EFFECT OF MACROECONOMIC VARIABLES ON FINANCIAL PERFORMANCE OF REAL ESTATE SECTOR IN KENYA

BY

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DECLARATION AND APPROVAL

I hereby declare that this research project is my original work and has not been presented in any other university or institution of higher learning before.

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This research project has been submitted for examination with my approval as Maseno University Supervisor.

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DEDICATION

This thesis is dedicated to my family.

ABSTRACT

Te real estate has become a major investment globally. Growth in Real estate industry in terms of sales and prices have been used to predict the real estate demand and general economic performance. In Kenya, the real estate sector contributes approximately 9% of GDP despite the declining performance with average uptake from 23.3% in 2017 to 20.9% in 2018. The decline could be attributed to capping of interest rates leading to banks reducing funding to the sector, rise in the sector non-performing loans (NPLs) by 48.0% within the same period, increase in cost of construction, increasedcompetition amidst falling demand caused as may be causedby several other macroeconomic factors. This have equally led to loss of jobs, migration of investors and declined sector performance in general. The relationship between macroeconomic variable and general performance of real estate have attracted considerable scholarly analysis and inconsistent results have been reported across the globe. The effect of macroeconomic factors on financial performance of real estate in Kenya market have not been adequately addressed. Therefore, this study evaluatedthe effect of macro-economic factors on financial performance of real estate sector in Kenya. Specific objectives were to analyse the effect of interest rate, inflation rate and exchange rate, on financial performance. The research research was anchored on the theory of classical interest rate classical inflation rate and balance of payments theory of exchange. Thisstudyusedacorrelation researchdesign.Thepopulationforthisstudywas real estate sector in Kenya. The study utilized secondary data collected from Central Bank of Kenya depository KNBS Economic Survey Reports from 2010 to2020.Datawasanalysed using both descriptive and inferential statistics. The study found that inflation rates showed a declining trend with mean rate of 7.02 , insignificant negative weak correlation and a partial effect of 0.191 insignificant positive change on financial performance; a declining trend interest rate with a mean rate 10.1, negative weak correlation and a insignificant partial effect 0.734 negative change on financial performance; and an upward trend in exchange rate with a mean of 86.30; significant strong positive correlation and significant partial effect 0.926 positive variation on financial performance of real estate in Kenya. The study concluded that exchange rate has significant effect on financial performance of real estate in the Kenyan market, while inflation rate and interest rate has no significant effect on financial performance of real estate in the Kenyan market.

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ABBREVIATIONS

GDP: Gross Domestic Product.

REIs: Real estate investments

REIF: Real estate investment firms

ACA: Average capital appreciation

ROA: Return on assets

ROE: Return on equity

ROCE: Return on capital employed

BOP: Balance of payment

REITS: Real estate investment trust

REIVs: Real estate investment vehicles

CPI: Consumer price index

NSE: National security exchange

OPERATIONAL DEFINITION OF TERMS

Macroeconomic Variables - Factors affecting or focusing on the behaviour of the economy as whole.

Financial performance - The evaluation of real estate performance in terms of assets, liabilities equity , expenses , revenue and overall profitability.

Real estate - Invest in land along any permanent improvement attached to the land whether natural or man-made.

Exchange rates - Amount of local or home currency required to purchase one unit of a foreign currency

Inflation rate - A sustained or persistent increase in the general prices of goods and services

Interest rate - The cost expressed as a percentage of the principal charged by a lender to the borrower.

Operating Surplus - This is the operating income after providing for expenses.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Growth in Real estate industry in terms of sales and prices can be good predictors of real estate demand. Knight Frank (2011) observed that real estate can be used as a good indicator of economic growth given that it has been identified as one of fastest growing sectors in the economy, including Kenyan economy. Returns from real estate sector have recently outpaced those of government securities and equities across the globe, inclusive Kenya, according to Mbula (2013) and Klimczak (2013). Taylor (2009), have also emphasised that real estate industry growth is critical for the aggregate development of a country.The "real estate" industry, generally, encompasses land and improvements thereon, their selling prices, rental prices and returns on buildings as well as other improvements, and the entire construction industry.

In Kenya, the property business and sector-wide has been growing spontaneously surpassing returns from government securities and equities. Distinctively, the sector contributes to 9% of GDP in Kenya, as per the real estate report by Cytonn Investments (Cytonn, 2016), with house prices having recorded an increasing marginal returnstowards end of the year 2014 (Hass Consult, 2015). Additionally, Omare (2016), study has reported a decline in real estate sector by 0.3% in the year 2017due to the general poor performance of the market. According to Cytonn Investment Report of 2019(Cytonn, 2019) in 2018, the equities market was on a downward trend, withNSE All Share Index (NASI), Nairobi Securities Exchange

(NSE) 25 and NSE 20 declining by 18.0%, 17.1% and 23.7%, respectively, as caused by declines in most large capitalization stocks, including Banking and Non-banking financial institutions that supports the real estate sector, and the macro economics factors. This can be termed as a red flag on financial performance of real estate sector. The decline could be attributed to some other factors.

Macroeconomics Variables is the study of factors affecting the economy as a whole, it focuses on the behaviour of an entire economy, that is, the "big picture" which can be regional, national or international. According to Romer (2012) and Muchiri (2012)macroeconomics focuses on national goals or aggregate indicators - also referred to as variables - and includes interest rates, economic output, employment and unemployment, huge population, inflation, government budget balances and finance, international trade balances and finance, and productivity, which play a major role in determining the economy performance, including real estate.

According to Aguiar and Broner (2006), there is a need to innovatively interpret macroeconomic variables quite differently within the parameters of the global economic crisis and other external economic shocks. Aguiar and Broner argued that the non practicability of applying the directly-observed macroeconomic variables in crisis situations in the same way as in a tranquil period. As such they argued for making a distinction between directly-observed macroeconomic variables and a computed series of innovations to the macroeconomic fundamentals. They proposed interest, inflation, and currency exchange as the key macroeconomic variables.

Interest rate is the cost usually expressed as a percentage of the amount borrowed (principal) charged by a lender to the borrower for lending money.To the real estate investors (REIs), interest rate is a return or a source of revenue while to the borrower (property buyer) it is a cost. According to the Classical theory of interest rate, interest rates are a major factor affecting the amount of investments and the willingness for investors to save as well as ensuring that an equilibrium is maintained between the two (Marshall, 1870). Accordingly, the theory views investment as the demand, while the saving as the supply and the rate of interest as the "price" of the investible resources, and the interest rates vary depending on the varying market conditions from time to time. In real estate investments interest rate is determined by and directly proportion to the risk levels of the borrower.

Inflation can be referred to a sustained or persistent increase in the general prices of goods and services in the long run. According to classical theory of inflationmoney is the mode of exchange in everyeconomy at the present day and inflation occurs in an economy when the overall price level increases and the demand of goods and service increases. The theory argues that inflation is determined by the quantity of money such that with the rise in the supply of money the price rate rises and the value of money falls that is devaluation of money takes place (Keynes, 1923).

According to Barro (2012) inflation is primarily caused by the increase in earning which is not proportionate with the increase in the production of goods and services thus general prices of goods and services, leading to significant reduction in disposable income and the purchasing power of the low income earners bracket of population. In real estate

sector, inflation rate ultimately affects the demand of properties and thus performances of institutions dealing with real estate and the sector at large.

Exchange rate is the amount of local or home currency required to purchase one unit of a foreign currency. The theory of balance of payment of exchange explain therate of exchange underlining the position of balance of payments between countries and holds the balance of payments starts from the proposition of disequilibrium involving an inflow or outflow of international money (Frenkel and Johnson, 1976). According to the theory, a favourable international monetary inflow leads to an appreciation in the external value of the currency and vice versa. Schiller (2008), outlined determinants of balance of payments as the demand and supply of the foreign currency balance of payment, trade balance, current account balance, public debt and capital account balance and Domestic Gross Product (GDP).

Oliver (2000) observed that effects of macroeconomic variables on performance are relative to factors that are pertinent to a broad economy at the regional or national level. As such financial performance has been determined by some fundamental macroeconomic variables namely interest rate, gross domestic product (GDP), exchange rate, inflation and money supply which are closely monitored by the government, businesses and consumers Ongeri (2014). Empirical analysis of macroeconomic variable and financial has yielded a varied result relative to region.

Muchiri (2012) reported the economic factors affecting changing investment opportunities; the pricing policies and dividends theoretically, affect pricing and financial performance in aviation industry; Nasseh and Strauss (2000) reported variables such as discount rate, inflation and goods market has a negative effect CPI and stock prices, thus firms; Ehrhardt (1991) reported interest rate has an explanatory power on stock return, and revealed that the interest rate can be used as an explanatory power for stock market return; Evans (1998), reported inflation rate and interest rate as integrated assets with higher risk thus higher return which mean that apositive correlation.

The Kenya real estate sector historically, has been seen as a vibrant consistence growth industry and a major contributor to GDP. According to Real Estate Investment Trust Property Investment Report of 2019, Kenya's real estate sector has been one of the fastest-growing sectors of the economy over the last 5 years. However, recently the sector has experienced a lower rate of development, with the shortage of funding in the real estate sector being a contributing factor to the slow growth, with most developers relying on pre-sales and debt (REIT, 2019).

Cytonn's Residential Report (2019) observed the slow uptake has reduced the pre-sales capital available for developers to plough back into the project, with average uptake in the Nairobi Metropolitan Area declining from 23.3% in 2017 to 20.9% in 2018. This could be attributed to the decision to cap interest rates in the banking sector leading to banks reducing funding to the real estate sector. Given the inherent risks in funding long-term real estate projects, the corresponding possible defaults in loan repayment and the

increase in sector non-performing loans (NPLs) by 48.0% from 2017 to 2018, interest capping alone could not be the sole determinant of sector declining performance. In addition, given the inconsistent findings on the effect of macroeconomic variable on financial performance, there is a need to provide a clear understanding on the effect of macroeconomic variable on financial performance of real estate sector. Therefore, this study will analyse the effect of interest rate , inflation rate and exchange rate on financial performance of real estate sector in Kenya using quantitative approach.

1.2 Statement of the Problem

Although real estate has been present in Kenya since time immemorial this sector has been experiencing difficulties from risks associated with its portfolio management. In light of the existence and flourishing of real estate in Kenya the sector has not been able to perform as expected by the market players. Some of the key factors affecting real estate financial performance are normally generated by macro-economic variables exposure which does not reflect economic conditions, market performance and pricing of the real estate products. The academic studies have concentrated on analysis of GDP growth rate on real estate financial performance mainly from developed nations. For instance, Wambuu (2016) established that the sales growth was positively correlated with the GDP, lending rate and inflation and exchange rate; Ndegwa (2017) concluded that increase in GDP led to an increased performance while increase in lending rates and unstandardized exchange rates led to negative performance of the sector. These studies have reported conflicting results. In addition, little have been done in analysis of performance of real estate sector, especially quantitative analysis of the effects of

inflation rate, interest rate and exchange rate, on real estate performance mainly in developing nations, especially in Kenya. Therefore this study will analyse effect of macroeconomic variables on financial performance of real estate in Kenya.

1.3 Objective of the Study

The study was guided by both general and specific objectives as follows:

1.3.1General Objective

The general objective was to evaluate how macro-economic factors influencing financial performance of real estate in the Kenyan market.

1.3.2Specific Objectives

a) To ascertain the effect of inflation rate on financial performance of real estate in Kenya

b) To establish the effect of interest rate on financial performance of real estate in Kenya

c) To assess the effect of exchange rate on financial performance of real estate in Kenya

1.4 Research Hypothesis

H_{01}: Inflation rate has no significant effect on financial performance of real estate in the Kenyan market.

H_{02}: Interest rate has no significant effect on financial performance of real estate in the Kenyan market.

H_{03}: Exchange rate has no significant effect on financial performance of real estate in the Kenyan market.

1.5 Justification of the study

Kenya is among the developing countries and is characterized by slow economic growth, high levels of unemployment, diseases, pandemics and poverty. Kenya has not yet been industrialized; it relies on small scale farming practices and all this category of people and firms relies on informal employment and unpredictable economic performance due to various micro and macro-economic factors. The probabilities of real estate institutions to succeed in transforming SME and economy at large are quite high if they realize some of these challenges that affect their financial performance. This would go a long way in addressing Kenyan problems of provision of affordable housing, vision 2030 and align with the Big 4 agenda programs and objectives. It is hopeful that this research would help in identifying some critical factors that affect real estate financial performance.

1.6 Scope of the study

The study was about analysis on effect of macroeconomic variable on financial performance of real estate sector in Kenya. The specific macroeconomic variable to be analysis are interest rate, inflation rate and exchange rate as construct of the independent variable and financial performance measured on average capital appreciation as the dependent variable. The study was based on quantitative analysis of secondary data to be obtained from the CBK, KBS and Hass Consult depositories. The study covered a period

of 10 years, from 2010 slightly before the decline in financial performance of real estate to 2020 at the onset of Covid -19 in Kenya.

1.7 Conceptual framework

A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. This study is based on that financial performance or the Asset returns which can be a factor of, the prevailing inflation rate in a country, Interest rate, real GDP and Exchange growth rate. For good financial performance the investing firms must be smart in the strategies, prevailing market conditions and knowledge on various said elements. Below is the representation of the conceptual framework which will be used for the study.

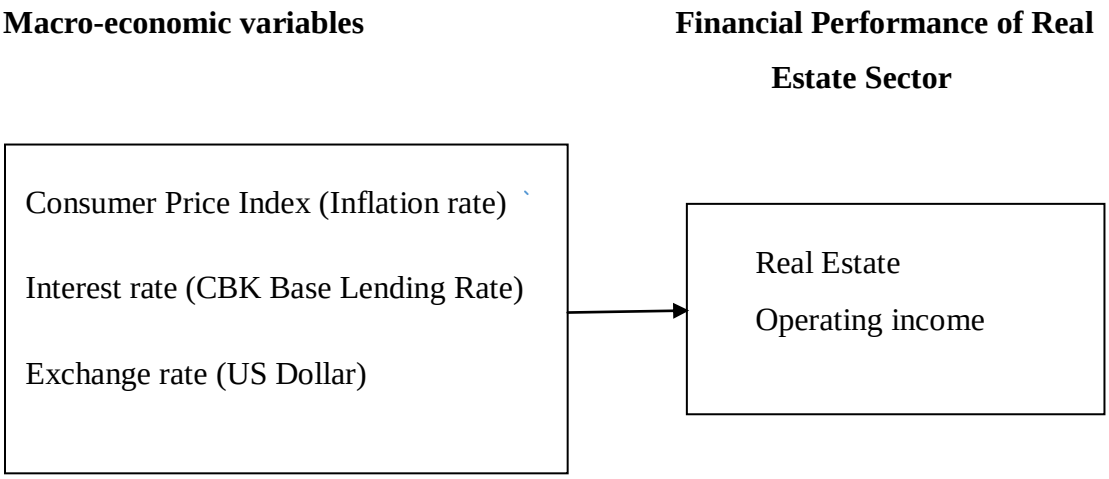

Figure 1.1: Macroeconomic variables and financial Performance of Real Estate

Source: Adopted from Muli (2012)

CHAPTER TWO

LITERATURE REVIEW

This chapter reviewed literature that focused on the effect of macro-economic variables on financial performance of real estate as the subject under study presented by various researchers, scholars, analysts and authors. The researcher derived materials from several sources which are closely related to the theme and the objective of the study.

2.1 Theoretical Review

The study was hinged on various investments theories,namelyThe Calssical Theory of Interest, Interest rate theory, classical theory of inflation and Balance of payments theory of exchange.

2.1.1 The Classical Theory of Interest

This is a neoclassical theory that dominated science discussion between 1776 and 1870. The theory believes saving and investment can be equal. It's a very old theory whose accounts and details are less known. However, according to this theory interest rates are a major factor affecting the amount of investments and the willingness for investors to save as well as ensuring that an equilibrium is maintained between the two.

Several scholars and economist have been credited as frontiers of the theory, the likes of Marshall, Cassel and Flux. To understand the theory, one has to view investment as the demand, while the saving as the supply and the rate of interest as the "price" of the investible resources. When the demand of a resource is equal to the supply, the price

becomes relatively fixed. Interest rates vary depending on the varying market conditions from time to time. A situation whereby the investment and savings are equal at a certain rate is known as an equilibrium point (Maynard, 2014).

The importance of this theory in relation to our study is that it shows us how a variation in interest rates can affect the equilibrium between investments as a demand and savings as the supply.

2.1.2 Interest Rates Theory

Interest rates theory was developed by Avlonitis and Indounas in 2005. The theory states that interest rates affect the whole market just as they are affected by the market. The theory has it that changes in interest rates affect the overall expense of borrowing and thus expenditures undertaken with the borrowed funds. Higher interest rates tend to decrease expenditures and lower interest rates lead to an increase in expenditures. The expense of borrowing these funds depends on interest rates. Higher interest rates can add to the overall cost of these expenditures. Lower interest rates can reduce the overall cost of these expenditures. This means that changes in interest rates can induce changes in consumption and investment spending, and thus aggregate demand. Interest rates charged by commercial banks and housing companies influence investments directly or indirectly in the Nairobi Security Exchange (Bienert & Brunauer, 2006). The theory guided the study in linking the forces that influence the interest rates in free markets which also influence performance of REITs.

2.1.3Classical Theory of Inflation

Classical Theory of Inflation says that money is the asset which is utilized by people topurchase goods and services on a regular basis. Money is the mode of exchange in everyeconomy at the present day. Inflation occurs in an economy when the overall price level increases and the demand of goods and service increases. The classical theory of inflation owes its genesis to certain factors. Inflation is determined by the quantity theory of money. This theory which is contained in the classical theory of inflation is employed to explain the most important and long run determinants of inflation rate and price level. Inflation is a phenomenon which takes the whole economy into its grasp.

It spreads across the whole of the economy. It is such a phenomenon which impacts the whole of the economy and is concerned about the value of the mode of exchange in an economy that is, it concerns itself with money. With the rise in the supply of money the price rate rises and the value of money falls that is devaluation of money takes place. The supply of money is controlled by the government through a policy of open market. Open market is a powerful tool of controlling the supply of money. The demand of money actually depends on a lot of factors. These factors include interest rates, average level of prices in the economy. Every economy endeavors to reach equilibrium where the demand and supply of the money becomes equal. Marx defined inflation in terms of its cause; as depreciation of the currency: high prices caused by an over-issue of inconvertible paper money (Keynes, 1923).

2.1.4 Balance of Payments Theory of Exchange

The Balance of Payment Theory is also referred to as Demand-Supply Theory of Exchange. The theory was advanced by Frenkel and Johnson in 1976 as part of monetary approach to balance of payment.The theory explains the rate of exchange underlining the position of balance of payments between two or more countries concerned. According to the theory, the balance of payments starts from the proposition of disequilibrium involving an inflow or outflow of international money (Frenkel and Johnson, 1976), as such a favourable international monetary inflow (balance of payments) leads to an appreciation in the external value of the currency of the country while unfavourable international money causes a depreciation of the external value.

The theory holds that the price of foreign money,in relation to domestic money, is determined by the free forces of demand and supply in the foreign exchange market. Therefore, the external value of a country's currency will depend upon the demand for and supply of the currency.The theory outline forces of demand and supply as determined by various items in the balance of payments. These include merchandise items (exports and imports of goods), the supply of and demand for foreign exchange and the rate of exchange.

According to the theory, a nation can experience either a deficit or surplus in its balance of payment. A deficit in the balance of payments leads to a fall or depreciation in the rate of exchange as demand for foreign exchange exceeds its supply, while a surplus in the

balance of payments strengthens the exchange reserves, causing an appreciation in the price of home currency in terms of foreign currency as supply of foreign currency exceeds demands. Therefore, this theory was used to explain the exchange rates as determined by the balance of payments based on the demand and supply positions of foreign exchange in the country.

2.1.5Firm value Addition Theory

The concept of value has received considerable attention in the firms management and performance literature across the globe. The theory of value creation, according to Bowman & Ambrosini's (2000), is the distinction between 'perceived use value' (the subjective value perceived by customers) and 'exchange value' (the bargained price that is paid). The theory emphasized the creation of use value is a necessity for firms to sustain.

According to the theory the use value consumers or customers may perceive value differently and thus that resources and products may have a different value to different people. Accordingly, the theory also rest on the assumption that value creation is not limited to customers alone, as by buying products firms have value for their suppliers, by paying wages they provide value to their employees. This implies that the creation of use value is not only a directional activity; it is a multidirectional activity.

According to proponent of the theory, Bowman and Ambrosini (2000) observed the

creation of sufficient perceived use value is not a sufficient requirement for firms to sustain. As such firms that concentrate only on creating perceived use value may not be able to get something in return for their efforts and thus be able to survive. Therefore, the creation of exchange value is also a necessity for firm survival.

Some of the critics of the theory are Ghoshal and Moran (1996) who criticized the firm as a value creating system, and observed a more fundamental way in which ethics gets involved. The implication of the theory to the study was to explain how firms create both the supply and the demand for value.

2.2 Empirical Literature Review

Empirical review is guided by the concept of specific variables. The review covers interest rate and financial performance, inflation rate and financial performance and exchange rate and financial performance.

2.2.1 Interest Rate and Financial Performance

Renigier-Bilozor & Wisniewski (2012) determine the effect of macroeconomic factors on residential property and prices indices in Europe using interest rates, construction quality, speed of real estate sales and accessibility of funding as constructs. This study was based on correlational research design with quantitative analysis. Their studyreported significant factors in the real estate market to include interest rate among others constructs.

Apergis (2011) evaluated the effects of selected macroeconomic factors on the price of new houses sold in Greece. The study used vector autoregressivemodel to asses the effect of the interest rate - as a macroeconomic variables - on real housing prices. The study reported significance variation of real housing prices, followed by inflation and employment.

King (2015)study of Interest income on bank financial performance was intended to establish how interest income and financial performance were related and how important one was to the other. This study reported that a strong and significant relationship between them and thus concluded bank will experience improved performance if the interest rate rises.

Flannery, (2018) sought to study how the varying market interest rates affected the overall performance of real estate firms. Using data collected from over 70 US commercial banks that invest in real estates on assets value owned and interest rates offered by the market. Statistical result showed banks profitability was determined to be responsive to the level of market interest rates. In addition to this, a change in the market rates was accompanied with a response by the bank revenues and cost. This study concluded there is a relation between market interest rates and the financial performance of real estate firms.

Waseem and Sattar (2014), analysed the effect interest rate variations pose on the profit generated from four of the major banks from 2008 and 2012. This study focused on

correlational analysis relating the interest rates spread with the profits recorded. Their study finding reported that bank's profitability is dependent on interest rate.

Nassreddine, Sessi & Anis (2013) analysed several key factors determine the financial performance of a firms in property development. The study assessed numerous constructs drawn from both internal and external factors that are relevant to property firms. The study assessed size of the firm, capital, liquidity and credit control and interests rate. The study employed data collected by previous researchers they were able to use cognitive mapping techniques to highlight the effect of each determinant. The study reported interest rate as having significant effect on performance of firms in property business.

Muli (2012), using quantitative research design on a study of assessment of the factors affecting the growth in real estate investment in Kenya, concluded that GDP, interest rates and inflation rates were the major determinants of real estate investment at the 0.05 level as per the SPSS fitted model. Besides GDP growth contributed the most to the growth in real estate in Kenya. Population growth had a statistically insignificant negative impact on real estate investment. GDP was positively related to real estate investment whereas interest rates and inflation rates were negatively related to the growth in real estate.

Omare (2015) studied the effect of macroeconomic variables on the performance of the real estate firms in Kenya. The study used descriptive design, with both qualitative and

quantitative approaches, with data obtained from senior managers and analysed using descriptive and inferential statistics. The results of the analysis showed that the change in the 5macro-economic variables above contributed to an equivalent of 76.1% of a change in real estate investments as depicted by the R-Square equal to 0.761. This means that 23.9% of investment in the real estate industry was explained by other external variables.

2.2.2 Inflation Rate and Financial Performance

Wamucii (2010) examined the relationship between inflation and commercial bank financial results in Kenya from 2000-2009. The study adopted correlation design with secondary data collected from Central Bank depository. Result showed the study showed that as inflation decreased, profits increased. This relationship between inflation and profits indicated that there is an inverse relationship. On the relationship between inflation and the total assets, it showed that there is no clear pattern which means that there is a weak relationship.

Derick Adul, Domfeh and Denkyirah (2016) assessed the effect of inflation on the financial performance of Ghananian banks from 2004-2013 by using panel data of five banks. They concluded that inflation would continue to have a positive impact on the financial sector development, except it hits a 15% threshold. Wanjohi (2016) was purposed to establish how inflation rate determine firm financial profitability through itseffects on cost and the revenue of the firm. The study covered a period between 1993-2002. The study failed to ultimately show how inflation impacted profitability because the aim was on loan element as an internal factor.

Naceur & Ghazouani (2014)studied the relationship between inflation and financial performance for eleven the Middle East and North Africa countries from 2003-2013. The study reported negative correlation between the two using the generalized method moment (GMM). The study reported negative inflation effects on the financial sector become successful once the inflation rate reaches certain threshold.

Bernanke (2015) carried out some studies in inflation, where the central banks increased or decreased the rate of interest based on targeted inflation levels to counter the impacts. The study aim was to assess the impact of inflation between 2004-2014 during the first oil shock. The study discovered that with a decrease in inflation rates, the rate of interest that was initially high decline at a great rate leading to a rise in the rate of unemployment. The study concluded that with a rise in inflation and interest rates, the increase of exchange rates, there was GDP growth and a decrease in the rate of unemployment.

2.2.3 Exchange Rate and Financial Performance

Opaluwa, Umeh and Ameh (2010) investigated the impact of exchange rate fluctuations on the manufacturing sector of Nigeria from 1986-2005. The data used was collected from the Nigerian central bank and Statistical bulletin and the World Development Indicators. The used multiple regression analysis to analyze the impact of exchange rate volatility on the manufacturing sector. The study found out that by exchange rate fluctuations have short run and long run relationship on the manufacturing sector's output.

Adetayo (2013) analyzed the impact of foreign exchange risks on selected firms in the stock exchange. The aim of the study was to find how effectively can the risk associated in foreign exchange managed. Primary data was collected using the structured questionnaires. The author tested the hypothesis and checked if there is a relationship between foreign exchange rate and the risk management by using chi-squared statistics. He concluded the study by showing that the spot transaction was effective in minimizing the risk in foreign exchange rate.

Kangogo (2013) sought to establish the Relationship between inflation rates and real estate prices in Nairobi, Kenya. Simple linear regression model was used to determine the nature of the relationship. Property prices were collected from the ministry lands, Housing and Urban development, while inflation rates data was collected from the Kenya National Bureau of statistic. The findings of this study show that there is no clear relationship between the property price and the inflation rate.

2.3 Critique of Literature

The study study reviewed existing research studies as guided by the theme of each specific objective or variable. A number critiques can be pinpointed from the review. First, most of study reviewed have been based on qualitative analysis (Renigier-Bilozor & Wisniewski, 2012; Flannery, 2018; Apergis, 2011; Omare, 2015 and King, 2015). these studies suffer from inappropriate measure of financial

performance are financial indicators as reported in the financial reports. The studies could have used quantitative data from financial reports as oppose to qualitative rating of the same.

Some study also suffer from population inadequacy. For example, Waseem and Sattar (2014) used a population of four major banks to represent an industry, King (2015) used listed banks to represent the industry, and Nassreddine et al (2013) employed population of real estate and property companies only. These studies populations are inadequate and cannot properly project of predict a whole industry performance. The findings generated from these study thus cannot be good basis of generalisation. In addition, Opaluwa, Umeh and Ameh (2010), Bernanke (2015), and Naceur and Ghazouani (2014) studies were case analysis of a category of real estate or property market. These studies too cannot firm basis of generalization.

Most reviewed studies adopted multiple regression analysis to estimate the relationship. The result obtained varied greatly with very low coefficient of determinations. For example, Apergis (2011) used vector autoregressivemodel and reported 5% variation of real housing prices, Muli (2012) used GDP growth and reported variation of 10.2%, Adetayo (2013) analyzed the impact of foreign exchange risks and stock exchange also reported chi-squared statistics of 0.01. The results of these studies could point that the analysis model adopted was not the most appropriate and thus finding might mislead.

In order to address the observed critiques, the present study will analyse the entire real estate and property sector. The analysis of financial performance will be based on the financial metric measures to be collected from the financial reports of the industry players. In addition, the study will adopt qualitative analysis using multiple regression of study variables.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter focused on data collection, processing and analysis methods. Data collection instruments and procedures are discussed as well as the target population in order to attain the objective of the study. The chapter also discussed the methods and tools that were applied by the study.

3.1 Research design

Research design is a detailed outline on how the research will be undertaken Kothari, (2004). This is the general strategy used to choose the various segments of the research in an integrated and a manner that is logical which ensures that the research problems are effectively addressed Kothari, (2004). This study adopted correlation research design. According to Rageb & Arisha, (2018), correlation research design examines the relationship between two or more variables and also tests the casual relationship between the variables under the study.

3.2 Study area

This study was done in Kenya. The country is situated in Eastern Africa on the Indian Ocean coast between Somalia and Tanzania. Located within the coordinates of 1°00′N 38°00′E. Which covers an area of 582,650 km^2 and a population of over 47..5 million people as per 2019 national census. The country has well established real estate and property development sector which contributes about 15% the Gross Domestic product (KNBS, 2020).

3.3 Target Population

Target population in statistics is specific population about which information is desired. The targeted population of the study were all firms operating in the real estate and property sector in Kenya.

3.4 Sample and Sampling Design

Since the study analysed the whole sector performance, census was adopted. This implies that the study used the sector performance data and therefore no need for sampling.

3.5 Data Collection

The study utilized secondary data. Secondary data is the data collected by a party not related to the study but collected for other reasons and at a different time in the past (Shodhganga, 2012). The collected data on annual basis consist of CBK lending rate, Inflation rates and exchange rates from 2010 to 2019. In addition, data on real estate sector performance was obtained from Kenya Bureau of StatisticsEconomic survey reports from 2010 to 2019.

3.6 Data Collection Procedure

The study used secondary data on the analysed macroeconomic variables. The secondary data was opted as theythey are more relevant owing to the quantitative research nature of the study, thus allowed the test the hypothesis.

3.7 Data Analysis

Data collected was cleaned and analyzed using both descriptive and inferential statistics, with an aid of Statistical Package of Social Science (SPSS) Version 26. Descriptive analysis deals with describing the study analysed macroeconomic in assessing trend occurrence. Correlation analysis measured the association between macro-economic variables and financial performance of real estate sector in order to obtain the strength of their relationship. Regression analysis on the other hand determined the interdependency between interest rates, inflation rate, exchange rates and financial performance as measured by real estate sector operating income.

3.8 Analytical Model.

The study regression model was based on the Ordinary least squares (OLS) to estimate the regression coefficients. Proposed analysis model was:

$$\mathbf{Y_t = \beta_0 + \beta_1 IR_t + \beta_2 INF_t + \beta_2 ER_t + \varepsilon}$$

Where: **Yt**= Financial Performance of Real Estate Industry

IR= Interest rates

INF= Inflation rate

ER= Exchange rate

β= regression coefficient

ε=error term.

t = Time

3.8.1 Test of Significance

Correlation and a multiple regression analysis were used to test the effect of specific macro-economic variables on financial performance of real estate in Kenya. A correlation matrix was used to determine the interrelationships within the variables under study, thus helping to show any serial correlations. A multiple regression analysis was carried out. The F-test was used to test the fitness of the model and the results of significance interpreted at 5% level of significance, using the p-values.

3.9 Ethical Review

The researcher obtained a research permit from Maseno University Ethical Review Board to conduct the study in addition to compliances with other laid down research ethics.

CHAPTERFOUR

DATA ANALYSIS PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter is about data analysis, presentation of results and discussion of findings. Both descriptive and inferential analysis and results finding are discussed.

4.2 Descriptive Results

4.2.1 Descriptive Result of Effect of Inflation Rate onFinancial Performance of Real Estate in Kenya

The first objective assessed the effect of inflation rate on financial performance of real estate sector in Kenya. Annual average inflation rates data was obtained from economic survey reports for 10 years between 2010 and 2019.Detailed result is attached as Appendix 1 and Figure 4.1 summarised the trend analysis result.

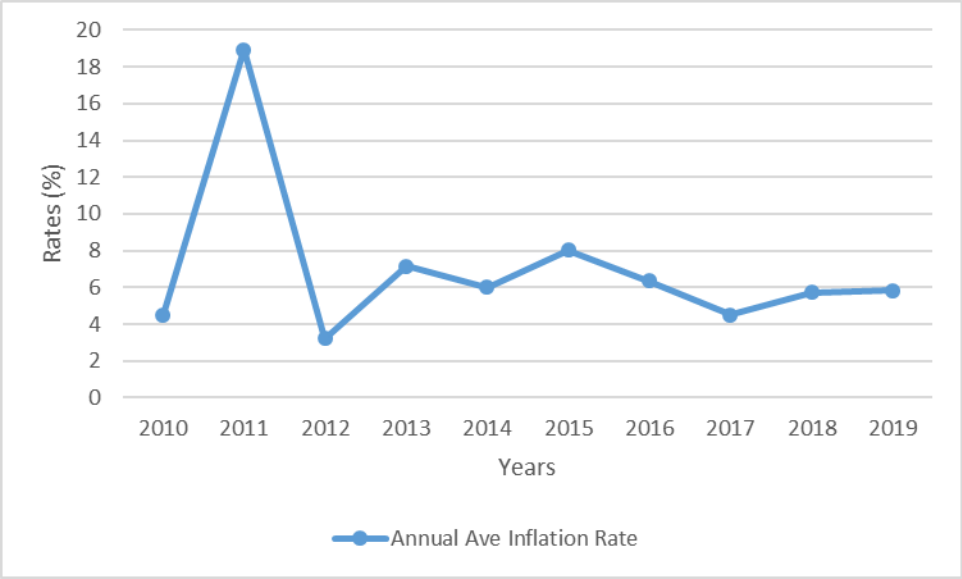

Figure 4.1: Average annual inflation rate (2010-2019)

Result from figure 4.1 indicates a declining trend in inflation rate. The highest and lowest rates were 18.93 and 3.2 as recorded in 2010 and 2011 respectively. The mean rate was 7.02 with a standard deviation of 4.40 over the period. The current inflation rate is slightly above the mean and projects an increasing trend.

4.2.2 Descriptive Result of Effect of Interest Rate on Financial Performance of Real Estate in Kenya

The second objective analysed the effect of interest rate on financial performance of real estate sector in Kenya. Data of annual average CBK Base lending rate was adopted for this analysis. The data cover a period of 10 years between 2010 and 2019. The result of raw data is attached as appendix 1 and summarised in figure 4.2.

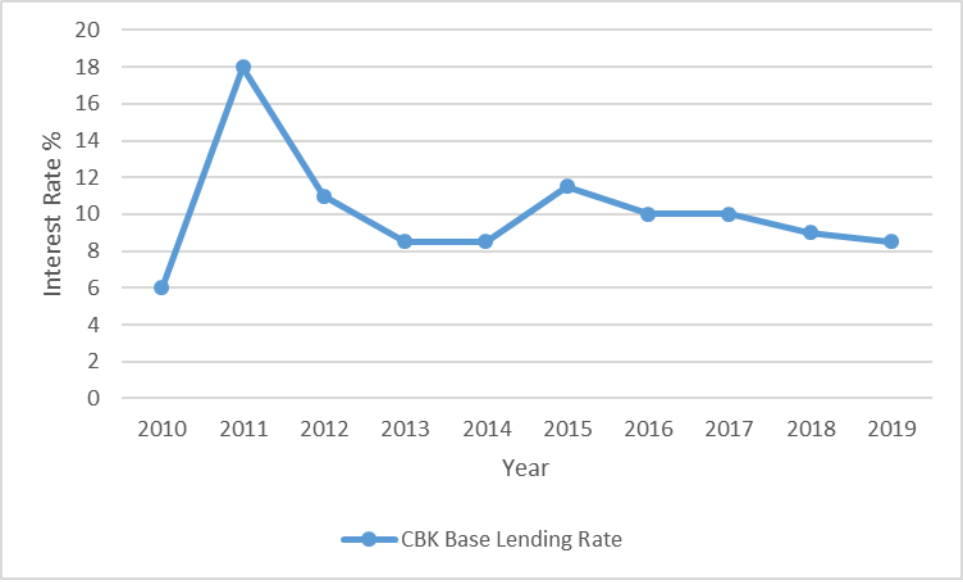

Figure 4.2: CBK Base lending rate (2010-2019)

Result from figure 4.2 indicate a declining trend in CBK base lending rate with the highest and lowest rates being 18 and 6 as recorded in 2010 and 2011 respectively. The mean rate was 10.1 with a standard deviation of 3.178 over the period.

4.2.3 Descriptive Result of Effect of Exchange Rate on Financial Performance of Real Estate in Kenya

The third objective examined the effect of exchange rate on financial performance of real estate sector in Kenya. Exchange rate was assessed based on the US Dollar to Kenya shillings exchange rate. Annual average USD exchange rates data was obtained from economic survey reports from 2010 to 2019. Detailed result on the same is attached as Appendix 1, with summary of trend result shown in Figure 4.3.

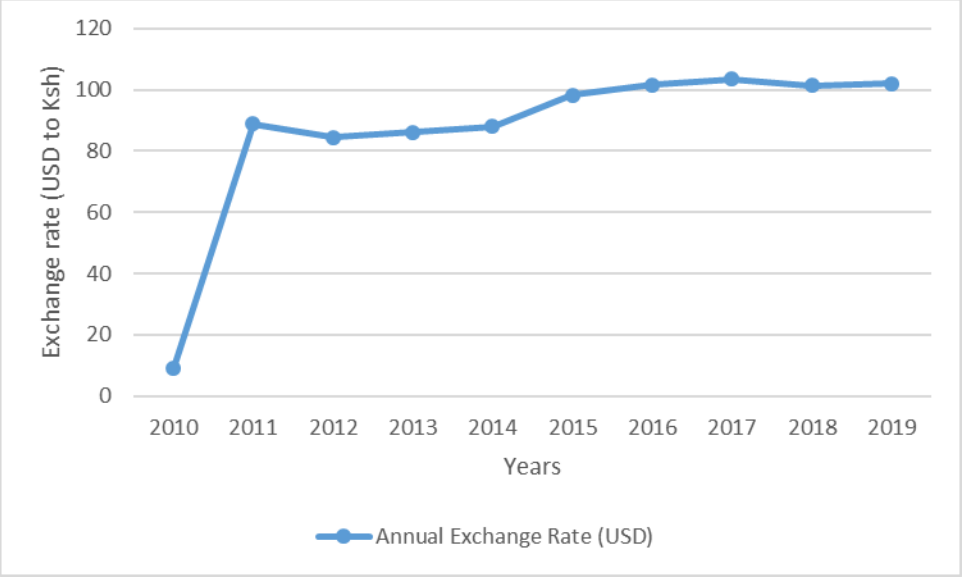

Figure 4.3: USD to Ksh exchange rate (2010-2019)

As shown in Figure 4.3, annual average exchange rate of USD to Ksh. indicates an upward trend over the analysis period. The highest rate was 103.41 recorded in 2014 and the lowest was 9.41 recorded in 2009. The mean exchange rate was 86.30 with a standard deviation of 28.06 over the period.

4.2.4 Descriptive Result of Financial Performance of Real Estate in Kenya

The dependable variable of the study was financial performance of real estate sector in Kenya. Financial performance was assessed based on sector operating surplus/income as obtained from economic survey reports from 2010 to 2019. Detailed result on the same is attached as Appendix 1. Summary of trend result of operating surplus and a combined analysis result of operating surplus with sector growth are shown in Figure 4.4 and 4.5 respectively.

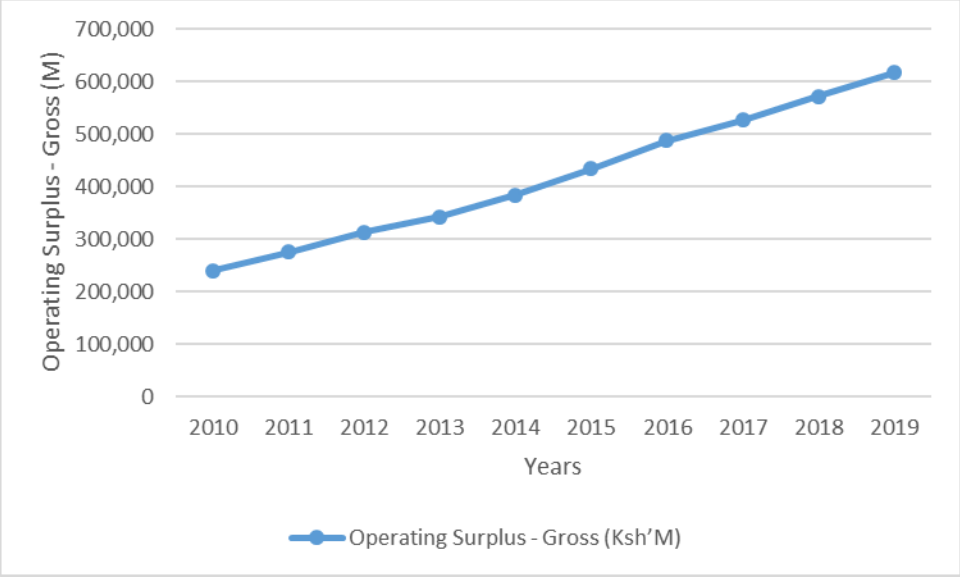

Figure 4.4: Real estate sector operating surplus - Gross (2010-2019)

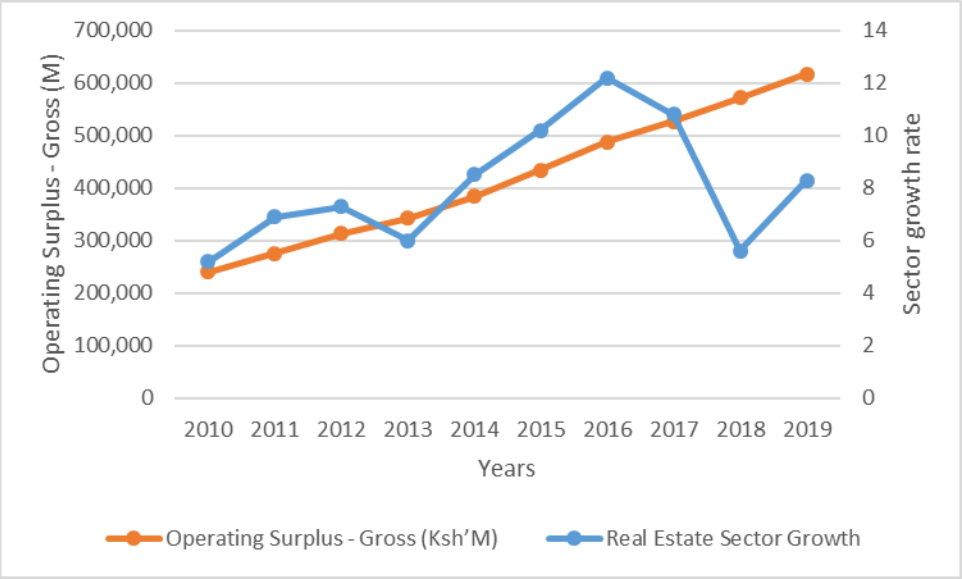

Figure 4.5: Real estate sector operating surplus and sector growth (2010-2019)

As shown in Figure 4.4, real estate sector operating surplus indicated an upward trend with maximum surplus being Ksh. 616,872.6M recorded in 2019. The lowest surplus was Ksh. 240,679M as recorded in 2009. The mean and standard deviation surplus over the analysis period were Ksh. 419,304.04M and Ksh. 128,968.20M respectively.

From Figure 4.5, results indicated that the sector growth trend has recorded an intermittent trend with increasing growth, decreasing growth and decline. For instance, the sector recorded a decreasing growth from 2010 to 2012, followed by an increasing growth from 2013 to 2016, after which a decline in growth to the year 2018.

4.3 Correlational Analysis Result

The study assessed the correlation between macroeconomic variables and financial performance of real estate using Pearson movement correlation. Result are summarised in Table 4.1.

Table 4.1: Correlational analysis result

Correlations		Average Annual Inflation Rate	CBK Base Lending Rate	US Dollar Annual Exchange Rate	Operating Surplus - Gross (Ksh'M)
Average Annual Inflation Rate	Pearson Correlation	1			
	Sig. (2-tailed)				
CBK Base Lending Rate	Pearson Correlation	.852**	1		
	Sig. (2-tailed)	.002			
US Dollar Annual Exchange Rate	Pearson Correlation	.133	.378	1	
	Sig. (2-tailed)	.713	.281		
Operating Surplus-Gross (Ksh'M)	Pearson Correlation	**-.309**	**-.218**	**.675***	**1**
	Sig. (2-tailed)	**.385**	**.545**	**.032**	

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

**. Correlation is significant at the 0.01 level (2-tailed).

Result from Table 4.1 shows the correlation between the analysed macroeconomic variable with financial performance of real estate sector in Kenya. Result indicates average annual inflation rate has an insignificant negative weak correlation of r=-0.309

(p=0.385) with operating surplus; CBK base lending rate has an insignificant negative weak correlation of r=-0.218 (p=0.545) with operating surplus and US Dollar exchange rate has significant strong positive correlation of r=0.675 (p=0.032) with operating surplus. These results indicated that exchange rate has significant relationship with financial performance of real estate sector in Kenya, while inflation rate and interest rate does not significantly affect financial performance of real estate.

4.4 Regression Analysis Result

Multiple regression analysis was conducted to establish the interdependency between analysed macroeconomic variables and financial performance of real estate. The model summary result is shown in Table 4.2.

Table 4.2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.852a	.726	.589	82,722.13567

a. Predictors: (Constant), US Dollar Annual Exchange Rate, Average Annual Inflation Rate, CBK Base Lending Rate

From the result in Table 4.2, the value of R-Square (R^2) was 0.726 which indicated that analysed macroeconomic variable accounts for 72.6 percent variation in financial performance of real estate sector in Kenya. This finding implied inflation rate, interest rate and exchange rate contributes 72.6% of financial performance of real estate sector. The remain 27.4% are contributed by other factors not analysed.

Analysis of variance (ANOVA), to show the goodness fit of the model, result is shown in table 4.3. The table shows F-statistic of 5.929 with a significant p-value of 0.040. The resultant significant higher value F-statistic denoted the model was fit for the study and any of the analysed variables (inflation rate, interest rate and exchange rate) is a good predictor of real estate sector performance.

Table 4.3: ANOVA

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108637435726.974	3	36212478575.658	5.292	.040b
	Residual	41057710381.890	6	6842951730.315		
	Total	149695146108.864	9			

a. Dependent Variable: Real Estate Sector Operating Surplus/Mixed Income - Gross (Ksh'M)

b. Predictors: (Constant), US Dollar Annual Exchange Rate, Average Annual Inflation Rate, CBK Base Lending Rate

Coefficient of regression results are shown in Table 4.4. Results shows the constant value of 312594.577, standardised coefficients value for average annual inflation rate as β=0.191 t=0.431 and p=0.682; CBK base lending rate β=-0.732, t=-1.538 and p=0.175; and US Dollar annual exchange rate β=0.926, t=3.691 and p=0.010.

Table 4.4**: Coefficients results**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	312594.577	114416.104		2.732	.034
	Average Annual Inflation Rate	5596.175	12997.249	.191	.431	.682
	CBK Base Lending Rate	-29693.988	19291.412	-.732	-1.539	.175
	US Dollar Annual Exchange Rate	4256.571	1153.083	.926	3.691	.010

a. Dependent Variable: Operating Surplus - Gross (Ksh'M)

The result suggested that financial performance (operating surplus) that does not dependent on macroeconomic variable was Ksh. 312,597.57M. in addition, a unit variation in inflation rate could cause 0.191 insignificant positive change on financial performance of real estate; unit variation in interest rate could cause 0.734 insignificant negative change on financial performance of real estate sector and finally a unit change in exchange rate would result to 0.926 significant positive variation on financial performance of real estate in Kenya. The finding implied exchange rate has significant effect on financial performance of real estate in Kenya, while inflation rate and interest rate do not.

4.5 Test of Hypothesis

The study developed three postulation statements (hypothesis) for analysis and testing. Summary of hypotheses, tests conducted, results and validations is presented in Table 4.5.

Table 4.5**: Summary of Hypothesis Test**

Hypothesis	Analysis	Test	Results and Interoperation	Verdict
Inflation rate has no significant effect on financial performance of real estate in the Kenyan market (H_{01})	Regression	Parametric	β=0.191 t=0.431 p=0.682 t-calculated is less than $t_{0.5,3}$ (±2.353), p>0.05	Accepted
Interest rate has no significant effect on financial performance of real estate in the Kenyan market (H_{02}).	Regression	Parametric	β=-0.732, t=-1.538 p=0.175 t-calculated is less than $t_{0.5,3}$ (±2.353), p>0.05	Accepted

Exchange rate has no significant effect on financial performance of real estate in the Kenyan market (H_{03}).	Regression	Parametric	β=0.926, t=3.691 p=0.010 t-calculated is more than $t_{0.5,3}$ (±2.353), p<0.05	Rejected

The result t-statistic and p-value for objective one was t=0.431 and p=0.682 respectively. The t-statistic value is less than the critical t-statistic value at 95% significant level and 3 degree of freedom ($t_{0.5,3}$ ±2.353, p>0.05) therefore, the study accepted the first hypothesis as there was no evidence of significant effect of inflation rate on financial performance of real estate sector.

The result t-statistic and p-value for objective two was 1.538 and p=0.175 respectively. This t-statistic value is also less than the critical t-statistic value at 95% significant level and 3 degree of freedom ($t_{0.5,3}$ ±2.353, p>0.05) therefore, the study accepted the second hypothesis as interest rate has no significant effect on financial performance of real estate sector.

Lastly for the third objective, t-statistic and p-value were t=3.691 and p=0.010 respectively. This t-statistic value greater than the critical t-statistic value at 95% significant level and 3 degree of freedom ($t_{0.5,3}$ ±2.353, p>0.05). The study therefore, rejected the third hypothesis as exchange rate has significant effect on financial performance of real estates in Kenya.

CHAPTERFIVE

SUMMARY OF RESULT, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter is about summary of major findings, conclusions and recommendation drawn from the same.

5.2 Summary of Results

The first objective purposed to assess the effect of inflation rate on financial performance of real estate sector in Kenya. Annual average inflation rates showed a declining trend with highest and lowest rates being 18.93 and 3.2, mean rate of 7.02 with a standard deviation of 4.40. Inflation rate has an insignificant negative weak correlation with operating surplus and a partial effect of 0.191 insignificant positive change on financial performance of real estate.

The second objective was purposed to analyse the effect of inflation rate on financial performance of real estate, and result denoted a declining trend interest rate, highest and lowest rates being 18 and 6, and mean rate 10.1 and standard deviation of 3.178; a negative weak correlation with operating surplus; and a insignificant partial effect 0.734 negative change on financial performance of real estate sector.

The third objective examined the effect of exchange rate on financial performance and reported an upward trend, with highest rate of 103.41 and the lowest rate of 9.41. the mean exchange rate was 86.30; significant strong positive correlation with operating

surplus, and significant partial effect 0.926 positive variation on financial performance of real estate in Kenya.

Real estate sector operating surplus has an upward trend with maximum and minimum surplus of Ksh. 616,872.6M and Ksh. 240,679M respectively; with a mean and standard deviation of Ksh. 419,304.04M and Ksh. 128,968.20M respectively. Finally, the sector growth trend has recorded an intermittent trend with increasing growth, decreasing growth and decline in growth.

5.3 Conclusions

The study draw the following conclusions based on the tested hypotheses. First, the study concluded that exchange rate has significant effect on financial performance of real estate in the Kenyan market. Second, the study concluded that inflation rate and interest rate has no significant effect on financial performance of real estate in the Kenyan market.

5.4 Recommendations

Based on the conclusions, the study recommends real estate firm management should emphasis on management of real exchange rate in order to enhance their financial performance.

5.5 Recommendation for Further Research

The study reported that macroeconomic factors only account for 72.6% variation in financial performance of real estates in Kenya. The remain 27.4% are contributed by

other factors not analysed. The study, therefore recommends a study to analyse these other factors.

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APPENDICES

Appendix 1: Detailed Data Macroeconomic Variables

S/No.	Year	Average Annual Inflation Rate	CBK Base Lending Rate	US Dollar Annual Exchange Rate
1	2010	4.51	6.00	9.23
2	2011	18.93	18.00	88.81
3	2012	3.20	11.00	84.53
4	2013	7.15	8.50	86.12
5	2014	6.02	8.50	87.92
6	2015	8.01	11.50	98.18
7	2016	6.35	10.00	101.50
8	2017	4.50	10.00	103.41
9	2018	5.71	9.00	101.29
10	2019	5.82	8.50	101.99

*Base: CPI - February 2009=100

Source: Extracted from Kenya National Bureau of Statistics - Economic Survey Report of 2015 and 2020

Appendix 1I: Real Estate Sector Performance Data

S/no.	Year	Real Estate Sector Operating Surplus Gross (Ksh'M)	Real Estate Sector Growth
1	2010	240,679	5.2
2	2011	275,066	6.9
3	2012	313,682	7.3
4	2013	342,963	6.0
5	2014	383,937	8.5
6	2015	433,497.6	10.2
7	2016	487,837.1	12.2
8	2017	526,411.7	10.8
9	2018	572,090.9	5.6
10	2019	616,876.1	8.3

Source: Extracted from Kenya National Bureau of Statistics - Economic Survey Report of 2015 and 2020