

**THE RELATIONSHIP BETWEEN INTEREST RATES AND REAL ESTATES  
DEVELOPMENT COST IN MOMBASA COUNTY**

**MARYLENE SADA KASEMO**

**D61/68679/2011**

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE  
DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF  
BUSINESS, UNIVERSITY OF NAIROBI**

**NOVEMBER, 2015**

## DECLARATION

This research project report is my original work and has not been submitted for examination in any other university.

Signed.....

Date.....

Marylene Sada Kasemo

D61/68679/2011

This research project report has been submitted for examination with my approval as the university Supervisor.

Signed.....

Date.....

Dr. Fredrick Ogilo

Lecturer

Department of Finance and Accounting

University of Nairobi

## **ACKNOWLEDGEMENT**

My heartfelt gratitude goes to Almighty God for giving me the opportunity to pursue this degree and giving me the strength to overcome the hurdles that come along. I appreciate the contributions of a number of people and institutions who played a major role in ensuring that this research work is completed.

Special thanks to my supervisor, Dr. Fredrick Ogillo for his dedication, support and guidance that made this project a success. Without forgetting my fellow MBA students especially those specializing in Finance and specifically the MBA class of 2011 for their support, ideas, and contributions during the study. My thanks goes to all those who in their special ways and capacity made this study a success. I say Asante Sana and God Bless you all.

## **DEDICATION**

To my dear parents for teaching me the value of education and sacrificing pleasure to see me succeed. To my dear husband Fred who has continuously been a source of support and encouragement to achieve more.

## **ABSTRACT**

The study was geared towards finding the relationship between interest rates and real estates' development cost in Mombasa County. It was guided by two specific research objectives; to determine the relationship between interest rates and real estate development cost in Mombasa County and to establish the other factors that influence the real estate development cost. The study adopted a census survey research design. The population consisted of 10 real estate developers picked using the biased sampling technique. Data was both primary and secondary, primary data was collected using questionnaires which contained both open-end and close-end questions while Secondary data was collected from government sources. Collected data was coded and analyzed using SPSS, through regression analysis. Tables, percentages and frequencies were used to present the findings. The results inferred the existence of a weak positive relationship between interest rates and real estate development costs in Mombasa County. Other factors were also found to affect the real estate development costs these are Insecurity, Valuation Fundamentals, Discount Rate, Capital Flows, Land Prices, Property Income Tax and Inflation. The study concludes that investors factor in the interest rates when pricing the real estate units therefore buyers need to be aware of the interest rates and real estate dynamics. In addition the study concludes that there is need for the county government of Mombasa to work with the national government to address the insecurity issue and need for regulation in pricing of land and property valuation. The study further recommends that the incorporation of cheaper building technologies could help lower the cost of developing real estate units which can be achieved through trade symposia and the County Government creating an investor friendly climate to woo more investors into the county and thereby the real estate industry.

## TABLE OF CONTENTS

<b>DECLARATION</b> .....	ii
<b>ACKNOWLEDGEMENT</b> .....	iii
<b>DEDICATION</b> .....	iv
<b>ABSTRACT</b> .....	v
<b>CHAPTER ONE: INTRODUCTION</b> .....	1
1.1 Background of the Study.....	1
1.1.1 Interest Rates .....	2
1.1.2 Relationship between Interest Rates and Real Estate Development Cost.....	4
1.1.3 Determinants of Prices in the Real Estate Sector .....	4
1.2 Research Problem.....	5
1.3 Research Objectives .....	6
1.4 Value of the Study.....	7
<b>CHAPTER TWO: LITERATURE REVIEW</b> .....	8
2.1 Introduction .....	8
2.2 Theoretical Review .....	8
2.2.1 The Expectations Theory.....	8
2.2.2 Liquidity Premium Theory .....	9
2.2.3 Market Segmentation Theory .....	10
2.2.4 Keynesian Theory/ Liquidity Preference Theory .....	10
2.2.5 Classical / Loan-able Funds Theory .....	11
2.3 Determinants of Interest Rates .....	11
2.4 Interest Rates and Real Estate Development Cost .....	13
2.5 Empirical Review .....	13
2.6 Summary of Literature Review .....	17
<b>CHAPTER THREE: RESEARCH METHODOLOGY</b> .....	18
3.1 Introduction .....	18
3.2 Research Design.....	18
3.3 Population of the Study .....	18
3.4 Data Collection.....	18
3.5 Data Analysis Technique .....	19

<b>CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION .....</b>	<b>20</b>
4.1 Introduction .....	20
4.2 Real Estate Firms and Projects Undertaken .....	20
4.3 Factors Influencing Real Estate Prices .....	21
4.4 Real Estate Development Cost.....	25
4.5 Interest Rates and Real Estates Development Cost In Mombasa County.....	26
<b>CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>	<b>28</b>
5.1 Introduction .....	28
5.2 Summary .....	28
5.2.1The relationship between interest rates and real estate development cost in Mombasa County .....	28
5.2.2 Other factors that influence the relationship between interest rates and real estate development cost.....	28
5.2.3 Conclusion.....	29
5.2.4 Recommendations .....	30
5.2.5 Suggestions for further research.....	31
5.2.6 Limitations .....	31
<b>REFERENCES.....</b>	<b>32</b>
<b>Appendix I: Introductory Letter .....</b>	<b>35</b>
<b>Appendix II: QUESTIONNAIRE .....</b>	<b>36</b>
<b>Appendix III: LIST OF REAL ESTATE DEVELOPERS .....</b>	<b>40</b>

## **LIST OF ABBREVIATIONS**

CBK.....	Central Bank of Kenya
KNBS.....	Kenya National Bureau of Statistics
KPDA.....	Kenya Property Developers Association
NSE.....	Nairobi Securities Exchange
OMO.....	Open Market Operations
SACCO.....	Savings and Credit Co-operative Society
EPZ.....	Export Processing Zone



## LIST OF TABLES

Table 4.2.1 Real Estate Firms and projects undertaken.....	16
Table 4.2.2 Measures of Central Tendency and Dispersion.....	17
Table 4.3.1 Factors Influencing Real Estate Prices.....	18
Table 4.4.1 Real Estate Development Cost.....	19
Table 4.4.2 Average Cost Of Real Estate Development.....	19
Table 4.5.1 Summary of Regression Model.....	20
Table 4.5.2 Co-efficient of the Regression Model.....	20

## CHAPTER ONE: INTRODUCTION

### 1.1 Background of the Study

Interest rate is the cost that the deficit units pay to obtain funds from the surplus units. Interest rate is the rent paid to borrow money. The lender receives a compensation for foregoing other uses of their funds, including deferring their own consumption. The original amount lent is called the principal and the percentage of the principal which is paid or is payable over a period of time is the interest rate (Thygerson, 1995). There are several factors that determine the level of interest rate key among them is the interaction between demand and supply forces, the CBK's OMOs and the level of financial market integration. The interest rate has direct effects on the level of consumption (raises the cost of consumables), level of investment (lowers the level of savings and hence lower investment) and these are generally reflected on the economy development.

The behavior of Interest rates can be explained by the theories of the term structure of interest rates. There are three theories of the term structure of interest rates: the expectations theory, the liquidity premium theory and the market segmentation theory. The expectations theory argues that short term and long term securities will yield the same level of returns in the long-run, the liquidity premium theory is based on the argument that investors will hold long term securities only if they are offered a premium to compensate for the future uncertainty in a security's value and finally the market segmentation theory argues that investors have specific maturity preferences and securities with different maturities are not perfect substitutes (Pandey, 2010).

According to Ochieng (1999) economic observers and academicians in Kenya have pointed out that high interest rates are regressive to the economic development of the country. Real estate sector is important for the support of other economic sectors as well as the social well-being of the country, recently there has been an outcry for cheaper housing and the government has tried to build houses to reduce the mushrooming of the non-formal settlements in Kenya. Mombasa county has not been spared in these developments especially the growth of non-formal settlements, for example, Moroto slums in Tudor and Bangladesh in Changanwe, understanding the interaction between the rate of interests and real estate development is critical for the economic as well as social development of the county.

### **1.1.1 Interest Rates**

Interest rates are prices charged for the borrowing or the rental of money. They are determined in the credit markets, or the debt markets just the same way as stock prices are determined in the NSE. Fischer (1930) defined the rate of interest as the percent of premium paid on money at one date in terms of goods or money to be in hand one year later. The cost of money as it's sometimes referred influences to a great extent the prices of commodities, both consumables and fixed.

An increase in the amount of money available for lenders to lend will lower the rate of interest and a decrease in money to be lent out; will raise the rate of interest. The rate of interest is also affected by the demand for loans or money by borrowers. Interest rates operate like other prices as market clearing mechanism, they ration the amount of credit available (Culbertson, 1977).

Interest rates have a critical role in the financial intermediation process within the modern financial system. Almost every borrowing and lending transaction involves an interest payment.

Interest rates are normally positive because the lender requires compensation for giving up current consumption, compensation for giving up liquidity and compensation for the risk attached to lending (Goacher, 1993). Investors in the real estate sector will demand compensation for foregone interest that could have been earned if the funds were invested in stocks, bonds or in the financial markets.

Higher interest rates erode the purchasing power of individuals by reducing the money available for investment. On the business perspective higher interest rates are detrimental to the business sector by undermining capital investment and economic growth. Interest rates influences the overall level of economic activity, flow of goods and services and financial assets within the economy (Saunders, 1999)

Investments financed by borrowing will attract a higher cost as investors seek compensation for funds borrowed. This therefore means the rate of interest charged is likely to have an effect on the investment. If the real estate sector is financed by borrowing, the buyers will have to compensate the investor the cost of the borrowed money. It is, however, important to mention the critical role played by the CBK in setting and regulating the interest rates by using the discount rate (Muthaura, 2012)

### **1.1.2 Relationship between Interest Rates and Real Estate Development Cost**

The interest rates affect the purchase and consumption of both consumables and durable goods. According to Goacher (1993) interest rates are normally positive therefore they normally increase the cost of money and by extension the cost of commodities. The real estate sector consists of durable immovable goods whose development require a lot of resources and in most times people resort to borrowing to enable them invest.

An increase in the rate of interest will increase the cost of developing a real estate property while at the same time increasing the cost of these properties; this means that as the interest goes up the demand for these properties goes down as a result of the increase in prices. There is therefore an inverse relationship between the interest rates and the demand for real estate properties (Kau& Keenan, 1980).

### **1.1.3 Determinants of Prices in the Real Estate Sector**

The price of residential property just like any other commodity in the commodity market is determined by the interaction in the forces of demand and supply. Determinants of housing demand over long horizons include income growth, demographic shift, tax system and interest rate, while cost of land, construction and housing quality improvement have long term impact on housing. (Tsatsaronis& Zhu, 2004).

Zhang et al (2010) in their study in China found that prices can be pushed up by various factors including strong economic growth, high saving rate, limited investment vehicle, commodity housing reform and speculative investment

demand. Hui and Ng (2009) concluded that the influx of hot money and cheap debt would inflate real estate prices in China.

## **1.2 Research Problem**

The concept of interest rates and real estate development cost in Mombasa is still new and developing, therefore there is need for more knowledge regarding this financial and economic concept. Investors need to understand how the real estate sector behaves towards interest rates and how a change in interest rate is likely to have an effect on the real estate development cost. This research has particularly been designed to provide the much needed answers on the relationship between these two variables. Studies done on the subject relate interest rates to prices in the real estate sector and no study known locally that looks into these specific variables. Muli (2011) points out that there is a strong positive correlation between real house prices and real interest rate after tax.

According to Muli (2011), real estate development is a highly capital investment that requires a lot of funds to undertake which many individuals on their own cannot afford. Recently, real estate purchasing in Kenya, including Mombasa County, has been financed by banks and other non-banking institutions like SACCOs therefore increasing the level of household debts. The use of debt in financing house development means that the cost of real estate is higher by the cost of debt. The sensitivity of home buyers and home sellers to changes in cost of debt makes this study necessary.

Different studies done have given contradicting conclusions concerning these variables, Won, Hui and Seabrooke (2003) found that lower interest rates were accompanied by higher house prices during period of inflation while lowering

interest rates did not have an impact on falling real housing prices during deflationary period, McGibany and Nouzard (2004) found that there was no short-term effect of mortgage rate on house price changes however the relationship is present in the long-term, Vries and Boelhouwer (2005) concluded that interest rates, income and expected prices are determinants of house prices while Debelle (2004) showed that most households are very sensitive to changes in interest rates; he argued that lower interest rates and an easing of liquidity constraints have led to a substantial rise in household debt over the past two decades which has made the household sector more sensitive to changes in interest rates, income and asset prices. These contradicting results by previous research raise more questions regarding the relationship between the interest rates and real estate.

Little literature on interest rates and real estate price exists in Kenya but nothing has been done in Mombasa since the inception of the devolved system of governance. This study sought to find answers to the questions: Is there a relationship between interest rates and real estate development cost in Mombasa? What other factors influence the real estate development cost?

### **1.3 Research Objectives**

The study was guided by two objectives:

- i. To determine the relationship between interest rates and real estate development cost in Mombasa County.
- ii. To establish other factors that influence the real estate development cost.

#### **1.4 Value of the Study**

This study would be expected to be of significant value to the following: to the county government of Mombasa, it will help in the policy planning of the county. Investment on tourism, housing projects and other infrastructural developments in the county of Mombasa would benefit from this study.

To the financial analysts the study will help with information that will be useful in advising their clients in making financial decisions to invest in real estate in the county. It will also provide an insight to other researchers to conduct studies on real estate in other counties in the country. The real estate agents and real estate brokers will also benefit through getting information on the real estate and interest rate dynamics which they can use to make individual financial decisions and/or advise their clients on the same.

The buyers and sellers will also benefit because they will be able to make informed choices in investing in the real estate sector. They will know what factors will affect their cost of development and how they can monitor the factors affecting the development cost to minimize this cost. Learners and scholars will be seeking information as they use the results obtained from this study. It will serve as an eye opener to scholars concerning the market dynamics in the real estate sector.



## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter discusses the theories of interest rates, determinants of interest rates, gives an empirical review of studies done on the topic then finally gives a summary of the literature review.

### **2.2 Theoretical Review**

The theory of term structure of interest rate or yield curve is used to explain the process of estimating the impact of an unexpected shock in short-term interest rate on the entire term structure of interest rate. The term structure of interest rate compares the market yields or interest rate on securities, assuming that all characteristics, except maturity, are the same (Pandey, 2010). There are also other theories that explain the overall level of interest rates and changes in the level of interest rates over time. This part gives a discussion on these theories.

#### **2.2.1 The Expectations Theory**

The theory suggests that long-term rates are a geometric average of current and expected short term interest rates, that is, the interest rate that equates the return on a series of short-term security investments with the return on a long term security with an equivalent maturity reflects the market's forecast of future interest rate (Saunders, 2011).

Investors can invest in long-term or short term securities and expect similar returns for similar periods of holding a security. For example an investor can buy securities that mature after 3 years or buy one year maturity securities for 3 years and the average return for the period for the two types of securities

should be the same. At any given point in time, the yield curve reflects the market's current expectations of future short term rates. An upward sloping yield curve reflects the market's expectations that short-term rates will rise throughout the relevant time period while a flat yield curve reflects the expectation that short term rates will remain constant over the relevant time period (Pandey, 2010).

Critics of this theory have argued that it fails to recognize that forward rates are not perfect predictions of future interest rates otherwise future prices of treasury securities would be known with certainty (Saunders, 2011).

### **2.2.2 Liquidity Premium Theory**

This theory recognizes that there is uncertainty about future interest rate; hence about future security prices thus instruments become risky in the sense that the return over a future investment period is unknown. As a result of the future uncertainty of returns, there is a risk in holding long-term securities and that risk increases with the security's maturity (Tily, 2010).

It's based on the idea that investors will hold long-term maturities only if they are offered a premium to compensate for the future uncertainty in a security's value which increases with an asset's maturity. In a world of uncertainty, short-term securities provide greater marketability due to their more active secondary market and have less price risk due to smaller price fluctuations for a given change in interest rate than long-term securities. Investors therefore prefer to hold shorter term securities because they can be converted into cash with little risk of a capital loss, that is, a fall in the price below its original purchase price (Saunders, 2011).

Investors must be offered a liquidity premium to buy longer term securities that have higher risk of capital losses. This difference in price or liquidity risk can be directly related to the fact that longer term securities are more sensitive to interest rate changes in market than short term securities because the longer the maturity on a security the greater its risk (Saunders, 2011). The liquidity premium theory states that long-term rates are equal to the geometric average of current and expected short term rates plus a liquidity or risk premium that increases with the maturity of the security.

### **2.2.3 Market Segmentation Theory**

This theory argues that individual investors have specific maturity preferences and securities with different maturities are not seen as perfect substitutes. Investors have preferred investment horizons dictated by the nature of the assets and liabilities they hold. The interest rate is determined by the distinct supply and demand conditions within a particular maturity bucket or market segment. The theory assumes that neither investors nor borrowers are willing to shift from one maturity sector to another to take advantage of opportunities arising from changes in yields (Saunders, 2011).

### **2.2.4 Keynesian Theory/ Liquidity Preference Theory**

According to this theory, it is the supply of and demand for liquidity which determines the level of interest rates. The rate of interest is seen as being the price which someone must pay if they wish to obtain money via borrowing, it's also the opportunity cost faced by someone who wishes to hold money (Goacher, 1993). The theory assumes that money and other financial assets are

close substitutes. The cost of convenience related to the holding of liquid money is weighted against the interest obtained in lending.

When the cost of housing is low, many people will demand liquidity to invest in housing therefore pushing the interest rates higher and when the interest rates go up the cost of housing is likely to be pushed up by the effect of interest rates.

### **2.2.5 Classical / Loan-able Funds Theory**

This theory argues that the level of real rate of interest is determined by the interaction of the supply of and demand for loan-able funds. The supply of these funds is determined by the level of saving in the economy while the demand depends on the desired capital investment within the economy (Goacher, 1993).

This theory suggests that a higher interest rate will attract high savings as the opportunity cost of current consumption is high; while at the same time lower investments as the cost of borrowed funds is high. As interest rates increase therefore investment in housing slows down as development costs are pushed up.

### **2.3 Determinants of Interest Rates**

As with any other price in the market, interest rates are determined by the forces of supply and demand, in this case, the supply and demand for credit (Ngugi&Kabubo, 1998). When supply and demand interact they determine a price- the equilibrium price- that tends to be relatively stable. If the demand for credit rises relative to supply, the interest rate will rise as borrowers

compete for limited funds and when the supply rises relative to demand, the interest rate will fall as lenders try to attract borrowers.

The CBKs monetary policy strategy directly underlies the level and movement of interest rate. Through its daily OMO such as buying and selling treasury bonds and treasury bills, the CBK seeks to influence the money supply, inflation and the level of interest rate. When the CBK finds it necessary to slow down the economy, it tightens monetary policy by raising interest rates the result of which will be a decrease in business and household spending especially that financed by borrowing. Conversely, if business and household spending declines to the extent that CBK finds it necessary to stimulate the economy, it allows interest rates to fall in an expansionary process (Saunders, 2011).

Another important determinant of interest rate is the increased level of financial market integration which increases the speed with which interest rates changes and associated volatility are transmitted among countries making the control of interest rate more difficult and less certain than before. Increased globalization of financial market flows in recent years has made the measurement and management of interest rate risk a concern (Tily, 2010).

Two theories were developed to explain the general level of interest rates in the market; the Keynesian theory which explains the level of nominal interest rates and the classical theory which explains the real rate of interest. The nominal rate of interest is the actual money rate paid while the real rate of interest is the nominal rate adjusted to take account of the effects of inflation. The general level of interest rates according to both theories is determined by

the interaction of demand for credit and the supply of this credit (Goacher, 1993).

#### **2.4 Interest Rates and Real Estate Development Cost**

According to Saunders (1999) an interest rate is a price, and like any other price, it relates to a transaction or the transfer of a good or service between a buyer and a seller. This special type of transaction is a loan or credit transaction, involving a supplier of surplus funds and demander of these funds or borrower. A major direct effect of higher rates of interest is the increase in mortgage loan and interest payments as the cost goes up and consumers can not afford it or have to pay a higher cost for it as well as lower disposable income. Interest rates generally raise the prices of commodities especially fixed investments financed by loans (Goacher, 1993).

The expansion of trade within Mombasa, the investment by the EPZs and growth of the tourism sector has attracted massive movements from the rural areas into the town therefore creating a need for housing facilities which has resulted into the establishment of non-formal settlements.

#### **2.5 Empirical Review**

When pricing an asset, the seller will consider many factors but key among them is the cost of creating or adding value to that asset as well as the perceived and real demand of that asset. Kau and Keenan (1980) suggest an inverse relationship between interest rates and the immediate demand for consumer durables.

Housing investment decisions, more than any other category of household expenditure, depend critically on the availability, cost and flexibility of debt

financing; these factors are likely to drive shifts in housing demand in the short term together with returns in other asset classes, which determine the opportunity cost of real estate investments (Tsatsaronis & Zhu, 2004).

Harris (1989) conducted a study on the effects of interest rates on house prices, he argues that the real cost to the user is the important aspect on decision to buy major durable goods; the real cost of housing includes the effects of prospective appreciation returns and tax benefits. In periods of price appreciation, the real cost was declining, making housing less expensive therefore housing consumers were responding to declining real costs rather than rising nominal costs (interest rates). Harris (1989) concluded that interest rates are not sufficient to explain price changes rather it is the interaction of interest rates and expectations, the real rate to the borrower, that affects market prices; first time buyers and those with moderate income are most sensitive to interest rates therefore the demand for lower priced homes is more sensitive to nominal interest rates.

According to Kau and Keenan (1980) for producers of owner-occupied houses, there is no reason for the interest rate to have any direct influence. Indirectly, though, as demand falls because of an increase in interest rates, the price of the stock decreases and so the producer supplies less.

Follain (1986) conducted a research on the choice of tenure, inflation and taxes in which he concluded that rising interest rates also tend to improve home ownership rates because of the tax deductibility of interest expense compared to rental costs.

Won et al (2003) investigated the role of interest rates on housing prices in Hong Kong for the period from 1981 to 2001. They used the correlation and regression analysis as well as the Granger causality test to establish the relationship between the two variables during the times of inflation and deflation; they found that housing prices displayed a moderately high correlation with interest rates in the deflationary period (1998-2001), positive effect of interest rates in the inflationary pre-1997 period and a negative in the deflationary post-1997 period. The study also found evidence about the higher correlation between housing prices, nominal interest rates and inflation rates in 1998-2001 relative to those of 1981-1997.

In Kenya, Syagga (1999) argued that the property markets in Kenya is greatly affected by public policy in many ways especially in terms of administration, taxation, credit controls, land use controls and provision of new buildings. Since interest rate is a tool used by the Central Bank of Kenya to control credit and inflation, it therefore affects the price of real estate. Njiru (2008) studied the performance of real estate market at the Nairobi central business district. He argued that investment in the real estate sector is not well regulated and monitored as is the case in the financial sector.

Muli(2011) conducted a study on the relationships between house prices and mortgage credit in Kenya. She investigated the relationship between real house price and real disposable income and interest rate after tax. The study concluded that there was a strong positive correlation between real house prices and real disposable income. It also found a strong positive correlation between real house prices and real interest rate after tax. The association



between real house price and real household debt was found to have positive relationship; house turnover and housing price were found to have positive correlation as well as real house price and house stock. She concluded that a cause-effect relationship exists between the variables and the movement of these variables can push prices of houses higher through liquidity effects.

Marete (2011) studied the determinants of real estate property prices in Kiambu Municipality in Kenya. The study adopted survey design and primary data was collected using questionnaires. The data was analyzed using frequencies, percentage means, and regression and correlation analysis. The study used regression analysis to find the association between purchasing power of the buyers, location of a real estate property, demand of real estate property, realtors influence on the prices and real estate property prices. The study found out that the key determinants of real estate property prices in Kiambu Municipality in Kenya were location of a real estate property and realtors influence on the prices. The study concluded that prices in the real estate market are dictated by a different set of forces unlike other markets where price are determined by forces of demand and supply.

Muthaura (2012) looked at the relationship between interest rates and real estate development in Kenya. The purpose of the study was to portray the relationship between interest rates and real estate investment with a focus of Kenya. The research problem was analyzed through the use of the simple user cost model. The target population of this study was all 35 mortgage lending banks in Kenya as at November 2010, from which a sample of 18 was drawn to analyze the research problem. Data for the purpose of the study was

collected using data collection forms to 18 mortgage lending banks that have been running the mortgage product from 2007-2011. Study findings indicated that indeed interest rates affect house prices, most real estate retail borrowers and investors alike are forced to increase the house prices to cater for the cost of borrowing and to also break-even.

## **2.6 Summary of Literature Review**

Previous research work has shown that the relationship between the interest rates and real estate exists, however the direction and extent of this relationship still remains unclear. Some scholars argue that the relationship is inverse; others argue that interest rates on their own are not sufficient to explain price changes in the real estate whereas others have argued that the relationship between the variables depends on the level of inflation or deflation in the economy.

The review of literature has shown that studies have been done mainly outside the country, and few studies done in Kenya. The current developments in system of governance calls for more involvement by stakeholders in the County governments, so far there isn't a similar study conducted in Mombasa County, this created a gap that this study sought to fill.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter contains the research design, target population, data collection techniques as well as data analysis techniques used in this research.

### **3.2 Research Design**

The study used a retrospective longitudinal design. It was done through a repeated observation of the variables over a ten year period. The design is the most appropriate for the study because such designs are known to establish clearly the relationship and trends in variables over a long period of time in the past.

### **3.3 Population of the Study**

The real estate sector in Mombasa comprises of real estate developers and agents, individual home-builders and business investors in manufacturing and tourism sectors. The study adopted the census approach. According to the County Council of Mombasa there are 10 real estate developers who engage in the development of real estate and more than 10,000 individual home builders.

### **3.4 Data Collection**

The study used both primary data and secondary data. Primary data was collected using questionnaires which contained open-ended and close-ended questions. Secondary data was collected from government sources. Data on disposable income, interest rates and rate of inflation will be sourced from the CBK and the KNBS. Real estate development cost data was obtained from the Ministry of Housing and the KNBS. The data was collected on project basis by each of the developers for a period of ten years from 2002 to 2012.

### 3.5 Data Analysis Technique

This involved interpreting data collected from respondents through questionnaires. Data analysis was carried out by use of simple mean, standard deviations, regression and correlation analysis.

Regression analysis is a statistical tool for the investigation of relationships between variables. Regression is used in finding out whether an independent variable predicts a given dependent variable (Zinkmund, 2003). To establish the relationship between the interest rates (dependent variable) and the real estate development cost (Independent variable), the research formulates a simple regression equation where real estate development cost is a function of interest rates:

$$Y = a + bX_i + \epsilon$$

Where:

Y is the Real estate development cost,

a is the y-intercept, b is the regression coefficient,

$X_i$  is the interest rates

$\epsilon$  is the error term.

A t-test was used to test whether the slope of the regression line differs significantly from 0. The t-statistic is preferred because the population used is less than 30. Autocorrelation between the variables was also tested using the Durbin-Watson statistic.

## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1 Introduction**

This chapter presents research findings. It discusses the costs of undertaking the projects by the real estate companies, the various reasons that interest rates affect the cost of real estate and finally the regression model. The data was analyzed using descriptive statistics and the results presented in tables.

### **4.2 Real Estate Firms and Projects Undertaken**

The real estate firms in this study were My Space Properties, Home Africa, Salyani Properties Ltd, Windsor Homes, Suraya Ltd, Wave Homes, Nairobi Homes Ltd, TSS Group of Companies, DK Real Estates and Knight Frank. The data collected was coded for errors and analyzed and tabulated as shown in Table 4.2.1

**Table 4.2.1 Real Estate Firms and Projects Undertaken**

<b>NAME OF FIRM</b>	<b>NUMBER OF PROJECTS UNDERTAKEN</b>
My Space Properties	7
Home Africa	6
Salyani Properties Ltd	6
Windsor Homes	5
Suraya Ltd	4
Wave Homes	3
Nairobi Homes Ltd	2
TSS Group of Companies	1
DK Real Estates	5
Knight Frank	1

**Source: Author (2015)**

My Space Properties had the highest number of projects undertaken that is 7 out of the 40 undertaken by the firms in the study this represents a 17.5% followed by Home Africa and Salyani with 6 projects each that is 15% of the total, Windsor homes and DK Real Estates had 5 projects each which gives a 12.5% of the total. The rest of the companies undertook less than 5 projects each with a combined total of 11 representing 27.5%. From this information the Mean, Standard Deviation, Skewness and Kurtosis were calculated and it was found out that the Mean that is the average number of projects undertaken per firm is 4.00. This is shown in Table 4.2.2

**Table 4.2.2 Measures of Central Tendency and Dispersion**

Mean	4.00
Standard Deviation	2.160
Skewness	-.248
Kurtosis	-1.393

**Source: Author (2015)**

The standard deviation of 2.160 indicates that most firms undertook projects that are near the number 4. The Skewness value of -0.248 indicates firms had a smaller number of projects undertaken in the 10 year period. For the Kurtosis value of -1.393 indicates that the numbers of projects undertaken are less peaked than normal.

### **4.3 Factors Influencing Real Estate Prices**

From the responses of the firms and the subsequent tabulation of the same, other factors which were not presented in the questionnaire amounted to be the major factors that influenced the Real Estate Prices, this includes, Insecurity

due to the sporadic attacks on businesses and churches in Mombasa County, the insecurity affected the Tourism industry which also lead to the decline in the uptake of apartments and mansionates (thereby lowering demand); this had taken the largest value of the mean i.e. 3.60 as shown in table 4.3.1

**Table 4.3.1 Factors Influencing Real Estate Prices**

Statistics	Valuation Fundamentals	Capital Flows	Discount Rate	Land Prices	Property Income Tax	Inflation	Other factors
N	10	10	10	10	10	10	10
Missing	0	0	0	0	0	0	0
Mean	2.00	2.00	2.60	1.80	1.80	1.80	3.60
Std. Deviation	1.054	.816	1.430	.789	.789	.789	1.838
Skewness	.712	.000	.319	.407	.407	.407	-.870
Std. Error of Skewness	.687	.687	.687	.687	.687	.687	.687
Kurtosis	-.450	-1.393	-1.163	-1.074	-1.074	-1.074	-1.348
Std. Error of Kurtosis	1.334	1.334	1.334	1.334	1.334	1.334	1.334

**Source: Author (2015)**



**Source: Author (2015)**

The other factors that influence the Real Estate Prices are the Discount Rate with a Mean of 2.60 with a Standard Deviation of 1.430 implying that this factor is of high magnitude to the Estate prices than the others and its deviation from the Mean is also high. The other factors that follows closely the Discount Rate are Valuation Fundamentals and Capital Flows with a Mean of 2.00 each implying that they are of equal contribution towards the estate prices, but a closer look at their corresponding Standard Deviations shows Valuation Fundamentals with a higher value of 1.814 compared to Capital Flows with a lower value of 0.816. Therefore Valuation Fundamentals has more significance in the determination of Real Estate Prices than Capital Flows. These two factors are closely followed by Land Prices, Property Income Tax and Inflation as influencers of Real Estate Prices with a Mean of 1.80 and Standard Deviation of 0.789

On the Skewness and Kurtosis front, starting with Kurtosis all the values are Negative, showing platykurtic (a relatively flat distribution), and implying that their level of peakedness is small. This means that the factors influencing the Real Estate Prices are distributed independently and that each factor has a role in the determination of the prices. For the Skewness, Capital Flows has a zero value of skewness the rest are positive except the Other Factors which has a value of -0.870. For the Zero value, it implies that Capital Flows as a factor is symmetrical and normally distributed and the negative value (Other Factors) indicates negative skewness while the positive values indicate positive skewness (Valuation Fundamentals, Discount Rate, Land Prices, Property Income Tax and Inflation).

#### 4.4 Real Estate Development Cost

The cost of Real Estate Development was ranked in tiers of 0.5 Millions Kenya Shillings that is with the cheapest project of 1.5 million to the most expensive of above 5 Million(For the sake of this study the actual cost was rounded off to the nearest hundred thousand) to enable tabulation and subsequent analysis. Averagely most projects cost between 2.01 Million to 2.5 Million with a frequency of 8 which takes 20% of the total projects undertaken as shown in Table 4.4.1

**Table 4.4.1 Real Estate Development Cost**

<b>Cost of Project in 100,000 kshs.</b>	<b>Frequency</b>	<b>Percentage</b>
150-200	4	10
201-250	8	20
251-300	4	10
301-350	4	10
351-400	6	15
401-450	4	10
451-500	4	10
Above 500	6	15
<b>Total</b>	<b>40</b>	<b>100</b>

**Source: Author (2015)**

The projects that cost between 3.51 Million to 4 Million are 6 which represent 15% of the total projects, this tally with the projects which cost above 5 Million which are also 6 with 15% .Those between 1.5 Million to 2 Million are 4 which is 10%, this is replicated for the other projects that cost 2.51Million to 3 Million, 3.01 Million to 3.5 Million, 4.01Million to 4.5Million and 4.51 Million to 5

Million all which have a frequency of 4 and a percentage of 10. Averagely the Mean Cost of projects undertaken is 4.45 Million as shown in Table 4.4.2

**Table 4.4.2 Average Cost of Real Estate Development**

Mean	4.45
Standard Deviation	2.364
Skewness	0.115
Kurtosis	-1.311

**Source: Author (2015)**

#### 4.5 Interest Rates and Real Estates Development Cost In Mombasa County

From the Data so obtained in the questionnaires and after proper coding and tabulation, Regression Analysis was done. The following tables show the findings.

**Table 4.5.1 Summary of the Regression Model**

##### Model Summary

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate	Durbin-Watson
1	.011 <sup>a</sup>	.000	-.026	2.394	1.541

a. Predictors: (Constant), Interest

b. Dependent Variable: Real Estate Development Cost

**Source: Author (2015)**

The value of R Square is 0.00 but a look at the value of the Adjusted R<sup>2</sup> reveals a value of -0.26 implying that the contribution to the development cost of interest is very minimal. This can also translate that other factors may play in the development of Real Estate. Hence it prompts us to observe the findings of the regression model as shown in Table 4.5.2 below

**Table 4.5.2 Coefficients of the Regression Model  
Co-efficients**

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.375	1.197		3.654	.001
Interest	.063	.947	.011	.066	.948

a. Dependent Variable: Real Estate Development Cost

**Source: Author (2015)**

From Table 4.5.2 above the Regression Equation is

$$Y=4.375+0.063X$$

Indeed there is a relationship between the interest rates and the real estate development cost. This means for every one unit of the development cost, the interest rate contributes 0.063, this is a small magnitude implying that there are other factors that contributes to the development cost of Real Estate in Mombasa County

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

The purpose of this research was to determine the relationship between interest rates and real estate development cost in Mombasa County. Data was collected via questionnaires which were dropped and picked to the respondents. Secondary data was obtained from the Kenya National Bureau of Statistics (KNBS). The data was sorted, coded and analyzed. This chapter contains the summary, conclusion and recommendations for further research.

### **5.2 Summary**

The following are the major findings

#### **5.2.1 The relationship between interest rates and real estate development cost in Mombasa County**

Analysis in table 4.5.1 shows that the coefficient of determination ( the percentage variation in the dependent variable being explained by the changes in the independent variable)  $R^2$  equals 0.000 but the value of the adjusted  $R^2$  is -0.26 meaning interest rates has minimal contribution to the real estate development cost.

From table 4.5.2 and the regression equation derived from the study (  $Y = 4.375 + 0.063X_i$  ), it is evident that there is a positive relationship between the interest rates and real estate development cost in Mombasa County. This is however not a very strong relationship implying that there were other factors that influenced this relation (they contributed to the overall relationship).

#### **5.2.2 Other factors that influence the relationship between interest rates and real estate development cost**

Table 4.3.1 shows other factors that influence the real estate development cost which are Insecurity, Valuation Fundamentals, Capital Flows, Discount Rate, Land Prices, Property Income Tax and Inflation. Insecurity was cited as the major factor

that influenced the cost of development as this led to the rising cost of building materials due to delays in delivering the same. Mombasa County had experienced invasion in places of worship necessitated by religion feuds and killings of Imams and Pastors. Table 4.3.1 shows that the Discount Rate also had a significant effect on the real estate development cost, with a mean of 2.60, as building materials acquired at a Discount would result in building cheaper houses.

Capital Flows, at a mean of 2.00, was another factor that contributed to the cost due to the time value of money, construction done with regular and constant capital flow are bounded to be completed faster compared to the those with unsteady Capital flow. In table 4.3.1 Valuation Fundamentals and Land prices had a mean of 2.00 and 1.80 respectively. Land prices have a direct variation with the development cost as cheaper land result in cheaper housing. Property valuers may under-value or over-value a project which ultimately affects the overall price of the house, as seen from the eyes of the buyer. Depending on the country's economic condition, the inflation rate directly influences the cost of real estate development. With the Introduction of the Property Income Tax, the same has affected the overall real estate development cost as it has to be factored in the price of the house.

### **5.2.3 Conclusion**

According to this study, interest rate plays a role in the overall cost of developing real estate units. The regression analysis reveals that there exists a weak positive relationship between the interest rates and the real estate development cost in Mombasa County which could be attributed to the impedance from the infancy of the real estate sector in Mombasa County, maybe through hollow revenue collection mechanisms from the County Government.

There are other factors that influence the Real Estate Development cost. First, insecurity emerged as a major contributor to the cost of real estate development as it has delayed and reduced the supply of raw materials therefore increasing the cost of materials. Secondly other factors like the valuation fundamentals, capital flows, the discount rate, land prices, property income tax and inflation play a role in the real estate development cost.

#### **5.2.4 Recommendations**

The prevailing economic condition could affect the interest rate and especially the effects of the Eurobond are yet to be felt in the real estate industry. Such a factor could come into play in the determination of the interest rates eventually the costing.

Incorporation of cheaper building technologies could help lower the cost of development and this can be achieved through trade symposia to attract investors from far and the County Government creating an investor friendly climate to woo more investors in the county and thereby the real estate industry. Inflation, Property Income Tax and Discount Rate are governed by the laws of the land and the realtors may not have much say here, however they (realtors) can negotiate the valuation; land prices and determine the capital flow.

The Insecurity factor is a global issue as terrorism is a world head-ache and it can only be solved from an international perspective. Therefore, the County government can work in tandem with the national government which in turn will work in synchrony with international anti-terrorism agencies. In so doing the ripple effect will reach the real estate developments cost and reduce it considerably.

### **5.2.5 Suggestions for further research**

With the regional integration it would be interesting to replicate this study in other counties in the Great Lakes Region and also locally, with the burgeoning real estate in the counties it would be important to conduct such a study in the other counties.

The low costing housing schemes that are being put up in the country can be an avenue for further research also factoring in with the political upheavals that have rocked some parts of the country. It would be quite a good research to include the element of political risk in the interest rates thence the cost of real estates.-

### **5.2.6 Limitations**

The findings of this study should be viewed in light of a few limitations. The availability of the required data was a challenge since most firms were reluctant to divulge the real cost of the houses for fear of backlash from the customers.

The lack of enough professionals in the Real Estate industry has led to the industry lacking impetus to take it to the echelons which it deserves. From the Agents, to Owners and the Valuers.



## REFERENCES

- Auerbach, D.R. (1988). *Money, Banking and Financial Markets (3<sup>rd</sup> Edition)*. Maxwell Macmillan International Edition.
- Boamah, N.A. (2011). The Regulatory Framework and Housing Finance Market in Ghana. *Property Management*, 29 (5), 406-422.
- Chang, C.C., Wang, C.W. and Yang, C.Y. (2012). The Effects of Macroeconomic factors on Pricing Mortgage Insurance Contracts. *Journal of Risk and Insurance*, 79, 867-895.
- Clark, S.P. and Coggin, C.T. (2009). Trends, Cycles and Convergence in U.S. Regional House Prices. *Journal of Real Estate, Finance and Economics*, 39, 264-283.
- David, N.B. (2013). Predicting house Prices according to expected Future Interest Rate. *Applied Economics*, 45 (21), 3044-3048.
- Debelle, G. (2004). Household Debt and the Macroeconomy, *BIS Quarterly Review*, March, 2004.
- Demary, M. (2010). The Interplay between Output, Inflation, Interest Rates and House Prices: International Evidence. *Journal of Property Research*, 27(1), 1-17.
- Follain, J.R (1986). Another look at Tenure Choice, Inflation and Taxes. *Urbana III: Office of Real Estate Research*.
- Giussani, B. and Hadjimatheou, G. (1992). Modeling Regional House Prices in the United Kingdom. *Journal of Housing and the Built Environment*, 7(1), 31-58.
- Granger, C.W.J. (1969). Investigating causal relationship by econometric methods and cross-spectral methods. *Econometrica*, 34, 422-438.
- Hamilton, B.W. and Shwab, R. (1985). Expected appreciation in urban housing markets. *Journal of Urban Economics*, 18, 103-118.
- Harris, J.C. (1989). The Effect of Real Rates of Interest on Housing Prices. *Journal of Real Estate, Finance and Economics*, 3, 47-60.
- Kau, J.B. and Keenan, D. (1980). The Theory of Housing and Interest rates. *Journal of Financial and Quantitative Analysis*, 15(4), 833-846.
- Kirk, J., & Miller, M. L. (1986). *Reliability and validity in qualitative research*. Beverly Hills: Sage Publications.
- Lee, C.L. (2008). Housing in Australia as a Portfolio Investment. *International Journal of Housing Markets and Analysis*, 1(4), 352-361.
- Lloyds, B.T. (1997). *Money, Banking and Economic activity (3<sup>rd</sup> Edition)*. Prentice Hall Publishers, New Jersey.
- Makena, J.S. (2012). Determinants of residential real estate prices in Nairobi. *Unpublished MBA project. University of Nairobi*.

- Marete, D.K. (2011). The determinants of real estate property prices: the case of Kiambu Municipality in Kenya. *Unpublished MBA project, University of Nairobi.*
- Miller, N., Peng, L. and Skylar, M.(2011).House Prices and Economic Growth.*Journal of Real Estate, Finance and Economics*, 42,522-541.
- Moench,E. and Ng, S. (2011). A Hierarchical factor Analysis of U.S. Housing Market Dynamics. *Econometrics Journal*, 14,c1-c24.
- Muli, J.N. (2011). The Relationship between House Prices and Mortgage credit in Kenya.*Unpublished MBA project, University of Nairobi.*
- Muthaura, A. (2012). *The relationship between interest rates and real Estate investment in Kenya.Unpublished MBA project.University of Nairobi.*
- Ochieng',D.O (1999). An Empirical Analysis of the Relationship between Deposit portfolio and profitability. The case of publicly Quoted Banks in Kenya.*Unpublished MBA project, University of Nairobi.*
- O'Connell, J. (2010). The 2007 crisis and countercyclical policy. *Studies in Economics and Finance*, 7(2), 148-160.
- Pandey, I.M. (2010). *Financial Management(10<sup>th</sup> Edition).*Vikas Publishing House, PVT Ltd.
- Reichert, A.K.(1990). The Impact of Interest Rates, Income and Employment upon Regional Housing Prices. *Journal of Real Estate, Finance and Economics*, 3, 373-391.
- Saunders, A. (2011). *Financial Institutions Management: A Risk Management Approach (7<sup>th</sup> Edition).* McGraw-Hill.
- Saunders, A. (1999). *Financial Institutions Management: modern perspective (3<sup>rd</sup> Edition).* Irwin McGraw.
- Shortland, A. (2011). The Developmental effects of Somali piracy.*German Institute for Economic Research, DIW Berlin.*
- Shwab, R. (1983).Real and Nominal Interest Rates and the Demand for Housing.*Journal of Urban Economics*,13,181-195.
- Syagga, P.M. (1999). Management of Local Authority Housing Estates in Kenya. *Unpublished MA project, University of Nairobi.*
- Thomas, G. (1996). Indemnities for Longterm Price Risk in the UK Housing Market. *Journal of Property Finance*, 7(3), 38-52.
- Tily, G. (2010).*Keynes betrayed: the General Theory, the rate of interest and 'Keynesian' Economics*, Basingstoke: Palgrave Macmillan
- Tsatsaronis, K. and Zhu, H. (2004).What Drives Housing Price Dynamics: Cross-Country Evidence. *BIS Quarterly Review*, March 2004, 65-78.

- Wong, T.Y.J., Hui, C.M.E. and Seabrooke, W.(2003). The Impact of Interest Rates upon Housing Prices: An Empirical Study of Hong Kong Market. *Property Management*, 21 (2),153-170.
- Wong, T.Y.J., Hui, C.M.E., Seabrooke, W. and Raftery, J.J. (2002). A study of Hong Kong property market: Housing price expectation. *The Appraisal Journal*.
- Zinkmund, W.G. (2003). *Business Research Methods*.Oklahoma State University, Thomson South Western.

## Appendix I: Introductory Letter



# UNIVERSITY OF NAIROBI MOMBASA CAMPUS

---

Telephone: 020-2059161  
Telegrams: "Varsity", Nairobi  
Telex: 22095 Varsities

P.O. Box 99560, 80107  
Mombasa, Kenya

---

DATE: 18<sup>TH</sup> OCTOBER 2013

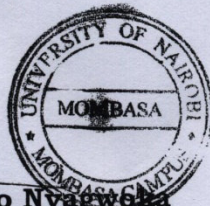
### TO WHOM IT MAY CONCERN

The bearer of this letter, **Marylène Sada Kasemo** of Registration Number **D61/68679/2011** is a Master of Business Administration (MBA) student of the University of Nairobi, Mombasa Campus.

She is required to submit as part of her coursework assessment a research project report. We would like the student to do her project on ***The Relationship between the Interest Rates and Real Estates Development Cost in Mombasa County.*** We would, therefore, appreciate if you assist her by allowing her to collect data within your organization for the research.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organization on request.

Thank you.



**Zephaniah Ogero Nyagwcha**  
Administrative Assistant, School of Business-Mombasa Campus

## Appendix II: QUESTIONNAIRE

1. Name of the company \_\_\_\_\_
2. Year of Registration \_\_\_\_\_
3. Do you develop houses for sale?    Yes ( )    No ( )
4. If yes, how do you finance your investments?
  - i. Bank Loans ( )
  - ii. Savings ( )
  - iii. Borrowing from SACCOs ( )
  - iv. Insurance ( )
  - v. Family Inheritance ( )
  - vi. Others ( )
5. If financed by borrowing, do you consider the cost of the loan (interest rates) when pricing the houses? Yes ( )    No ( )
6. Have you financed your investments by borrowing in the period 2002-2012?  
Yes ( )    No ( )
7. How many projects have you undertaken in the period between 2002-2012?
8. As a Real Estate Investor which of the following factors do you think could influence the relationship between interest rates and real estate development cost?  
Tick (√) appropriately. Where 1=**Strongly Agree** 2=**Agree** 3=**Neutral**  
4=**Disagree** 5=**Strongly Disagree**

<b>Relationship between interest rates and real estate development cost</b>	1	2	3	4	5
Valuation Fundamentals(e.g Location and environmental factors, economic influence on Demand and supply, condition etc)					
Capital flows					
Discount Rates					
Land Prices					
Property Income Tax					
Inflation					
Others(Specify and Rank)					

9. What was the average cost of a project (in Ksh)and the size of the project in cubic metres (fill the table below)

Year	Average cost of project					Size of project(in cubic metres)				
	A	B	C	D	E	A	B	C	D	E
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										

Year	Average cost of project					Size of project(in cubic metres)				
	F	G	H	I	J	F	G	H	I	J
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										



### **Appendix III: LIST OF REAL ESTATE DEVELOPERS**

1. My Space Properties Limited
2. Home Africa Limited
3. Salyani Properties Limited
4. Windsor Homes Ltd
5. Suraya Ltd
6. Wave Homes Ltd
7. Nairobi Homes Ltd
8. TSS Group Of Companies
9. DK Real Estates
10. Knight Frank