scholars or researchers leading to the conceptual framework of the study.

#### **2.1 Theoretical Framework**

##### ***2.1.1 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 finances across emerging market economies such as Kenya. 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.

### ***2.1.2 The Classical Theory***

This theory applies the classical theory of economics to determining interest rates, and compares the supply of savings with the demand for borrowing. Using supply and demand curves the equilibrium rate is calculated by determining the curves intersection point. Thus if savings are greater than investments the interest rate drops until they reach equilibrium and vice versa, if savings are less than investment the interest rate increases until the reward for savings encourages increased savings rates causing the market to again reach equilibrium(Krainer, 2009). However, the classical theory of interest rates fails to account for factors besides supply and demand that may affect interest rates such as the creation of funds, the importance of income and wealth and changes in the primary borrowers in an economy.

### ***2.1.3 Liquidity Preference Theory***

A second method of determining interest rates is the liquidity preference theory. Liquidity preference theory asserts that economic units have a preference for liquidity over investing. Applying this theory explains the premium offered in forward rates in comparison to expected future spot rates. This premium is used as payment for the use of scarce liquid resources. The preference for liquidity can be accounted for by the fact that economic units need to hold certain levels of liquid assets for purchase of goods and services and the fact that these near term future expenditures can be difficult to predict. Liquidity theory is limited by its short term nature which includes the assumptions that income remains stable and just like the classical theory, only the supply and demand for the money are considered (Boehm & Schlottmann, 2007).

#### ***2.1.4 Loanable Funds Theory***

Interest rates are determined by supply of loanable funds and demand for credit. In loanable funds theory the demand of loanable funds originates from domestic business, consumers, governments and foreign borrowers. While the supply is generated by domestic savings, dispersion of money balances money creation in the banking system and foreign lending (Kennedy & McQuinn, 2011). With these factors determining long-term interest rates, short term interest rates are decided by financial and monetary conditions in the economy. The many factors considered in loanable funds theory mean that equilibrium will be reached only when each of the factors is in equilibrium.

#### ***2.1.5 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. Levy-Yeyati & Sturzenegger, (2005) notes 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 long time. 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.

## **2.2 Empirical Review**

The study undertaken by Lieser & Groh, (2011), identified the determinants of commercial real estate investments using special set of panel data series for 47 countries from 2007 to 2009. The study examined how various demographic, socio-economic and institutional characteristics impact commercial real estate investment activities by looking at cross-sectional and time series analysis methods. The final results showed that economic growth, increased urbanization, and related demographics trigger real estate investments. It was also highlighted that lack of transparency in the legal structures, socio-cultural challenges, administrative barriers, and political instabilities of countries reduce real estate attractiveness.

Rahman (2008) examined the causes and effects of rising prices in Australia housing market. The research findings established that for any given price level lower interest rates implied lower mortgage repayment which allowed borrowers to borrow more for a given repayment to income ratio which causes an increase in housing demand and prices other factors held constant as was the case in the 1980s. Once interest rates increases housing demand eased and prices remained steady, increased moderately or in some cases decreased steadily as was the case between 1995-2003. A study conducted by Huang and Ma (2015) on the influence of real estate investment and economic growth in China established that the effect of real estate investment on economic growth exceeded that of economic growth on real estate investment. More importantly, the study pointed out that money supply played an integral role in fostering increase in real estate investment.

A research study by Peng et al., (2008) examined the relationship between the macro economy and property market development in China using data of 6 major cities and 25 provinces. The study objective was to point out how price changes in property impacted macroeconomic variables such as gross domestic product growth, consumption, investment and bank credit expansion. The research findings established that property price growth was positive and significantly related to real GDP growth. They further concluded that bank credit extension did affect the property price inflation.

Chau and Chui (2005) set to examine the relationship between real estate prices, real estate investment and economic growth in Hong Kong. The findings indicated that during the period between 1973 quarter 1 and 2003 quarter 2 showed insignificant relationships between GDP and real estate investment which was attributed to the significant variation of project duration in Hong Kong. Arnason and Persson (2012) conducted a study whose main objective was to establish Swedish real estate's and other Swedish financial assets capability to hedge inflation. The research findings pointed out that no exposures of real estate are a hedge against expected, unexpected and actual inflation. The researchers further assert that real estate in Sweden does not offer a cushion against inflation and instead they suggest that real estate is instead driven by business cycles, accessibility to financing and interest rates as opposed to inflation.

Arnason and Persson (2012) conducted a study whose main objective was to establish Swedish real estate's and other Swedish financial assets capability to hedge inflation. The research findings pointed out that no exposures of real estate are a hedge against expected, unexpected and actual inflation. The researchers further assert that real estate in Sweden does not offer a cushion against inflation and instead they suggest that real estate is instead driven by business cycles, accessibility to financing and interest rates as opposed to inflation. Locally different studies have been conducted.



Juma (2014) carried out a study which sought to determine the impact of macroeconomic factors on real estate investment growth in Kenya. Growth in real estate investment was measured using percentage of change of annual Hass Composite Annual Average Stock Index with the independent variables being inflation rate, money supply growth, real output growth, growth in diaspora remittances and growth in exchange rate measured as a percentage change in average annual Kenyan currency exchange to USD. The research findings established that a strong positive relationship existed between exchange rate fluctuations, growth in diaspora remittances, growth in money supply, inflations and GDP growth.

### **2.2.1 Mortgage Interest Rate and Performance of Commercial Properties**

Mortgage financing is where an individual, firm or a real estate developer acquires a loan to purchase or construct a house. This amount can be awarded to the developer upon the payment of a deposit or full advance payment. Mortgage financing is normally repaid on monthly installment for an agreed period of time. However, it requires one to put forward some equity, while the funding entity finances the rest of the intended project. This means that one will need from private resources some money for the requisite deposit. The term mortgage refers to a loan secured by actual assets or property through the use of a mortgage note which acts as a proof for the existence of the loan of the real estate through the granting of a mortgage which acts as a security for the loan. The developer in this case is required to pay the mortgage loan with an interest in addition to the principal amount. The two common types of mortgage loans are fixed rate mortgage loan and adjustable rate mortgage loan (ARM). A flat rate of interest is applied for the fixed rate mortgage loan while for the ARM loan, amendments are made to the interest rate at given intervals. (Harris & Friedman, 2006). Since 1993, there has been a high demand for housing in the urban centers. To ensure that this gap was filled, the government of Kenya reduced the mortgage interest rates. From

this relieve, people with low income could afford to obtain mortgage to build houses and others could afford to build classy homes since mortgage loans was easily available (Sirota 2003). This continued to 2007 when there was a financial crunch that affected the mortgage industry when they handled nearly half of all loan originations each year. This resulted to the merging of the mortgage financing industry and the increasingly ultimate role of commercial banks as housing mortgage originators currently. As a result, commercial banks financed 51 percent of mortgage loans by the end of 2009. In addition, mortgage brokers exist in the market acting as agents for the large mortgage lenders (Baker &Wiedemer, 2012). According to Marcum and Goddard (2012), the real estate sector experienced a great development in the years 2002 to 2007 due to low cost of mortgage finance internationally, which stimulated home ownership. The central bank promoted lending through low rates of interest and commercial banks were excited about giving loans. Unfortunately, this went down during the 2007 and 2008 worldwide financial crisis which affected the global economy. There was a crash in the real estate sector as investors and developers were left holding property with no one to buy as the mortgage interest rates had gone high and people could not afford the loans as before.

Development of commercial properties require huge capital, most people are not able to afford on savings, and therefore they turn to banks for a loan. Banks charge an interest rate for lending their funds depending on the length of the loan and security or otherwise referred to as collateral. The mortgage interest rate charged to the borrower is based on the Central Bank Base Rate (CBR), which the Central bank uses to control interest rates. Nguyen (2011) in his research, found out that the mortgage interest rates have a major impact on the commercial property markets. Changes in interest rates can greatly influence a person's ability to purchase a residential property. That is because as the interest rates fall, the cost to

obtain a mortgage to buy a home decreases, which creates a higher demand for real estate, which pushes prices up. Conversely, as interest rates rise, the cost to obtain a mortgage increases, thus lowering demand and prices of commercial properties.

Nielsen (2010) in his article on the influence of interest rates on the mortgage industry talked of the basics in acquiring a mortgage. Mortgages come in two primary forms, fixed rate and adjustable rate, with some hybrid combinations and multiple derivatives of each. A basic understanding of interest rates and the economic influences that determine the future course of interest rates can help consumers make financially sound mortgage decisions, such as making the choice between a fixed-rate mortgage or adjustable-rate mortgage (ARM) or deciding whether to refinance out of an adjustable-rate mortgage. According to Kuttner (2012) the relationship between interest rates and property prices has come under intense scrutiny since the housing boom of the mid-2000s, and the ensuing financial crisis of 2007–09.

When interest rates are down, credit affordability is up, increasing demand for houses, pushing house prices up and when interest rates are high, credit becomes expensive, demand lowers and house prices fall. Two views have emerged from this experience. One is that monetary policy should respond more proactively to asset price rises, and especially to excesses in the property markets. According to this view, by “leaning against the wind” central banks can prevent or attenuate asset price bubbles, and thus promote financial stability.

### **2.2.2 Savings Rate and Performance of Commercial Properties**

Saving is the portion of income not spent on the current expenditure, it is a deliberate plan by a developer or a firm to put aside some amount to use in future for real estate development. According to classical economists such as Lewis (1955), increased saving is a necessary and

sufficient condition for investment since it avails more funds for investment, which in turn accelerates growth. Regarding investment, the Harrod-Domar growth model identifies this as the key to promoting growth of any economy. Further, the neoclassical Solow (1956) model argues that an increase in the saving rate boosts steady-state output by more than its direct impact on investment because the induced rise in income raises saving, leading to a further rise in investment (Jangili, 2011); Verma,2007); Hundie, 2014). The higher the investment, through the spiral effect, drives higher aggregate demand, which in turn accelerates economic growth. This view is somehow supported by endogenous growth models, which envisages that an increase in savings rate increases real estate through its positive impact on investment and capital accumulation (Barro and Sala-i-Martin, 1995). In addition, Ramsey's Optimal Growth model hypothesizes that increased saving leads to an upsurge in national income and consequently accelerates investment process. However, increases in investment can only induce growth in the short-run while in the long-run there may be little or no impact on real estate (Romer, 2006).The Kenyan financial laws require banks to have less cash in their reserves but charge high interest rates in mortgage, creating wealth and improving savings. Mortgage financing is swayed by the market and financial factors which include growth in investment and increase in the returns of the firm expansion of risk management procedures, attraction of more consumers, advancement in innovations, market permeation, divergence in investment, competitions in the market which lowers interest rates on Treasury bills. Wahome (2010).

### **2.2.3 Equity Shareholding and Performance of Commercial Properties**

Equity financing has been widely used in emerging market. Several financial institutions in Kenya have been providing equity financing to real estate developers in Kenya, this is also the practice in developed economies. The economic development, enterprises upgrade and the market reforms increases the demand for venture capital, which then creates a good

opportunity for development of equity financing. The main concern for equity financing in many instances is always infrastructure, industrial and commercial areas (Liu & Song, 2007). Rousseau and Wachtel (2011) also found out a disappearing effect in the positive relationship between financial development through equity financing and real estate development. They show that this relationship is positive and significant for 1960–89 but is not statistically different from zero for 1990–2004. They find a proof that this vanishing effect is associated with the incidence of financial crises. Their study showed a positive impact of equity financing on the growth of real estate development.

Arcand, Berkes, and Panizza (2012), did a study on the vanishing effect and found a basic relationship between equity finance and real estate development but by the fact that standard models do not allow for a non-monotonic relationship between financial development and real estate. Allowing for this relationship, they find a positive marginal effect of financial depth on real estate in economies in which the level of credit to the private sector falls below a threshold of about 80–100 percent of GDP. Above this threshold, the relationship becomes negative. Equity financing is well-developed in developed countries. It is estimated that there are more than 100 billion dollars invested in equity fund (Liu & Song, 2007). The main investors were insurance companies in the early stage, and gradually mainly with fund companies and commercial banks. Fund companies account for 70% and commercial banks 20% (Sun, 2005). Many banks like Goldman, Deutsche Bank and Bank of America Merrill Lynch have set up equity investment fund. As equity financing products have good liquidity and low fluctuation, it has great attraction to the institution investors like insurance companies, commercial banks, investment banks, hedge fund and pension fund. Equity financing is a mature asset class.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

This section describes the procedure used to conduct the empirical research. This included how the data will be collected, the determination of the sample to be used and how the information will be analyzed, interpreted and presented.

#### **3.1 Research Design**

Research design is the ultimate blue print for the collection, measurement and analysis of data (Kothari, Ramanna, & Skinner, 2010). The study used a correlational research design. Creswell & Creswell (2017) describes correlational research as a method where two variables are measured and statistical relationship between two variables established with little or no effort to control the extraneous variables.

#### **3.2 Study Area**

Mbwesa (2006) defines population as an entire group of individuals, events or objects having common observable characteristics. Burns and Grove (2003) and Mugenda and Mugenda (2003) also describes population as all the elements that meet the criteria for inclusion in a study. Population is therefore the entire group of individuals, events or objects having a common observable characteristic. The population of interest in this study included the members of KPDA in Kenya (KPDA Website, n.d).

#### **3.3 Sampling Design**

Random sampling technique was used in this study. A sample of properties in Kenya as registered by the KPDA was selected randomly. The sample included 12 KPDA members (KPDA Website, n.d).

### 3.4 Data Collection Methods

The researcher used desk review to collate data from secondary sources. The study used secondary sources of data from published annual reports of accounts for the population of interest, C.B.K, KNBS World Bank and from various real estate management firms such as Hass, Britam, Centum, and Cytonn. The conclusion drawn was taken to be true for all the observations hence a generalization specific to the commercial property development in Kenya.

### 3.5 Data Analysis

The study applied both qualitative and quantitative data. Qualitative data was analyzed using interpretive approach which includes sorting and coding raw data with the aid of Statistical Package for Social Sciences (SPSS). Quantitative data was analyzed using regression technique as shown in the regression model below. A linear regression model was used to indicate the extent to which each independent variable affected performance of commercial property in Kenya. The model that was applied is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where:

$\beta$  = Regression Coefficient

Y=Performance of Commercial Properties(Measured by Return on Investments, Profits and Number of completed Projects).

X1= Mortgage Interest Rate

X2=Savings Rate

X3= Equity Shareholding

## **CHAPTER FOUR**

### **ANALYSIS, RESULTS AND DISCUSSIONS**

#### **4.1 Introduction**

In this chapter, the findings, analysis of data and interpreted are given. The outcome of the analysis is presented in tables, figures and diagrams.

#### Diagnostic Tests

The tests helps in examining if the data under consideration meets the requirement of ordinary least squares (OLS). Further, the test establishes if the data is sufficient and adequate for regression analysis. The tests are used to test for multicollinearity among different variables and determine the level of heteroscedasticity condition satisfaction.

#### Test for Normality and Linearity

The test for normality and linearity are often applied to examine the symmetric distribution of the variables. Also, they help to assess if there are no outliers and indeed there is linear relationship among the variables. Reliability infers to the uniformity of a measurement. The normality is done to find out if the data set as modeled adheres to the requirements of a normal distribution. The data from the field was summarized and subjected to normality using skewness and kurtosis. The data was found to have no inconsistencies. Through kurtosis, the flattening of a distribution is seen. Any data that has high kurtosis has a high peak near the mean with a heavy tail in one direction while the low kurtosis has flat top near the mean. Usually, when there is negative kurtosis, it signifies a flatter distribution (platykurtic) while the positive one shows peaked distribution, termed as deplokurtic. On the other hand, skewness shows existence of asymmetry and deviation from the normal distribution. Having negative skewness exemplifies that the left side of the histogram is



longer in comparison to the right side while the positive values shows that the right side of the histogram is longer compared to the left side. A value of zero shows that the distribution is balanced. According to Shapiro & Wilk (1965), data is acknowledged to satisfy the normality parameters if the skewness and kurtosis is between +2 and -2. The data satisfied the parameters as shown in the table 4.6 with only one outlier figure for kurtosis on equity shareholding.

**Table 4.1 Multivariate Normality**

	N	Mean
	Skewness	Kurtosis
MIR	0.8317	-1.9402
Savings Rate	1.4808	1.7496
Equity Shareholding	-0.0504	-3.1948
ROI	0.9796	0.8395
Valid N (listwise)	5	

**Source: Author (2019)**

## Correlation Analysis

	<i>Average ROI</i>	<i>Equity Shareholder</i>	<i>MIR</i>	<i>Savings Rate</i>
Average ROI	1			

**Table 4.2: Correlations**

Equity Shareholder	-0.355873461	1		
MIR	0.521971926	-0.965610541	1	
Savings Rate	0.110605944	0.548241187	-0.597036667	1

Source: Author (2019)

In this part, the relationship which exists between the different independent variables and the dependent variables was examined. Through the correlation analysis, Mogaka, Kimeu and Kamau (2015) argues that the relationship existing between a group of subjects is established and also helps in examining existence of multi-collinearity. To execute the correlation analysis, the Pearson correlation coefficient (r) and the p-value analysis were applied. The correlation was perceived to be significant when ( $p < 0.05$ ) two-tailed test. The correlation that are close to zero (0) were considered as having weak relationship while those which are close to one (1) meant that there existed a strong relationship. The table 4.2 exemplifies the results of the correlation analysis. According to the results, the return on investment as a measure of performance of commercial properties and equity shareholding are negatively related ( $r = -0.356$ ). However, mortgage interest rate and return on investment as a measure of performance of commercial properties are positively related ( $r = 0.522$ ). Further, savings rate and return on investment as a measure of performance of commercial properties are positively related ( $r = 0.1106$ ). The results show that there is low correlation.

### Multi Collinearity Test Analysis

The phenomenon arises in instances where there is correlation between two or more independent variables. When there is multi-collinearity, then it means that there are very high chances of computation and interpretation problems emerging. Then it is advisable that there be no multi-collinearity and hence investigation has to be done before regressing and interpretation of the data. As Mansfield & Helms (1982) notes, if there are two independent variables which have a correlation of 0.70 or higher, then chances are that there is multi-collinearity. The table 4.2 shows correlations of all the factors. None of the Pearson correlation values is beyond 0.70. Therefore, as Elly & Oriwo (2013) notes, there is no multi-collinearity among the factors.

### Regression Analysis

In this part, the fitness of the regression model that is used in assessing the role of financing options on the performance of commercial properties is presented. The part illustrates the degree or extent to which changes in the dependent variable (performance of commercial properties) can be expounded by change in the independent variables; mortgage interest rate, saving rate and equity shareholding.

### Analysis of Variance

At any given moment, when the test of statistical significance is applied, the p-value derived is an indication of the level of relation between the dependent and the independent variables. Whenever the significant number is less than the critical value (p-value), set at 0.05, then the model is considered to be significant. Therefore, the model can explain the relationship that exist between the dependent variable and the independent variable, otherwise, the model is considered as non-significant. From the results achieved, it can be stated that the model is

statistically non-significant owing to the reported p-value of 0.154 which is greater than the 0.05 significance level (Table 4.21).

#### Regression Coefficients

From the results obtained, the variable saving rate has  $t = 0.481$  and p-value is 0.663, at 0.05 level of significance. Hence, from this, it can be deduced that saving rate is not a useful predictor of performance of commercial properties. On the other hand, for mortgage interest rate, the  $t = -0.782$  and p-value is 0.491 hence there is evidence to conclude that mortgage interest rate is a useful predictor of performance of commercial properties. The results further showed that for equity shareholding, the  $t = 1.864$  and p-value is 1.592 hence it also emerges that equity shareholding does not explain the ROI as a measure of performance of commercial properties.

#### Savings Rate

**Table 4.3: Summary of Correlation analysis between Savings Rate and ROI**

SUMMARY  
OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.110605944
R Square	0.012233675
Adjusted R Square	-0.317021767
Standard Error	40627536.82
Observations	5

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	6.13289E+13	6.13289E+13	0.037155574	0.859459808
Residual	3	4.95179E+15	1.6506E+15		
Total	4	5.01312E+15			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	26935605.01	55985616.55	0.48111652	0.663344104
Savings Rate	519362921.5	2694380671	0.192757811	0.859459808

Source: Author (2019)

From the table 4.3, it is evident that there is a positive correlation (0.1106) between savings rate and return on investment as a measure of performance of commercial properties. This means that savings rate explains 11.06% of the ROI on commercial properties.

Mortgage Interest Rate

**Table 4.4: Summary of Correlation analysis between Mortgage Interest Rate and ROI**

## SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.521971926
R Square	0.272454692
Adjusted R Square	0.029939589
Standard Error	34867708.52
Observations	5

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1.36585E+15	1.37E+15	1.123455	0.36695565
Residual	3	3.64727E+15	1.22E+15		
Total	4	5.01312E+15			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	107274297.2	137141092.8	-0.78222	0.491147
Average (%)	9634253.572	9089506.869	1.059931	0.366956

From the table 4.4, it is evident that there is a positive correlation (0.522) between mortgage interest rate and return on investment as a measure of performance of commercial properties.

This means that savings rate explains 52.2% of the ROI on commercial properties.

Equity Shareholding

**Table 4.5: Summary of Correlation analysis between Equity Shareholding and ROI**

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.355873461
R Square	0.12664592
Adjusted R Square	0.164472106
Standard Error	38202216.47
Observations	5

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	6.34891E+14	6.34891E+14	0.435033	0.556642424
Residual	3	4.37823E+15	1.45941E+15		
Total	4	5.01312E+15			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	51438511.73	27597689.7	1.863870211	0.159217677
Equity Shareholder	-0.046531448	0.070548132	-0.659570241	0.556642424

From the table 4.5, it is evident that there is a positive correlation (0.356) between equity shareholding and return on investment as a measure of performance of commercial properties. This means that savings rate explains 35.6% of the ROI on commercial properties.

Hence, it can be summarized that while equity shareholding, mortgage interest rate and savings rate have positive correlation with the Return on Investment, they do not explicitly explain the ROI on commercial properties. This is affirmed by the p-values that discuss the statistical significance of the variables.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This section summarizes the results of the study and provides conclusions and recommendations on the actions that are to be taken up to address the challenges emanating from the research. The last part covers the areas for further research.

#### **5.2 Summary of Findings**

The general objective of the study is to establish the effect of real estate financing on performance of commercial properties in Kenya. To achieve the goal of the research, there are three objectives that were explored which included assessing the effect of mortgage interest rate on the ROI; the effect of saving rate on ROI and the effect of equity shareholding on the ROI. The study was anchored on theoretical and empirical studies on performance of commercial properties and growth of real estate. Consequently, a conceptual framework detailing the relationship between predictors and the dependent variable was developed. The relationship was then tested empirically. Additionally, the data was tested for normality and linearity and it was found that the data adhered to all the assumptions and never violated any of them. The data used was panel data covering last 5 years (2014 through to 2018). The data collected was coded, tabulated and analyzed with aid of SPSS. The analysis was presented in form of descriptive statistics, and frequency tables were prepared to expound on the constructs under each of the three variables.



### Effect of Mortgage Interest Rate on ROI for Commercial Properties

Mortgage is an essential factor that informs the performance of commercial properties according to the multiple regression analysis. From the results, the mortgage interest rate accounts for return on investment of commercial properties by 52.2% while all the other factors are held constant. Probably, the developers had sufficient amount of information available to them to support the performance of commercial properties. As part of mortgage finance, there are chances of existence of information symmetry in regards to mortgage financing repayments, terms and duration which informs most of their decisions on mortgage financing. However, the results also affirmed that credit rating determines the amount which is available and the repay period. The findings that are established in this case affirms the real estate simulation theory. According to the theory and the study results, there is financially relevant information in ascertaining constraints that affect the performance of commercial properties.

### Effect of Savings Rates on ROI for Commercial Properties

The factors that were considered under the variable were analyzed. The analysis arising from the multiple regression affirm that savings was not a statistically significant factor in explaining performance of commercial property though it had a positive correlation with the ROI. Savings rate alone is responsible for 11.06% of commercial property growth. The outcome of the analysis affirms the structural form theory that poor management and lack of funds as well as the insufficient availability of long-term funding sources to carry out intermediation that would spread the cost of a given project over certain long duration thus assuring project success is a problem that can effectively addressed by savings.

## Effect of Equity Shareholding on ROI for Commercial Properties

Equity shareholding is a vital aspect of commercial property growth that according to multiple regression analysis. Equity shareholding accounts for 35.69% of the growth in commercial properties as per the ROI. The higher percentage of equity shareholding in comparison to savings rate can be linked to the consideration that equity shareholding is a safer funding for real estate growth compared to debt financing and that equity financing affects real estate development positively. The results affirm the resource dependency theory. According to the theory, for a project to be considered as successful, some of the factors of measurement include the joint research and development contracts, minority investments, the shared manufacturing and marketing arrangements, and equity swaps and equity shareholding are some of the factors that affect the performance of commercial property in Kenya.

### **5.3 Conclusions**

The descriptive results obtained from the study show that the dependent variable, “return on investment as a measure of performance for the commercial property” has been considerable. The independent variables also supported the performance of commercial property. Nonetheless, all the independent variables were not statistically significant. The mortgage interest rate accounts for return on investment of commercial properties by 52.2%, savings rate alone is responsible for 11.06% of commercial property growth and equity shareholding accounts for 35.69% of the growth in commercial properties as per the ROI.

### **5.4 Recommendations**

From the outcome of the study, it is recommended that mortgage firms come up with new techniques and products that would attract the commercial property developers. They can consider the products that have recorded considerable growth in the past ten years and the ones that are very promising into the future.

There needs to be incentives and sensitization on need to use equity financing option as it is a cheap mode in the long run given that it attracts no interest charge. Given that affordable

housing is one of the government's agenda, the researcher recommends that Government of Kenya helps formulate policies that would assist in provision of cheap methods to finance development of commercial properties. Also, given that the sector is one of the main contributors to the nation's GDP, the government needs to consider creation of more tax incentives in different items that affect the development.

#### Areas for Further Studies

When doing the research, key area that was never considered were the explicit and the implicit factors which impact the developers when choosing the finance option. Some of the factors that were never considered included the market share of a firm, operation efficiency of the firm, the attitude of the management and lenders, political considerations and the overall economic climate of the country. Therefore, owing to this, the research recommends analysis to be done on the role and the effect that the implicit and explicit factors have on the performance of commercial property. Also, the study recommends that research be done on the other financing options that affect the performance of commercial property such as venture capital among others that were not analyzed in the study. The study has fulfilled the knowledge gaps which emerged at literature review phase that discovered that insufficient attention had been given to explore the role of financing options on the performance of commercial property in Kenya. The research concludes that the three variables under consideration had some contribution on the Return on investment of the commercial property as part of explaining their growth.

Further studies should incorporate the effects of sources of financing in harsh economic conditions, political instability and global economic crisis. Having this form of study will help inform decisions on the best methods to source for finances at the said times. Additionally, studies can also be done to examine if corporate bonds is reliable source of financial real estate.

## 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.caJpub/faculty/gregory/ABBG\\_Appendix.pdf](http://qed.econ.queensu.caJpub/faculty/gregory/ABBG_Appendix.pdf)
- Boehm, T. P., & Schlottmann, A. (2007). Mortgage pricing differentials across Hispanic, African-American, and White households: Evidence from the American housing survey. *Citiescape*, 93-136.
- BRĂȚIANU, C., & Orzea, I. (2014). Emotional knowledge: The hidden part of the knowledge iceberg. *Management Dynamics in the Knowledge Economy*, 2(1), 41-56.
- Brown, J. D. (2002). The Cronbach alpha reliability estimate. *JALT Testing & Evaluation SIG Newsletter*, 6(1).
- Central Bank & World Bank. (2010). Mortgage Finance in Kenya: Survey Analysis. Retrieved from <https://www.centralbank.go.ke/wp-content/uploads/2016/08/Housing-Finance-Survey-in-Kenya-November-2010.pdf>
- Chen, B. J. (2011). How mortgage availability affects home price dynamics in China: a case study of Shanghai during the global financial crisis. *HOUSING FINANCE*, 26.
- Chen, J., Hao, Q., & Turner, B. (2006). Assessing Housing Affordability in China: A Case Study of Shanghai 1995-2005. A product of Swedish International Development Agency (SIDA) Project "Housing Affordability in China. Retrieved from <http://web1.cenet.org.cnlupfile/96036.pdf>
- Claessens, S., & Laeven, L. (2004). What drives bank competition? Some international evidence. *Journal of Money, Credit and Banking*, 563-583.
- Cohen, L., Manion, L., & Morrison K. (2000). *Research Methods in Education* (5th Edition).
- Concetta Chiuri, M., Ferri, G., & Majnoni, G. (2002). The macroeconomic impact of bank capital requirements in emerging economies: Past evidence to assess the future. *Journal of banking & finance*, 26(5), 881-904.
- Cooper, D. R., & Schindler, P. S. (2006). Business Research Methods , empirical investigation". *Journal of Service Research*, 1(2), 108-28.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Cytonn. (2019). Current Real Estate Trends in Kenya & How They Affect Investors. Retrieved from <https://cytonn.com/blog/article/current-real-estate-trends-in-kenya-and-how-they-affect-investors>
- Doms, M., Furlong, F., & Krainer, J. (2007). Subprime mortgage delinquency rates. Federal Reserve Bank of San Francisco Working Paper, 33, 1-29.

- Elly, D., & Oriwo, E. A. (2013). The relationship between macro economic variables and stock market performance in Kenya. *DBA Africa Management Review*, 3(1).
- 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.
- Hill, B. D. (2011). *Sequential Kaiser-meyer-olkin Procedure as an Alternative for Determining the Number of Factors in Common-factor Analysis: a Monte Carlo Simulation* (Doctoral dissertation, Oklahoma State University).
- Kioko, N. (2014). The Effect of Mortgage Financing on the Performance of the Real Estate Market in Kenya. *Unpublished MSC Finance Project, University of Nairobi*.
- Knight Frank (2012). Quarter 4 General Market Update. Retrieved from <http://my.knightfrank.co.ke/research/?regionid=3>
- Knight Frank. (2018). KENYA INSIGHT 2018 ASSESSING KEY TRENDS ACROSS KENYA'S PRIME RESIDENTIAL MARKETS. Retrieved from <https://content.knightfrank.com/research/1437/documents/en/kenya-insight-2018-5215.pdf>
- Lockwood, L. J., & Rutherford, R. C. (1996). Determinants of industrial property value. *Real Estate Economics*, 24(2), 257-272.
- Mansfield, E. R., & Helms, B. P. (1982). Detecting multicollinearity. *The American Statistician*, 36(3a), 158-160.
- Mogaka, A. J., Kiweu, J. M., & Kamau, R. G. (2015). The influence of macro economic factors on mortgage market growth in Kenya.
- Muli, N. F. (2013). An Assessment of the Factors Affecting the Growth in Real Estate Investment in Kenya. *an unpublished Postgraduate Diploma research project, Department of Real Estate and Construction Management, University of Nairobi, available at: http://cae.uonbi.ac.ke/sites/default/files/cae/cae/NZALU%20FRANCIS%20MULI%20PROJECT%20B42-82160-2012.pdf (accessed February 11, 2015)*.
- Mwathi, J., & Karanja, J. M. (2017). The Effect of financing sources on real estate development in Kenya. *International Journal of Finance and Accounting*, 2(2), 43-62.
- Santos, J. R. A. (1999). Cronbach's alpha: A tool for assessing the reliability of scales. *Journal of extension*, 37(2), 1-5.

- Saunders, M., Thornhill, A. and Lewis, P. (2009). *Research Methods for Business Students*. 5th edn. Harlow: Financial Times/ Prentice Hall
- Siry, L. T. (2017). Factors Influencing Real Estate Companies Investment Decisions In Commercial Properties In Nairobi County, Kenya.
- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (complete samples). *Biometrika*, 52(3/4), 591-611.
- World Bank. (2011). Developing Kenya's Mortgage Market. Retrieved from [http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/Kenya\\_Expanding\\_Mortgage\\_Finance\\_May\\_2011.pdf](http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/Kenya_Expanding_Mortgage_Finance_May_2011.pdf)

## APPENDICES

### Appendix 1: Mortgage Interest Rate

<b>Year</b>	<b>Average (%)</b>
2014	16.4
2015	17.66
2016	13.7
2017	13.45
2018	13.74

## Appendix 2: Savings Rate

### Growth of Account Holders

<b>Growth of Deposit Account Holders</b>	
<b>Year</b>	<b>No. of Deposit Account Holders</b>
2013	21,880
2014	28,438
2015	35,194
2016	41,203
2017	47,714

Source: CBK (Banking Sector Supervision Annual Report 2017)

47% Save to Invest (FSD Kenya)

Proportion of those who invest in commercial properties include:

<b>Year</b>	<b>Proportion</b>
2014	2.9
2015	3.2
2016	3.4
2017	4.6
2018	5.9

Source: CBK

<b>Year</b>	<b>Savings Rate For Commercial Properties</b>
2014	1.363%
2015	1.504%
2016	1.598%
2017	2.162%



### Appendix 3: ROI for KPDA Firms

<b>Member</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>KCB</b>	16848863	19623071	19722447	18717000	22336000
<b>Centum</b>	7942432	3055370	1868427	1571268	2,700,000
<b>StanLib Fahari</b>	n/a	n/a	129,374,616	171,126,40 9	193,491,75 9
<b>Cytonn</b>					
<b>Home Afrika</b>	8,956,029	- 390,091,33 6	-168,458,361	-181,435	-346,205
<b>Britam</b>	2,497,878	-1,009,458	2,480,204	527,474	-2,210,285

