MACROECONOMIC FACTORS AFFECTING FINANCIAL PERFORMANCE OF THE REAL ESTATE INDUSTRY IN KENYA

BY:

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DECLARATION

This research project is my original work and has not been submitted for an award at any other university or institution of higher learning.

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This research project has been submitted for examination with our approval as the university supervisor.

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DEDICATION

I dedicate this project to my family and friends for their understanding, patience, encouragement and support while I was undertaking this study

ACKNOWLEDGEMENT

I would like to thank the Almighty God for the good plans he has for me and also for giving me an opportunity to pursue this MBA programme. It has been a wonderful period of study at The University of Nairobi and i feel privileged to have had the opportunity to carry out this study

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LIST OF ACRONYMS

AAK	:	Architectural Association of Kenya
ANOVA	:	Analysis of Variance
CAPM	:	Capital Asset Pricing Model
CBK	:	Central Bank of Kenya
CMA	:	Capital Markets Authority
EMH	:	Efficient Markets Hypothesis
GDP	:	Gross Domestic Product
IRR	:	Internal rate of return
KFPGRI	:	Knight Frank's Prime Global Rental Index
KNBS	:	Kenya National Bureau of Statistics
MPT	:	Modern Portfolio Theory
NHC	:	National Housing Corporation
NOI	:	Net Operating Income
NSE	:	Nairobi Securities Exchange
REIT	:	Real Estate Investment Trust

ABSTRACT

Real estate sales growth is an ideal indicator of anticipated demand for real estate; it is also a good barometer of the state of economy. Due to the influence of macro-economic indicators on one another that are occasionally highly correlated, any marginal change in in one factor causes a ripple effect on the entire market and the effect on the economy is much more including the REIT industry. The study was underpinned by the behavioral theory of finance, the Efficient Market Hypothesis (EMH) theory and the Modern Portfolio Theory (MPT). The question that this study sought to answer was: do macroeconomic factors have an effect on the financial performance of the REIT industry? And the objective was to investigate the effect of macroeconomic variables on the financial performance of real estate industry in Kenya. The study was also longitudinal in nature. According to Farrington (2016), a longitudinal design is better for determination of cause-effect relationship. The target population was all the real estate firms in Kenya. Secondary data was collected from the KNBS, CBK, the NSE and Hass consult Property Index. Data analyses comprised numeric measures. Essentially, the study design entailed descriptive statistics. Multiple linear regression models was used by use of SPSS version 22. From the study findings, real estate sales growth rate had fluctuated with the highest peak in the third quarter of the year 2012 while the lowest rate was recorded in the fourth quarter of the year 2013. The study also established that each of the explanatory variables fluctuated over the study period. The study also established a positive correlation between real estate sales growth and each of the internal macro-economic variables. However, none of the independent variables was statistically significant individually as shown by their corresponding p-values which were each greater than 0.05. The study concludes that there is a strong positive relationship between the macro-economic variables and financial performance of the real estate industry. The study, therefore, recommends that the CMA, the CBK and other agencies charged with the responsibility of regulation should plan in advance and influence the macro-economic variables in the right direction. The study had some limitations: contextual, methodological and human. These limitations have formed part of the basis for suggestions for further study. Among the suggestions is that further study should be triangulated in terms of data sources to mitigate the weaknesses of secondary data that was used exclusively in this study.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Growth in REIT sales and prices can be good predictors of real estate demand. According to Knight Frank (2011), this factor can be used as a good indicator of economic growth. The "real estate" industry encompasses land and improvements thereon, their selling prices, rental prices and returns on buildings as well as other improvements, and the entire construction industry. According to Lynn (2007) since macro-economic variables normally interconnected, what affects one part of the economy causes a ripple effect across the whole economy. Omare (2015) posits that measuring the effect of macroeconomic variables is usually a difficult endeavor. In the last ten years, various financial institutions, including the international monetary fund, have had to pay attention to the various indicators of economic health across the world.

The study was underpinned by the behavioral theory of finance founded by Daniel Kahnemanand Amos Tversky in the late 1960s. The theory attempts to explain the human perspective of investing and financing dynamics. Founded by Eugene Fama in 1970, Efficient Market Hypothesis (EMH) argues that supernormal profits are a near impossibility due to the competitive forces that drive investor behavior. Modern Portfolio Theory (MPT) founded by Harry Markowitz in 1952 is the third theory that underpinned the study.

MPT attempts to explain the risk hedging tendencies by rational investors. The prediction of these three theories is that behavioral factors have significant effect on the financial performance of an entity, industry, and even economy. The year 2014's sudden loss of strength of the Kenya shilling against the world's dominant currencies, the excessive inflation and interest rates shot up to an all-time high of 30% up from 14%. These economic dynamics took a serious toll most of Kenya's most sustainable sectors. This was due to interest rate which is a macroeconomic variable.

1.1.1 Macroeconomic Variables

Maghyereh (2002) argues that macroeconomic environment is the sum total of elements and dynamics of an economy, they include: output, income, and the correlation among various economics sectors. Favorable macroeconomic environment fosters profitability of an organization which allows them to be able to access both debt and equity financing for sustainable growth.

According to Asaolu and Ogunmuyiwa (2010), the indicators for economic performance are among others: rate of inflation, real GDP growth rate, the exchange rate, and NSE 20 Share Indices. These macroeconomic variables can be singled out to affect activities in the real estate industry as they directly affect the state of corporate activities. There is rich empirical evidence that major macroeconomic indicators assist in predicting the financial performance of REITS. The emergent empirical finding against the conclusions drawn from the EMH includes early studies by Nelson (1977) and Fama and Schwert (1977). Both have adduced evidence that macro-economic factors indeed affect financial performance of REITS.

Real estate firms' financial performances are affected by interest rates. In this regard, dynamics in interest rates can have a great influence a one's property purchasing power. That is because a fall in interest rates will cause a decrease in the mortgage prices, which in turn creates a higher demand for real estate; and the converse it applicable (Blanchard, 2000).

Under serious inflationary conditions, investment in hard assets is better idea since actual cash losses its purchasing power gradually. Accordingly, real estate for commercial purposes is a great hard asset to own and its demand would rise. According to Blanchard (2000), inflation can be defined as the sustained rise in the general prices of commodities in an economy gradually.

Through cost-push theory, raising wages can fuel inflation, which will further increase the price of property. Kangogo (2013) established that there was no overt correlation between the inflation rate and the property price. Muli (2012) found out that interest rates and inflation rates were the major determinants of real estate investment. The interbank exchange rates and treasury bills/bonds have as serious an effect on the value of income-producing real estate as on any vehicle of investment. Due to the profound effect of interest rates on an individual's purchasing power, a lot of people assume that the only deciding factor in real estate valuation is the mortgage rate. (Christopher, 2001). It is believed that the bulk of the diaspora remittances are invested in buying land, developing houses or buying ready-built houses.

The remittances are also believed to have contributed to the ever-rising property prices in the country by pushing up demand, much to the detriment of low-income earners who can't afford house prices and high mortgage rates. A huge part of Diaspora remittances has been going into the Real Estate Sector (Mbataru, 2014).

1.1.2 Financial Performance of Real Estate Industry in Kenya

REIT has been identified as one of fastest growing sectors in Kenyan economy. Returns from this sector have recently outpaced those of government securities and equities (Mbula, 2013). According to Taylor (2009), the real estate industry growth is critical for the aggregate development of a country.

According to a study carried out by Hass consult (2014), price houses increased marginally by end June 2014, this was due to a decline in marked prices for high end market detached houses. Accordingly, these prices fell by 0.3% in 2014 and 2.1% on a year earlier, in a price correction from more than 10% surge in the period just after the 2008 post-election (Omare, 2015). According to Omare (2015) rents rose during the year 2010, but house prices rose faster, seeing some further marginal falls in yields, however, overall rental yields held above a 6 percent return, remaining far ahead of treasury bill yield of between 2.0 and 2.25 per cent.

The best rental yield continued to be on town and maissonette, where rents remained equivalent to 7.6 per cent of house purchase price. The yield for apartments held at 7.0 per cent and for top- end houses at 6.3 per cent. The main measures of real estate performance in the real estate sector are: sales revenue and profitability.

1.2 Research Problem

Nairobi's high-end market rent went up by the all-time high margins thereby giving it (Nairobi) a competitive edge over its peers in Africa and the Middle East. This is attributable to the fact that Nairobi is a regional hub and attracts several global corporations. Examples of such multinational corporations are: Foton Automobiles, Google (KFPGRI, 2013).

Development of REIT industry has become a primary issue emanating from the on-going debate (Omare, 2015). For example, employees of several companies setting base in Kenya and at the devolved governance units are expected to cause upsurge in house prices (AAK, 2011). Macroeconomic factors have a major effect of pricing of houses and hence growth of real estate which shows performance of the industry (Warsame, 2006). Omare (2015) studied the macroeconomic factors affecting REIT market performance in Kenya; Karoki (2013) studied the effects of economic factors on performance of real estate in Kenya.

Muli (2012) assessed the variables affecting real estate investment growth in Kenya. Kangogo (2012) sought to establish the correlation between house prices and real estate financing in Kenya. The following were the findings of the above studies: Omare (2015) established that 23.9% of investment in the real estate industry was explained by other external variables;

Karoki (2013) concluded that there exists remarkable relationships between residential real estate prices and interest rates, GDP, and level of money supply; Muli (2012) found out that GDP was positively related to real estate investment whereas interest rates and inflation rates were negatively related to the growth in real estate; Kangogo (2012) concluded that there was no explicit correlation between the property price and the inflation rate.

An insight onto macroeconomic factors affecting the financial performance of REIT industry was critical, which the previous local studies in real estate done in Kenya such as (Muli, 2013;Jumbale, 2013and Omare, 2015) had left unaddressed. The study sought to determine the key macroeconomic variables that affect financial performance of real estate industry in Kenya and add to the research stream by investigating if the selected factors affect Kenya's property market. It further sought to answer the question: what are the effects of the macroeconomic variables on the financial performance of real estate industry in Kenya?

1.3 Research Objective

The study objective was to establish the effect of macroeconomic variables on the financial performance of real estate industry in Kenya.

1.4 The Study Rationale

In terms of practice, the findings of this study would be of much interest to real estate investors since it would provide useful insight into the effects of macroeconomic indicators on the REIT market. In this regard, it would help them understand the market dynamics and make valuable projections.

In terms of theory, the study would add value to the on-going theoretical discussions in the field of finance by testing the relationship of macroeconomic factors and investment under the open market environment. The academic fraternity will find this study useful as an underpinning for the ongoing debates on this subject.

In terms of policy, the findings of this study would be important to various stakeholders involved in charting policy directions in the economy. The monetary and fiscal policy formulators at the Central Bank of Kenya and the National Treasury respectively would particularly find the findings a valuable input. This is especially because the macro-economic variables under investigation in this study could be manipulated accordingly to elicit a desired level of real estate industry performance.

1.5 Chapter Summary

This chapter unveiled the background and rationale for this study. Real estate sales growth and prices are critical indicators of expected real estate demand, and can be used as predictors of growth of an economy (Knight Frank, 2011). According to Lynn (2007) due to the profound effect of macro-economic factors on economic performance, it is important to determine the levels of effect of each variable on the financial performance of REIT industry.

The study was underpinned by the behavioral theory of finance, the Efficient Market Hypothesis (EMH) theory and the Modern Portfolio Theory (MPT). Finally, the study sought to answer the question: what are the effects of the macroeconomic indicators on the financial performance of real estate industry? And the objective was to investigate the effect of macroeconomic factors on the financial performance of real estate industry.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides literatures from past researchers and scholars on the effects of macroeconomic variables on real estate performance. The chapter examines the concepts and theories on the topic with major focus on macro-economic variables; NSE 20-Share-Indices, Real Gross Domestic Product, Inflation rate, and Exchange rate. By considering literature from diverse sources, the chapter forms the theoretical and empirical framework of the study on the macroeconomic factors affecting financial performance of real estate industry in Kenya.

2.2 Theoretical Literature Review

In this section, Behavioral, Efficient Markets Hypothesis (EMH) and Modern Portfolio (MPT) theories have been discussed in relation to the real estate industry financial performance.

2.2.1 Behavioral Finance Theory

This theory entails the study of the application of psychology on the behavior of various practitioners in finance and the subsequent effect on the overall market's performance. It seeks to explain and reduce knowledge gap on the reasoning patterns of investors, the emotional processes involved as well as the level to which they shape the decision making process. Behavioral finance seeks to explain the dynamics of finance and investing, from human perspective.

The traditional theories of finance had the overarching belief that portfolio allocation is based on risk-return trade-off; models such as the CAPM and other relevant frameworks (Fama and Fischer, 1993). Hong and Stein (1997) present evidence that can be interpreted in respect of an epidemic model in which investors pass information about stocks to one another verbally consequently ignoring principles of portfolio theory. The prediction of this theory is that the changes in macroeconomic factors will influence the behavior of an investor, thereby affecting the financial performance of an entity, industry, and economy.

2.2.2 Efficient Market Hypothesis (EMH)

This theory suggests that supernormal profits are not realistic due to competitive behavior of profit-seeking investors. This theory seeks to bring out a difference among the traditional three forms of EMH. The EMH assumed perfect flow of relevant information among all investors on the dynamics of the REIT industry.

Macroeconomic indicators such as stock market indices, and exchange rate were determined as a source of stock prices change by various studies (Fama, 1981). EMH enables us to make an inference that changes in these macroeconomic factors definitely affect the financial performance of the real estate industry.

The study is therefore geared towards determining the expected correlation between each of the various macroeconomic variables and the financial performance of the REIT industry. The prediction of this theory is that the changes in macroeconomic factors will influence the profit-maximizing behavior of investors, thereby affecting the financial performance of an entity, industry, and economy.

2.2.3 Modern Portfolio Theory

This theory seeks to maximize returns from portfolio through careful choice of the ratios of assets. This is a quantitative expression of the concept of portfolio diversification, in order to select a host of assets that has jointly lower risk than a single asset. The possibility of this concept can be seen intuitively since different types of assets normally change in value differently. For instance, the difference between stock and bond market differences; a group of both types of assets can theoretically face lower overall risk than either singly.

Investment initiatives are a risk-return trade-off. Generally, riskier assets tend to have higher returns. For a given level of risk, MPT prescribes how to select an efficient portfolio. Alternatively, MPT explains how to select a portfolio with the lowest possible risk. The theory is therefore a way of diversification. Guided by some underlying assumptions, and under specific conceptions of risk and return, the theory explains how to strike an efficient asset portfolio.

2.3 Financial Performance in the Real Estate Industry

REIT accounts for a significant part of most people's wealth. This especially holds for many homeowners. The average Kenyan has almost a third of his/her net worth invested in real estate. The sector is attractive to investors due to its size. This section looked at some major factors that determine the REIT industry financial performance.

2.3.1NSE 20-Share-Indices

This factor covers the general performance of the stock market whereby a listing of stocks and a statistic showing the integral value of its parts. The variable a significant tool

to represent the attributes of its component, and all of them have some semblance such as trade in the same market, belong to similar industry and have common market base (NSE, 2011).

2.3.2 Real GDP

According to Birz and Lott (2011), information regarding real GDP influences stock markets. For REIT markets, there does not really exist a strong correlation (Bouchouicha, 2012). An unexpected fluctuation indeed affects the REIT market. An upsurge in the output of real estate ought to yield superior pace of innovation as well as the rate of industrial productivity (Ewing and Payne, 2003).

Organizations may leverage on a growing economy in order to raise revenues with the business sector remaining steady. With the increase in corporate and retail income, it can also stir local demand. Economies like Switzerland and Sweden have faced the turmoil with favorable market conditions hence a strong market foundation investment.

2.3.3 Inflation

Protopapadakis and Flannery (2002) argue that inflation ought to have a remarkable correlation with prices of assets. Payne and Ewing (2003) have also indicated that price level shocks have an adverse effect on prices of assets.

Also, there is a co-movement between inflation and the REIT market in the long-run. Existing theoretical literature suggests that increasing output hence growing income levels in the society would create demand via enhanced consumption and investment.

Blanchard (2010) argues that the influenced investment and consumption eventually affects commodity prices positively. For the duration just before crisis, stock prices seriously surpass the overall price.

2.3.4 Exchange Rates

Exchange rates often fluctuate and many times in a single day. Frequent travelers are well aware of this, as how much they can afford to spend on a vacation depends on the how strong the local currency is and what it is at the point of transaction. The watching and trading of currencies have even spurned an entire business; Forex trading where people buy and sell currencies to make money. Currencies fluctuate because of supply and demand. These rates have a significant impact in the prices you pay for foreign for property. When currency rates depreciate in a given country it will not affect the real estate price but a sustained depreciation of the currency eventually lead to prices becoming dearer for buyers. As a result of currency depreciation the country will have to pay more for imported goods thereby decreasing there disposable income and making houses less affordable.

2.3.5 Interest Rate

Interbank exchanges rates as well as T-bills/bonds have a far-reaching effect on the value of commercial REIT just like other vehicles of investment. Christopher (1998) posits that since the effect of interest rates on one's purchasing power is so critical, people inaccurately presume the only important factor in REIT valuation is the rates of investment.

Nonetheless, rates of mortgage are single factor property-value influencing. Due to the effect of interest rates on flows of capital, demand and supply for capital and investors' required rates of return on investment, interest rate will push property prices in diverse ways (Andrew, 2004).

2.3.6 Diaspora Remittances

According to the Central Bank of Kenya (2016), diaspora remittances are broad-based and entail norms, attitudes, of conduct as well as social capital that the diaspora reconcile and either deliberately or by default transfer to home communities from hosts. Such remittances are transfer of money by a foreign worker to his or her home country**.**

Diaspora remittances are experiencing growth and since it involves huge sums, it is currently considered significant contributor to the economic growth of the recipient country (CBK, 2013)**.** It is believed that the bulk of the remittances are used to buy land, develop new houses or buy ready-built houses. The remittances have had a contribution to the rising prices of property in the country by raising demand, much to the detriment of low-income earners who can't afford house prices and high mortgage rates.

2.4 Empirical Literature Review

Various studies have been conducted on the subject of real estate performance in both global and local contexts.

2.4.1   Global Studies

Rodenholm & Dominique (2013) studied the effect of macroeconomic factors on REIT market securities which was studied comparatively with that of Switzerland and Sweden. The research investigated the extent to which macroeconomic indicators influenced REIT

stock prices prior to and after the 2007 financial crisis outbreak. It was established that macroeconomic factors affected the stock prices of the REIT market at different levels among small markets and are not consistent in a period just before and after the crisis.

Renigier-Bilozor & Wisniewski (2012) used Italy and Polland to determine the effect of macroeconomic factors on residential property and prices indices in Europe. The models indicate that the financial and economic status of European countries affects 21 residential property markets. Golob, Bastic & Psunder (2012) using Slovenia as a case study, identified that interest rates, construction quality, speed of real estate sales and accessibility of funding sources were significant factors in the real estate market. Although the study was derived from past researches, the researchers also included the expertise of investors, real estate owners, tenancy right holders, real estate users, administrators, managers, tenants, real estate agencies and companies, design and construction companies, as well as other individuals across Slovenia, with varying durations of work experience and varying education levels.

Apergis (2011) analyzed the effects of selected macroeconomic factors on the price of new houses sold in Greece. A model error correction vector autoregressive was used to model the effect of the macroeconomic variables on real housing prices. Decompositions of variance showed that the housing loan rate is the variable with the highest explanatory power over the variation of real housing prices, followed by inflation and employment.

2.4.2 Local Studies

Omare (2015) studied the effect of macroeconomic variables on the performance of the real estate firms in Kenya. The results of the analysis showed that the change in the 5

macro-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.

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. Karoki (2013) undertook a study on determinants of real estate prices in Kenya using descriptive and multivariate regression models found out that there are significant relationships between residential real estate prices and interest rates, GDP, and level of money supply.

Tracking the Hass Housing Price Index and Kenya's GDP numbers over a period of five years, data was retrieved from different sources but aligned in equal time and periods, reviewed and subjected to regression analysis and tested for significance. 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.

Table 2.1Summary of Empirical Literature

| Researcher(s)	Focus of Study	Study Model/Variables	Findings	Research Gaps	Addressing the Gaps in Current Study
Apergis (2011)	Dynamic effects of specific macroeconomic variables on the price of new houses sold in Greece	Independent Variables: • Housing loan rates • Inflation • Employment Dependent Variable: • Price of new houses sold in Greece	Housing loan rate is the variable with the highest explanatory power over the variation of real housing prices, followed by inflation and employment.	The context of the study is foreign and results may not be generalizable in Kenyan environment.	Replication of the study in local (Kenyan) context.
Rodenholm & Dominique (2013)	Macroeconomic effects on securitized real estate markets which was comparative study of Sweden and Switzerland	Independent Variables: • Housing loan rates • Inflation Dependent Variable: • Real estate markets in Sweden and Switzerland	Macroeconomic effects on real estate stock prices differ among small economies and are inconsistent in a pre-crisis and crisis period.	There were no multi-collinearity tests on independent variables and the context was foreign.	Multicollinearity tests will be done on independent variables and the study is being replicated in local context
Golob, Bastic & Psunder (2012)	The impact of macroeconomic factors on residential property and prices indices in Europe	Independent Variables: • Economic growth • Interest rates • Construction quality • Speed of real estate sales • Accessibility of funding sources Dependent Variable: • Real estate	The macroeconomic variables were significant factors in the real estate market	There was no convincing operationalization of the dependent variable and the context was foreign.	Effective operationalization of the dependent variable and replication of the study in local context.

			market		
Muli (2012)	Assessment of the Factors Affecting the Growth in Real Estate Investment in Kenya	Independent Variables: • GDP • Interest rates • Inflation rates Dependent Variable: • Real Estate Investment in Kenya	The macroeconomic variables had statistically significant influences on real estate investment in Kenya.	No parametric tests were done on the data collected yet they were parametric in nature.	Parametric tests will be done on the data collected to foster more validity and reliability.
Kangogo (2013)	Relationship between Inflation Rates and Real Estate Prices in Nairobi, Kenya	Independent Variables: • Interest rates • GDP • Level of money supply Dependent Variable: • Real Estate Prices in Nairobi, Kenya	No clear relationship between the independent and the dependent variables	There is a dramatic deviation from Muli (2012) findings despite similar variables used and similar context.	Seeking to adduce evidence for or against Muli (2012) and Kangogo (2013) findings.
Omare (2015)	Determinants of performance of real estate firms in Kenya	Independent Variables: • Interest rates • GDP • Diaspora Remittances Dependent Variable: • Real estate performance in Kenya	76.1% of overall performance of real estate firms is explained by the selected macroeconomic variables in the model. The margin is explained by external variables.	Ignorance of other would be significant variables such as Treasury Rate and lack of parametric tests on data.	Other macroeconomic variables such as NSE 20-Share Indices; and focusing the explanatory power test to financial performance rather than general performance.

2.5 Conceptual Framework and Hypotheses

The conceptual framework for this study was based on the reviewed theoretical models

and frameworks and concludes with study hypotheses.

2.5.1 Conceptual Framework

Figure 2.1: Conceptual Model

Predictor Variable   **Criterion Variable**
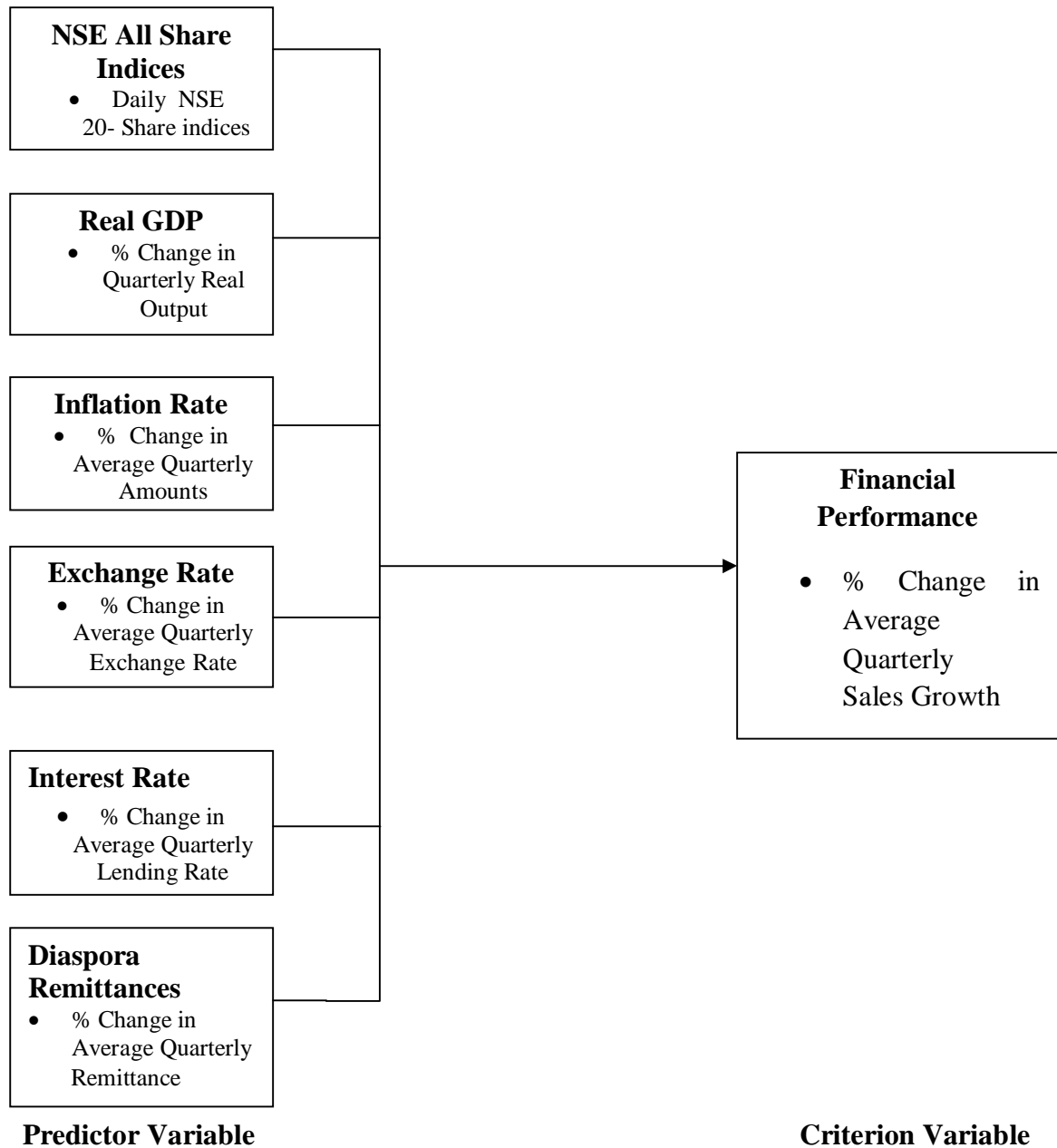
Source: Researcher, 2016

2.6 Chapter Summary

This chapter unveiled the various relevant theoretical and empirical literature reviewed. Studies by Apergis (2011), Rodenholm & Dominique (2013), Golob, Bastic & Psunder (2012) were all conducted in developed countries hence the results may not be generalizable in the Kenyan context. In addition, there was no convincing operationalization of the dependent variable in the study by Kangogo (2013).Also, Omare (2015) focused on other factors and ignored critical variables such as the exchange rate.

In this particular study, the researcher replicated the studies by Apergis (2011), Rodenholm& Dominique (2013), Golob, Bastic & Psunder (2012) in the Kenya context to adduce evidence for or against their findings. The researcher has also effectively operationalized both dependent and independent variables. To fill the gap in the study by Omare (2015), the researcher included exchange rate and NSE 20-Share indices as an independent variable.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The systematic review of study methods used to a field of study is called methodology (Kothari, 2004). Data collection instruments and procedures are also discussed as well as the target population. Research methodology achieves this by addressing the target population to be used in the study (Kothari, 2004). It presents a description on the methods used in doing the study.

3.2 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 manner that is logical to ensure that the research problem is effectively addressed (Kothari, 2004).This study used descriptive survey research design. The research was also longitudinal in nature. According to Farrington (2016), a longitudinal design is better for determination of cause-effect relationship.

3.3 Population

Mugenda & Mugenda (2003) posit that a population is the entire group of individuals, objects or events having a common characteristic. The target population was all the real estate firms in Kenya.

3.4 Data Collection

Data analysis entails cleaning, inspecting, transforming and modeling data with the goal of discovering, suggesting co conclusion and supporting decision making (Kothari,

2004). The study used secondary data collected from the Kenya National bureau of statistics, Central Bank of Kenya, the NSE and the Hass consult Property Index. Data on Inflation Rates, Exchange Rates will be obtained from the Central Bank of Kenya (CBK) while data on GDP 20-Share-Indices will be obtained from the Kenya National Bureau of Statistics and NSE respectively. The data covered a period of 60 months (5 years) between July 2011 and June 2016 segmented on a quarterly basis.

3.5 Data Analysis

Data analyses comprised numeric measures and it was done using descriptive statistics. It helped to depict the data distribution. Multiple linear regression models was used by use of Statistical Package for Social Sciences (SPSS) version 22 in measuring each variable and this assisted reveal the effects of the macroeconomic factors on the financial performance real estate industry in Kenya. The six variables were already tested for multi collinearity with test data.

The study analytical model will be depicted by the regression model:

$Y = \square + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_3 X_4 + \beta_3 X_5 + \beta_3 X_6 + \mu_i$

Where,

Y=   Financial Performance of Real Estate Industry

X1=   Real GDP Growth; measured as percentage change in Quarterly Real Output.

X2=   Growth in exchange rate, measured as the percentage change in average annual Kenyan currency exchange to USD

X3=   Growth in Inflation, measured by annual change in consumer price index

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X4=   Growth in Diaspora Remittances, measured as percentage change average annual

amounts as indicated by the Central Bank of Kenya

X5=   Interest rates; measured by the average lending rate

X6=   NSE 20-Share Indices; measured by the daily average indices.

β =   Beta coefficient of variable i the measure of the change in Y associated with a t

change in X.

While μi –refers to the expected error that is assumed to be associated with the Variables

Financial Performance of real estate industry, which is the dependent variable Y was measured by growth rate of the industry. This variable was operationalized by measuring the percentage change of average quarterly sales growth.

The coefficient of determination (R-Square) obtained gave the explanatory power of the model while the correlation coefficient (Beta factor) for each of the six variables gave the nature and extent of relationship with the dependent variable. The results of significance were interpreted at 5% level of significance. The p-values were then be interpreted for significance.

3.6 Chapter Summary

The chapter focused on data collection, processing and analysis methods. The study was also longitudinal in nature. According to Farrington (2016), a longitudinal design is better for determination of cause-effect relationship. The target population was all the real estate firms in Kenya.

The study used secondary data from the KNBS, CBK, the NSE as well as Hass consult Property Index. Data analyses consisted of numeric measures and it was done using descriptive statistics. Multiple linear regression models was used by use of SPSS version 22 to measure every variable; it assisted to show the effects of the selected macroeconomic variables on the REIT industry financial performance.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The chapter entails analysis and findings of the study as set out in the research objective and methodology used to carry out the study. The research sought to determine the effect of selected macro-economic variables on the growth rate of real estate sales in Kenya

## 4.2 Data Analysis and Presentation

The obtained data covered the period between: July 2011 to June 2016. The secondary data on quarterly rate of performance was organized in excel spread sheets and analyzed using SPSS version 20.

4.2.1 Quarterly Trend of Real Estate Sales Growth Rate

The study sought to determine the rate of real estate sales growth in Kenya over the study period, and established the trend as depicted by figure 4.1. The findings revealed that real estate sales growth rate had fluctuated each quarter throughout the period.

Figure 4.1: Quarterly Trend of Real Estate Sales Growth Rate

The findings revealed that real estate sales growth rate had fluctuated with the highest peak in the third quarter of the year 2012 while the lowest rate was recorded in the fourth quarter of the year 2013.
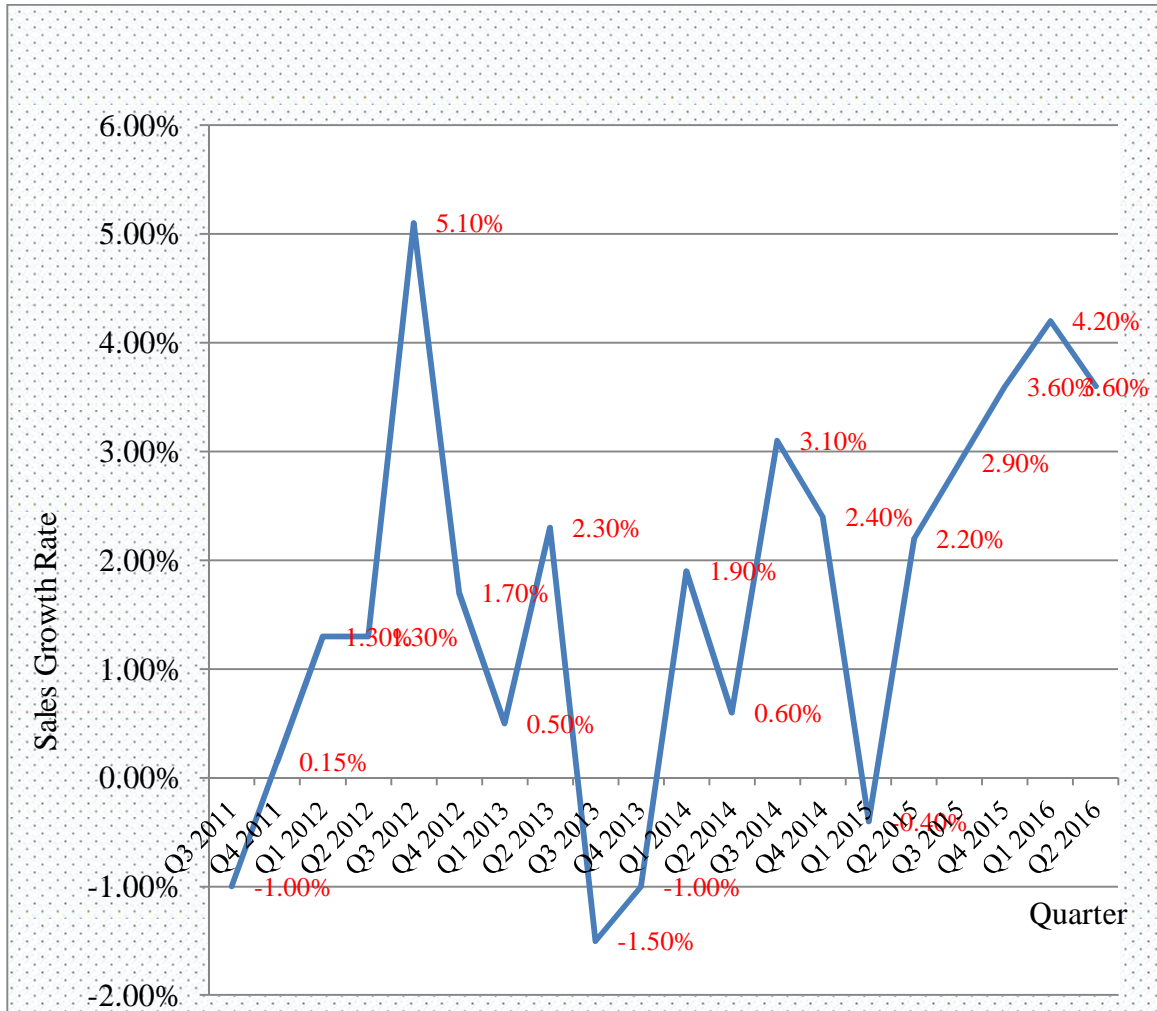
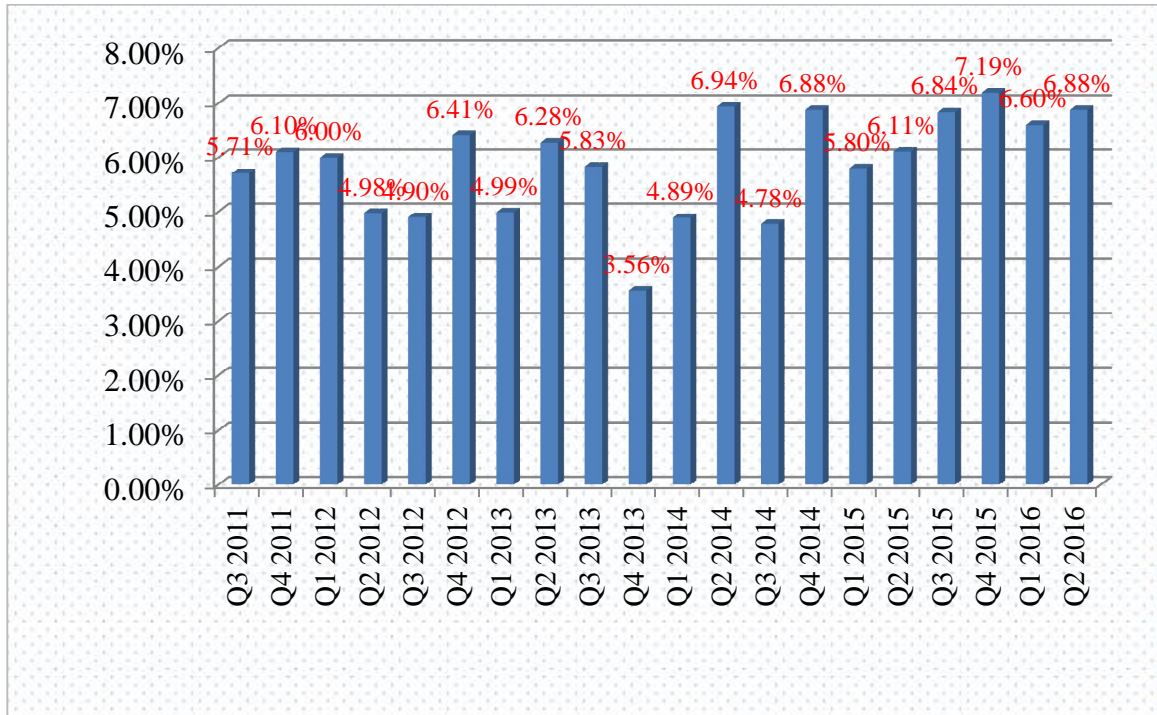**Source:** Researcher

4.2.2 Quarterly GDP Growth Rate

The study sought to determine the quarterly GDP growth rate over the period under review. The findings established that the GDP growth rate recorded a fluctuating trend as depicted in figure 4.2.

Figure 4.2: Trend of Real GDP Growth Rate

The study results established that average quarterly GDP growth rate had fluctuated over the period under study. The highest GDP growth rate was observed in the fourth quarter of the year 2015. The lowest GDP growth rate was recorded in the fourth quarter of the year 2013.

4.2.3 Quarterly Exchange Rate Growth

The study examined the change in the average quarterly exchange rate growth using the Ksh/USD exchange rate as USD is the world's highly used currency. The results were as shown in figure 4.3.

Figure 4.3: Quarterly Exchange Rate Growth
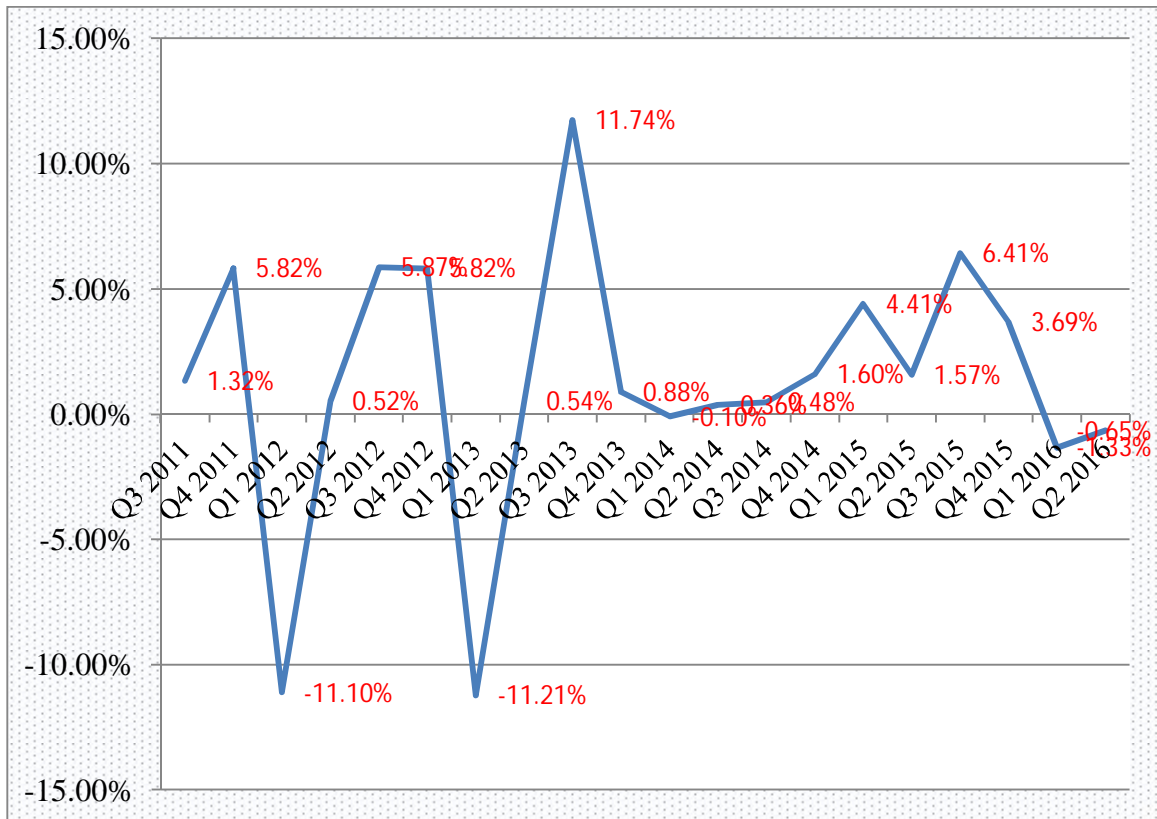
Source: Researcher

The quarterly exchange rate growth remained unstable over the five year period with the highest growth rate observed in the third quarter of the year 2013 and the lowest in the first quarter of the year 2013.

4.2.4 Quarterly Inflation Growth Rate

The study sought to establish the trend of inflation rates in Kenya over the five year period. The data results are shown in figure 4.2 below and in appendix 1. The study results show that the average annual inflation has been fluctuating from one period to another as shown by the graph shown below.

Figure 4.4: Quarterly Inflation Growth Rate
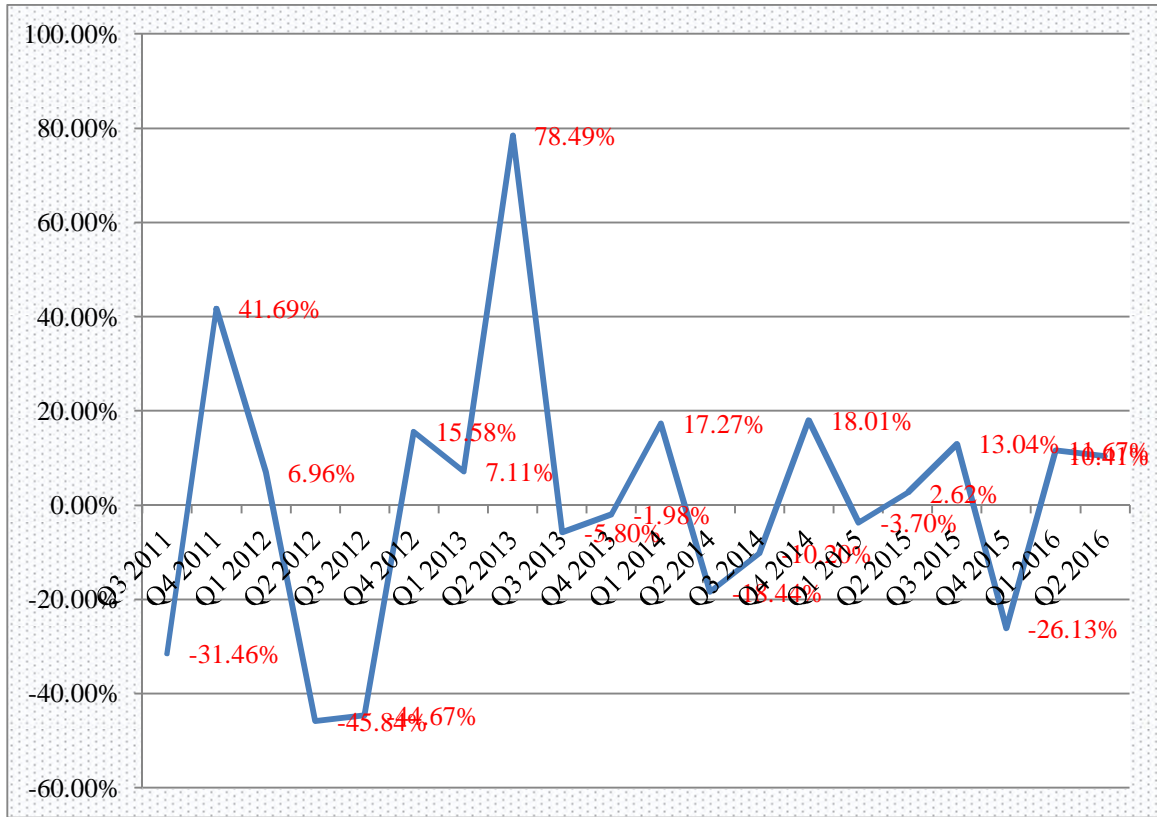
Source: Researcher

From figure 4.4 above, inflation growth rate fluctuated over the period (2011-2016) with the highest growth rate observed in the third quarter of the year 2013 while the lowest rate was observed in the third and fourth quarters of the year 2012.

4.2.5 Diaspora Remittances Growth Rate

The study examined the trend of the changes in diaspora remittances over the study period. The results are shown in figure 4.5.

Figure 4.5: Diaspora Remittances Growth Rate
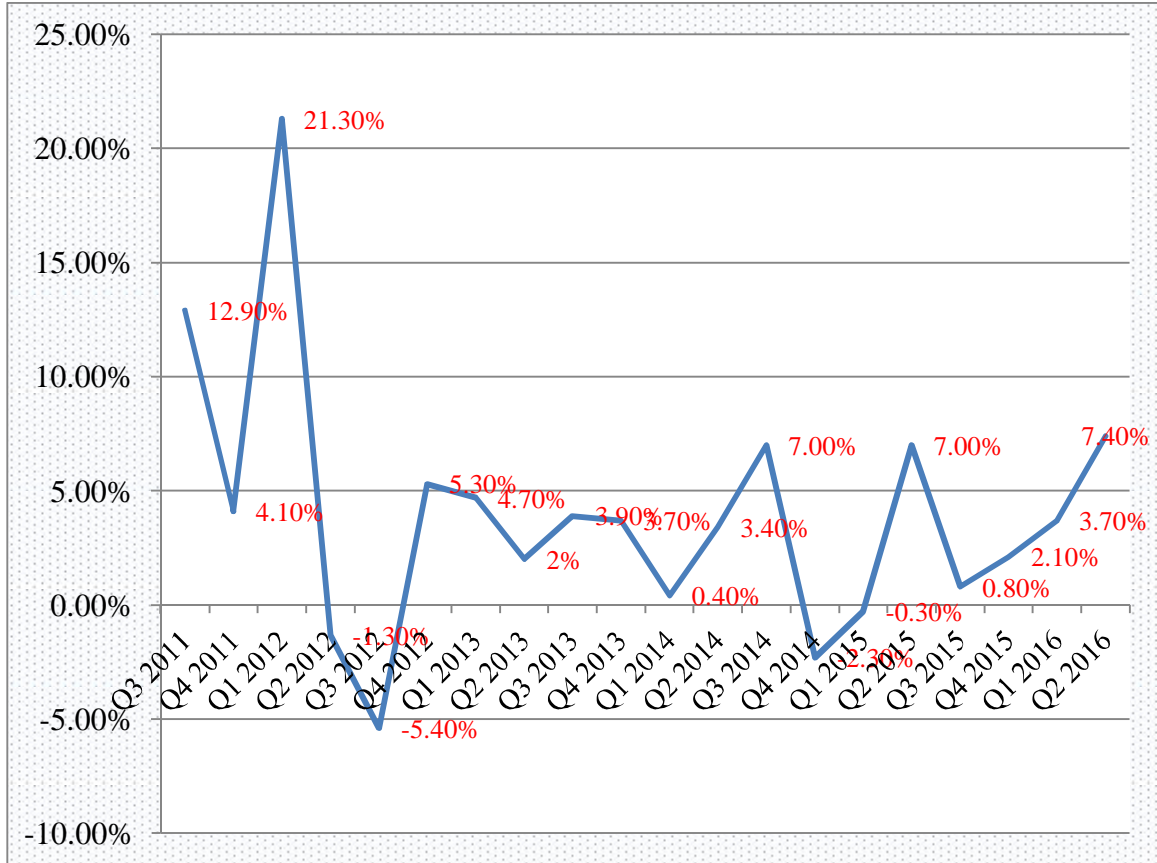
Source: Researcher

The study results established that the total annual diaspora remittances grew and declined in different years over the study period. The first quarter of the year 2012 recorded the highest growth rate in diaspora remittances followed by the third quarter of the year 2011. The fourth quarter of the year 2012 recorded the highest rate of decline in diaspora remittances followed by the fourth quarter of the year 2014.

4.2.6 Interest Rate Growth

The study sought to examine the interest rate fluctuation trend over the five year period. The results were as in figure 4.6.

Figure 4.6: Interest Rate Growth
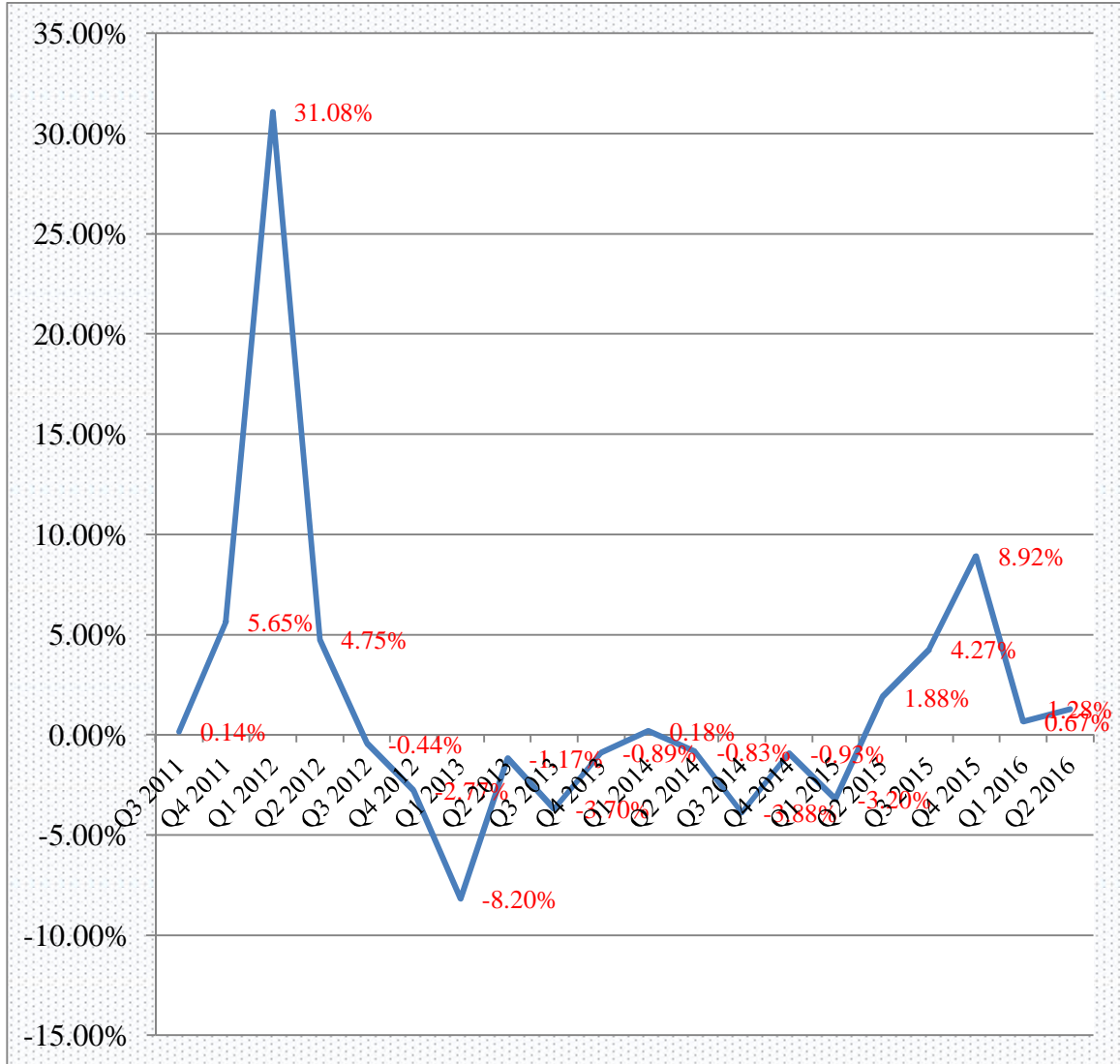
Source: Researcher

The study results established that the interest rate growth fluctuated over the five year period. The highest growth rate was observed in the first quarter of the year 2012 followed by the fourth quarter of the year 2015. The highest decline in the interest rate growth was observed in the second quarter of the year 2013 followed by that of the fourth quarter of the year 2013.

4.2.7 NSE 20-Share Indices Fluctuation Rate

The study sought to determine the quarterly rate of fluctuation of the NSE 20-Share Indices. The results were as in figure 4.7.

Figure 4.7: NSE 20-Share Indices Fluctuation Rate
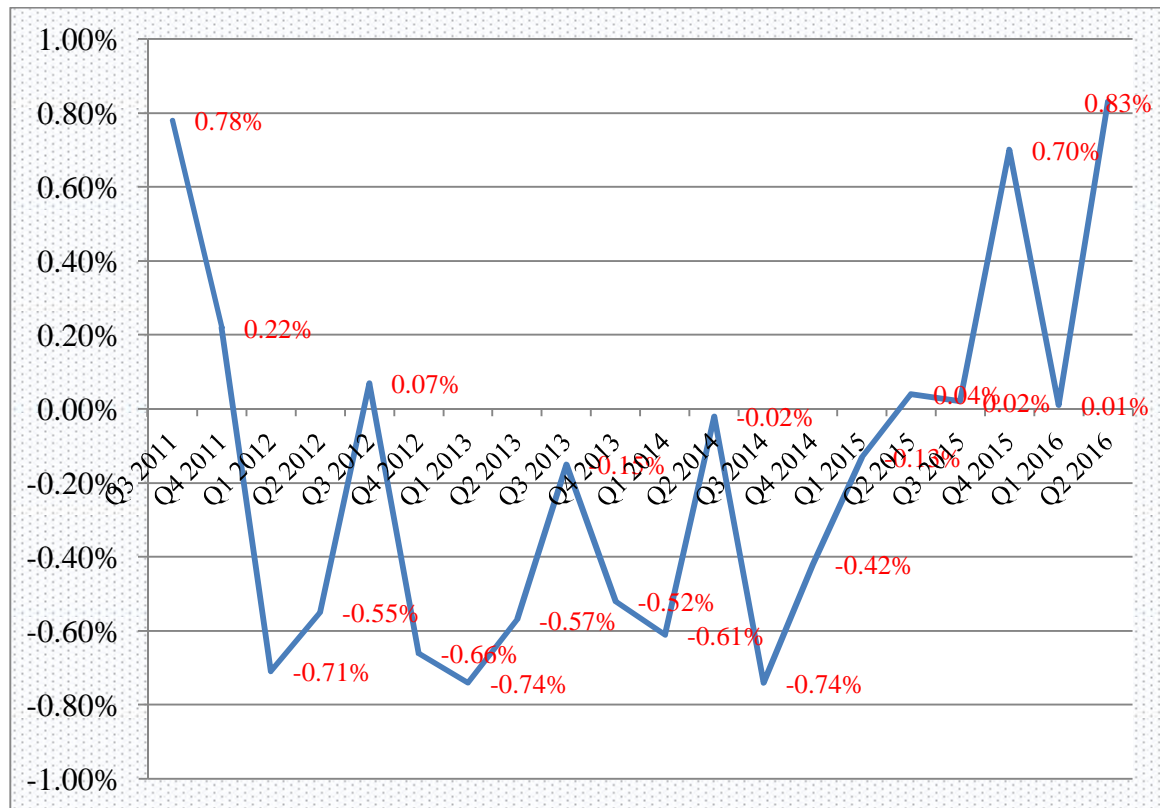
Source: Researcher

The study established that NSE 20-Share index recorded the highest growth rate in the second quarter of the year 2016 followed by that of the first quarter of the year 2011. The second quarter of the year 2013 and fourth quarter of the year 2014 recorded the highest decline in this respect.

4.3 Regression Analysis

The researcher regressed the dependent variable: real estate sales growth rate, against six explanatory variables: average quarterly inflation growth rate; average quarterly growth in interest rates; average quarterly growth rate in real GDP; average quarterly growth in diaspora remittances; average quarterly exchange rate fluctuations; and average quarterly NSE 20-Share index fluctuation rate.

4.3.1 Model Summary Statistics

The regression analysis was undertaken at 95% level of confidence. The criteria for comparing whether the explanatory variables were significant in the model was done by relating the corresponding probability value obtained and $\alpha = 0.05$. If the probability value was less than α then the predictor variable was considered significant; otherwise it was not. Also, F – table statistic was compared with the one obtained from the regression analysis. If the one from the table was smaller than the computed value from the regression analysis, the variable was significant in predicting/causing a change on the dependent variable. Otherwise, the variable was insignificant in the model.

Table 4.1: Model Summary Statistics

Model Summary[b]					
Model	Sig. F Change	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872[a]	0.761	0.58	0.49	0.038

Source: Research Findings

In order to explain the percentage of variation in the dependent variable (quarterly real estate sales growth rate) that is explained by the independent variables, the researcher used coefficient of determination obtained via regression analysis and presented in table 4.1. Coefficient of determination depicts the extent to which changes in the explanatory variable could be explained by the change in the criterion variables or the percentage of variation in the criterion variable that is explained by all the variations in the six explanatory variables.

The findings of the analysis showed that the change in the six macro-economic variables under study contributed to an equivalent of 76.1% of a change in real estate investments as depicted by the R-Square equal to 0.761. The results also revealed that there was a strong relationship between the selected macro-economic variables and the real estate sales growth rate as shown by the coefficient of determination (R) equal to 0.872.

4.3.2 Analysis of Variance

The researcher conducted an Analysis of Variance, in order to test the goodness of fit of the model. The results were as shown in table 4.2.

Table 4.2: Analysis of Variance (ANOVA)

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	313.181	5	62.636	4.458	.038[b]
Residual	98.363	7	14.052		
Total	411.544	12			

Source: Research Findings

From the above results, the probability value of 0.038 was obtained implying that the regression model was significant in predicting the relationship between real estate sales growth rate and the explanatory variables as it was less than α=0.05.

From the F-table, the F12;5;0:05 was 4.36 which is less than the F-test statistic = 4.458 determined through analysis and shown in table 4.2, which indicated that the model was statistically significant.

4.3.3 Model Coefficients

The results of the analysis obtained the model coefficients and corresponding statistics as shown in table 4.3.

Table 4.3: Model Coefficients

	Un-standardized Coefficients		Standardized Coefficients	T	Sig.
Model	B	Std. Error	Beta		
(Constant)	13.98	4.281		3.266	0.014
GDP Growth (%) (X1)	0.188	0.316	0.137	0.596	0.57
Exchange Rate Growth Growth (Ksh/USD) (X2)	0.472	0.144	0.797	3.269	0.059
Interest Rate Growth (X3)	2.901	0.855	1.004	3.393	0.062
Inflation Rate Growth (X4)	0.04	0.076	0.14	0.522	0.618
NSE 20-Share Index Growth (X5)	0.192	0.225	0.19	0.852	0.422
Diaspora Remittances Growth (X6)	0.451	0.139	0.802	3.281	0.061

Source: Research Findings

The regression analysis results indicated that the relationship between real estate sales growth rate and the explanatory variables could be expressed using the following regression equation:

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Y = 13.98 + 0.188X1 + 0.472X2 + 2.901X3 + 0.040X4 + 0.192X5 + 0.451X6 + μi

From the regression model obtained above, holding all the other factors constant, growth in real estate sales would be 13.98. A unit change in each of the explanatory variables would cause a change in the real estate sales growth by an amount corresponding to the coefficient related with each variable as indicated in the above model. There also exists a strong positive correlation between each of the explanatory variables and real estate sales growth. Further, the corresponding p-values for each of the six selected internal variables were larger than 0.05.

4.4 Interpretation of the Findings

The study established that each of the variables fluctuated over the study period. The findings as depicted by figure 4.1 shows that the rate of growth in real estate sales was positive across the study period except in: first quarter of the year 2011; third and fourth quarters of the year 2013; and the first quarter of the year 2015.

GDP growth rate remained positive all through the study period with the highest growth rate observed in the fourth quarter of the year 2015 and the lowest in the fourth quarter of the year 2013. The interest rate fluctuation recorded the greatest negative variation in the first quarter of the year 2013. In addition, the greatest negative variation in the exchange rate was observed in the first quarter of the year 2013. Inflation rate positive variation was also highest in the first quarter of the year 2013.

Further, it was observed that the NSE 20-Share index recorded the greatest negative variation in the first quarter of the year 2013. The general elections in Kenya were held in the first quarter of the year 2013.

From the foregoing observations, it is clear that it is during this period when each of the internal variables experienced an unfavorable condition. It is also noteworthy that the rate of real estate sales growth recorded the sharpest downturn as shown in figure 4.1 just before the first quarter of the year 2013. It is therefore highly likely that politics during the electioneering period had an unfavorable effect on most of the macro-economic variables under study, which in turn adversely affected real estate sales growth rate in the country.

From the findings of the study, there was a strong positive correlation among the selected macro-economic variables; GDP growth rate; exchange rate fluctuation; interest rate fluctuation; inflation rate fluctuation; the NSE 20-Share index fluctuation rate; and the rate of fluctuation in diaspora remittances R and R-Square was 0.872 and 0.761 respectively and because their corresponding coefficients were positive. Therefore, a change in growth of each of the selected macro-economic variables contributes to 76.1% of the change in the growth of the dependent variable, that is, Real Estate sales growth.

From the regression analysis results, relationship between real estate sales growth and the explanatory variables could be expressed using the following regression equation:

$$Y = 13.98 + 0.188X_1 + 0.472X_2 + 2.901X_3 + 0.040X_4 + 0.192X_5 + 0.451X_6 + \mu i.$$

Since the coefficients corresponding to various predictor variables were all positive, the study established a positive correlation between real estate sales growth and each of the internal macro-economic variables. This was supported by both the positive coefficient of determination and correlation coefficient.

The ANOVA results also established a p-value of 0.038 which implied that the regression model was statistically significant in predicting the relationship between real estate sales growth and the explanatory variables since it was found to be less than $\alpha=0.05$. However, none of the independent variables was statistically significant individually as shown by their corresponding p-values which were each greater than 0.05.

4.5 Chapter Summary

This chapter presented analysis and findings of the study as set out in the research objective and research methodology. The findings revealed that real estate sales growth rate had fluctuated with the highest peak in the third quarter of the year 2012 while the lowest rate was recorded in the fourth quarter of the year 2013. The study also established that each of the explanatory variables fluctuated over the study period. The study also established a positive correlation between real estate sales growth and each of the internal macro-economic variables.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary, conclusions and recommendations in relation to the study objective.

5.2 Summary

This study sought to determine the effect of selected macro-economic variables on growth in real estate investment in Kenya. The study followed a descriptive research design and used secondary data on annual real estate investments growth as computed from the HassConsult. The study obtained the secondary data on the selected macro-economic variables namely; average quarterly Exchange Rate (Ksh/USD) (%), average quarterly growth in Diaspora Remittances (%), average quarterly fluctuation in Interest Rates (%), average quarterly Inflation Rate (%), average quarterly GDP growth (%) and the quarterly fluctuation rate of NSE 20-Share indices from Central Bank of Kenya (CBK), Kenya National Bureau of Statistics (KNBS) and the Nairobi Securities Exchange (NSE). The data sets covered the period July 2011- June 2016.

The data was summarized and analyzed using excel spread sheets and statistical package for social sciences (SPSS) and findings summarized in graphs and tables. Regression analysis was conducted in order to establish various inferential statistics; R, R-Square, P-Value and F-Test statistics. The statistics were used to determine the relationship, strength of the relationship and the statistical significance of the model.

The study established that each of the variables fluctuated over the study period. The findings as depicted by figure 4.1 shows that the rate of growth in real estate sales was positive across the study period except in: first quarter of the year 2011; third and fourth quarters of the year 2013; and the first quarter of the year 2015. GDP growth rate remained positive all through the study period with the highest growth rate observed in the fourth quarter of the year 2015 and the lowest in the fourth quarter of the year 2013. The interest rate fluctuation recorded the greatest negative variation in the first quarter of the year 2013. In addition, the greatest negative variation in the exchange rate was observed in the first quarter of the year 2013. Inflation rate positive variation was also highest in the first quarter of the year 2013. Further, it was observed that the NSE 20-Share index recorded the greatest negative variation in the first quarter of the year 2013.

The general elections in Kenya were held in the first quarter of the year 2013. From the foregoing observations, it is clear that it is during this period when each of the internal variables experienced an unfavorable condition. It is also noteworthy that the rate of real estate sales growth recorded the sharpest downturn as shown in figure 4.1 just before the first quarter of the year 2013. It is therefore highly likely that politics during the electioneering period had an unfavorable effect on most of the macro-economic variables under study, which in turn adversely affected real estate sales growth rate in the country.

From the findings of the study, there was a strong positive correlation among the selected macro-economic variables; GDP growth rate; exchange rate fluctuation; interest rate fluctuation; inflation rate fluctuation; the NSE 20-Share index fluctuation rate; and the rate of fluctuation in diaspora remittances R and R-Square was 0.872 and 0.761 respectively and because their corresponding coefficients were positive.

Therefore, a change in growth of each of the selected macro-economic variables contributes to 76.1% of the change in the growth of the dependent variable, that is, Real Estate sales growth. A p-value of 0.038 was obtained (which is less than 0.05) meaning that the multiple linear regression model involving real estate investment growth and the six selected macro-economic variables under study were statistically significant and could be assumed to explain the relationship among the variables. This assertion was also supported by the findings of F-test statistics ($F12:5;0:05$ was 4.36 which was less than the F-test statistic = 4.458 determined through analysis). However, each variable (macro-economic) was not statistically significant on its own.

5.3 Conclusion

The study findings (as shown by positive R, and R-Square) established that there was a strong positive correlation between the selected macro-economic variables and real estate sales growth. Moreover, the coefficients corresponding to the selected macro-economic variables: exchange rate fluctuation rate; rate of growth in diaspora remittances; interest rate fluctuation; inflation fluctuation rate; NSE 20-Share indices; and the GDP growth rate were positive meaning that the growth in the selected macro-economic variables positively affects real estate investments.

Therefore, this study concludes that there is a strong positive relationship between the macro-economic variables and real estate sales growth. In addition, the study concludes that growth in; exchange rate, diaspora remittances, interest rates, inflation rate, and real GDP growth do not individually influence the growth in real estate investment in the country, but the combination effect of the change of the macro-economic variables do influence real estate growth.

The study concurred with the findings Kangogo (2013) found that the interest rates do affect the real estate market and it influences real estate prices. However, the study disagreed with the views of Karoki (2013) who identified that there is a significant negative relationship between residential real estate prices and interest rates, real GDP, and the level of money supply. The study also agreed with the findings of Omare (2015) who established that there was a strong correlation between the macroeconomic variables and the rate of real estate investment in Kenya.

5.4 Policy Recommendations

The study recommends that the Capital Markets Authority (CMA), the Central Bank of Kenya (CBK) and other regulatory agencies should plan in advance and influence the macro-economic variables in the right direction. For example, the interest rates should be modeled appropriately to steer economic growth of various sectors in the right direction. Also, exchange rate and inflation should be managed to ensure that property prices are stable, because if investors incur more costs they would pass over the costs to property buyers by increasing property prices.

Other policy interventions such as tax concessions can be put in place to influence diaspora remittances and mortgage uptake. The government should also endeavor to closely monitor the political environment during the electioneering period to ensure the macroeconomic environment remains stable. The study further recommends that the various players in the real estate industry should plan appropriately for the adverse effects of the variations occasioned by the electioneering environment and other events attendant to it.

5.5 Limitations of the Study

The study used secondary data readily available in the public domain, unlike the primary data which is first-hand information. Possible inherent errors in the process of measurement and analysis may have been part of the research results.

The researcher was overwhelmed by the workload: all the way from the preliminary stages to data acquisition, data sorting, analysis, and presentation; this was partly due to the fact that the researcher had to balance between the study and employment engagements. Also due to the relatively short lead time, the researcher had to work long hours. These human factors could possibly have affected the output of the study.

5.6 Suggestions for Further Studies

The researcher suggests that further readings and research should explore other variables that were external to this study since they could have significant effect on the criterion variable. The researcher also suggests that each of the six independent variables be investigated for relationship with other variables that were external to this study. The researcher finally recommends that further study should be triangulated in terms of data sources: use of both primary and secondary data to mitigate the weaknesses of the secondary data used in this study.

5.7 Chapter Summary

This chapter provided the summary, conclusions and recommendations in relation to the study objective. In this regard, the study concludes that there is a strong positive relationship between the macro-economic variables and financial performance of the real estate industry.

The study, therefore, recommends that the Capital Markets Authority (CMA), the Central Bank of Kenya (CBK) and other regulatory agencies should plan in advance and influence the macro-economic variables in the right direction.

The study had some limitations: contextual, methodological and human. These limitations have formed part of the basis for suggestions for further study. Among the suggestions is that further study should be triangulated in terms of data sources to mitigate the weaknesses of secondary data that was used exclusively in this study.

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