EFFECT OF SELECTED MACRO-ECONOMIC VARIABLES ON PERFORMANCE OF

STANLIB FAHARI REAL ESTATE INVESTMENT TRUST, KENYA

BY

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A RESEARCH REPORT SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN

FINANCE

DEPARTMENT OF ACCOUNTING & FINANCE

MASENO UNIVERSITY

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DECLARATION

I declare that this report is my original work and has not been presented for the award of a degree in any other university.

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This report has been submitted with my approval as the University supervisor.

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ACKNOWLEDGEMENT

I am grateful to the Almighty God for good health and strength to complete my coursework and to finish this project. I appreciate my parents and siblings for their encouragement and financial support throughout my school work.

I take this opportunity to most sincerely thank my supervisor Dr. Robert K. Mule for his immeasurable support, guidance and patience in reading and an advice in the writing of this project.

My appreciation goes to the Maseno University for their academic resources and willingness to support development in my academic knowledge.

DEDICATION

This research project is dedicated to my beloved parents Mr & Mrs Vincent Cheruiyot Rono.

ABSTRACT

Real estate investment trust performance is an ideal indicator of real estate industry as well as the whole economy. Since its onset in Kenya, REIT has been experiencing tremendous rise in profits from Ksh.106 Million in 2016 to 171 Million in 2017 and 193 Million in 2018. Whereas it has been experiencing increase in its profits there has been fluctuation in its stock returns over the years. A Real Estate Investment Trust phenomenon is a new venture in Kenya and Africa at large bringing the contrast with first world economies. Stanlib Fahari is the only one listed in the Nairobi Securities Exchange market and exists with other two in Africa. Studies relating to macroeconomic variables and performance of Real Estate Investment Trust have presented mixed results; where some argue that it negatively hinders performance while others maintain a contrary opinion. Consequently, this study purposed to determine the effect of selected macro-economic factors on performance of Stanlib Fahari Real Estate Investment Trust in Kenya. Performance was measured by the stock returns. This research established the effect of interest rates; inflation; and foreign exchange rates on stock returns of REITs in Kenya. The study was anchored on the Purchasing Power Parity Theory, Arbitrage Pricing Theory and Efficient Market Hypothesis theorem. Correlation research design was used to measure the relationship of the variables. Secondary data was obtained from Nairobi Securities Exchange and Central Bank of Kenya data banks, for the period covering 36 months between 2016 and 2018.Findings revealed that on stock returns; interest rates had positive and statistically insignificant effect (β=*0.003, p*=0.525) while inflation rates had negative and statistically significant effect (β=*-0.004, p*=0.011) and lastly, exchange rate had a negative and insignificant effect(β=*-0.002,p*=0.833).$R^2$was 0.156, meaning the selected macro-economic variables only influenced 15.6% of the performance of StanlibFahari REIT in Kenya. The study concluded that a weak negative association exists between macroeconomic variables and performance. It is recommended that CBK should monitor and regulate inflation rates because of its negative significance on returns. These results may be useful to investors in REIT, Government, regulators such CMA and future researchers. Further research should be done using primary data and other macro-economic variables excluded from this study should be used.

TABLE OF CONTENT

LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA   :   Analysis of Variance

CBK   :   Central Bank of Kenya

CMA   :   Capital Market Authority

CPI   :   Consumer Price Index

GDP   :   Gross Domestic Product

KNBS   :   Kenya National Bureau of Statistics

LPT   :   Listed Property Trust

NAREIT   :   National Real Estate Investment Trust

NSE   :   Nairobi Stock Exchange

REIT   :   Real Estate Investment Trust

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Real Estate Investment Trust (REIT) is a listed company in a securities exchange market whose main aim is to raise funds for investment exclusively in real estate sector (EPRA, 2012; Ong ,2011; Oreagba ,2010 and Corgel ,1995). According to Asian Economic and Financial Review (2014), REITs present the best option to raise funding as they offer people a chance to participate in real estate projects as well as enable investors to enjoy guaranteed earnings. Balisacan and Hill, (2003) found out that real estate investment trusts helps in the growth and development of a country's economy. They provide financial services such as providing investment outlet for its shareholder hence wealth creation. REITs play key roles in both developing and developed economies. This is through providing each and every individual with the opportunity to benefit from large, diversified holding of real estate (Morri and Cristanziani, 2009). Salter (2006), discovered that REITs have existed globally over the last five decades. According to Owusu-Manu, 2015, the first REIT in Africa was established in Ghana in 1994 as a home finance company currently referred to as HFC bank which dealt with mortgage financing. This paved way for more REITs in the continent with the first REIT in Kenya being Stanlib Fahari I-REIT which was established in October 2015 (Gobalsamy, 2016). The REIT has taken off emerging tremendous profits over the years. However, while much research has been done on the real estate firms in Kenya, this study focused on the REIT in Kenya since it's still a new venture.

Xu and Ooi, 2018 posited performance as level in which a company has achieved its set objectives. Further they alluded that it measures earnings, profits, and appreciations in values of a company. This study used stock return to measure performance. Mun, Siong and Thing (2008), described stock return as a measurement used to describe performance from an

investment during a period of ownership of stocks which can either be capital gains or dividends earned by the investors in the stock market. Stock return is the driving force and the main reward in the investment process and often, investors use it to decide among the alternative investment options. However, the stock returns were found to be influenced by the major macroeconomic subtleties like interest rates, exchange rate and inflation. According to Efficient Market Hypothesis (EMH) developed by Eugene Fama in 1970, supernormal returns are impossible due to competitive forces that drive investor decisions. Therefore, a lot of emphasis should be on the minimizing the disparities so that stock returns can improve in the end.

Macroeconomic variables are factors used to analyze the nation's economy. This study measured the effects of interest rates, inflation and exchange rates. Wisniewski (2011) found out that real estate activities are subject to various impulses, and these impulses are different depending on the financial and economic situation of a given country. These impulses affect the most performance of the industry at large (Mulupi, 2012). For instance, Fisher (2005), observed that stock and bond portions of the portfolio are rebalanced to accommodate the positive and negative cash flows required by real estate investing.

Tepper and Verdelhan (2018), defines interest rate as the proportion which the commercial banks loan its clients normally expressed as an annual percentage. When interest rates decline, the value of a bond rise because its coupon rate becomes more desirable, and when interest rates increase, the value of bonds decrease. Similarly, when the interest rate decreases in the market, REITs' high yields become more attractive and their value rises. When interest rates increase, the yield on a REIT becomes less attractive and it pushes their value down (Nguyen, 2015). Allen (2000) focus only on interest rate risk and observe that Equity REIT returns are sensitive to changes in long- and short-term interest rates. Also, Swanson (2002) found that REITs performance and interest rate are significantly correlated. On the other

hand, He et.al (2003), found out that REITs performance is sensitive only to long run interest rates. (Li and Wang, 1995; Mueller and Pauley, 1995) agreed that the overall correlation of REITs and interest rate is weaker. From the foregoing information, there was inconsistency in the findings.

Inflation is the percentage change in the monthly consumer price index Bernanke, Laubach, Mishkin and Posen (2018). Payne (2003), on his study found out that inflation has a positive significance on performance of REITs. However, a few scholars claim that inflation does not have a significant influence on the returns of REITs (Lu and So, 2001) and (Webb, 2007). Moreover, most researchers believe that inflation is negatively related to the performance of REITs (Adrangi, Chatath and Raffiee, 2004) and (Hideki, 2007). Therefore, it was clear that there was lack of uniformity amidst the various research work conducted. Also, little has been done on the effect of inflation rate and stock return of REITs in Kenya. This was essential as inflation affect economy in a negative way in that it discourages savings and investments.

Exchange Rate is the price of one country's currency expressed in another country's currency. In this study, exchange rate was determined against the US dollar. Many studies done in the past have showed a significant relationship between exchange rates and stock returns. For instance, Ouma and Muriu (2014) found a positive relationship between variations in equity and foreign exchange rates markets in a set of emerging economies. According to Ndegwa (2015), stock returns express a significant exposure to changes in exchange rates for some companies in a sample of NSE 20 share index. However, Ibrahim and Aziz (2003) found out that the exchange rate was negatively associated with stock prices in the Malaysian equity market.

In Kenya, REITs are at budding stages with only Stanlib Fahari I-REIT being listed. It is the first real estate investment trust to be listed in the Nairobi securities exchange market. According to audited financial statements, Stanlib Fahari recorded the first profit of 106 billion in 2016 then followed by 171 billion in 2017 and 193 billion in 2018. Whereas Stanlib Fahari I-REIT has been experiencing increase in its profits since the onset, there has been tremendous decline in its issuance price from Ksh.20 in December 2016 to Ksh.11.01 in 2017 and lastly Ksh.9.0 as at December 2018. This decline is attributed to the fluctuations in the economy over the same period. For its first year in operation ending 31st December 2016, it declared dividends of Kshs. 0.5 per unit that translates to an annual dividend yield of 2.6% on its issuance price with returns of up to 25.0%. REITs in Kenya has a potential for growth with increased government support, public sensitization and REIT service providers aligning their interests with those of investors to improve returns.

1.2 Statement of the Problem

Performance contributes in measuring efficiency of a real estate sector since it helps determine shareholders value addition. In Kenya, REITs have not taken off as compared to first class economies. This is evident by the fact that NSE introduced the first REIT live trading in 2015 by listing Stanlib Fahari I-REIT under equity market segment. Many studies have attempted to examine the impact of macroeconomic variables on the whole stock market in general. Studies on the Kenyan market specifically highlighting the impact of these variables on various sectors of the stock exchange, and specifically, the REITs, are limited. Therefore, this study aimed at carrying out an extensive evaluation of the relationship between stock returns of Stanlib Fahari REIT and macroeconomic variables. Stock returns being an estimate of the investment performance varies depending on the stock prices influenced by macro-economic factors among them were interest rates, inflation rates, exchange rates. Since its establishment in Kenya, the I-REIT has experienced a drastic drop

in its price from issuance at Ksh.20 in 2016 up to Ksh.9.0 as of December 2018. Consequently, in 2016 Fahari's price return was at negative 10% while NSE 20 and NAREIT were at positive 9% and 7% respectively. This further declined to 4% and 8% respectively in 2017 accompanied by further drop in 2018. This depicted that Kenya's REIT price returns have been highly volatile over the past years. While many researchers have used Net Asset Value as a performance measure of REITs, my research used monthly stock returns. In addition, empirical studies on the effect of macro-economic variables on performance of REITs presented contradicting results across various researchers in terms of effect power and direction on the relationship between macro-economic factors and performance in general. This therefore, necessitated this research.

1.3 Objectives of the Study
1.3.1 General Objective
The general objective of the study was to establish the effect of selected macroeconomic factors on performance of Stanlib Fahari real estate investment trust in Kenya.

1.3.2 Specific Objectives
  i.   To establish the effect of interest rates on performance of Stanlib Fahari REIT in Kenya.

 ii.   To establish the effect of inflation rates on performance of Stanlib Fahari REIT in Kenya.

iii.   To establish the effect of exchange rate on performance of Stanlib Fahari REIT in Kenya.

1.3.3 Research Hypothesis
This study was based on the hypothesis that there are some macroeconomic variables which affect how real estate investment trusts operate. The following hypotheses stated in their null forms were tested;

Ho$_1$ There is no significant effect of interest rates on performance of Stanlib Fahari REIT in Kenya.

Ho$_2$ There is no significant effect of inflation on performance of Stanlib Fahari REIT in Kenya.

Ho$_3$ There is no significant effect of exchange rate on performance of Stanlib Fahari REIT in Kenya.

1.4 Scope of the Study

The study sought to establish the effect of macro-economic variables on performance of the Stanlib Fahari Real estate investments trust in Kenya. The main variables were the interest rates, inflation rates, exchange rates. The study adopted correlational research design. Secondary data was sourced from NSE and CBK official websites.

1.5 Justification of the Study

Mostly, REITs serve an important undertaking in economies of many countries. The NSE Real Estate Investment Trust market segment was launched on October 22, 2015. On December 4, 2015, Stanlib Fahari became the first REIT to start trading on the NSE. South Africa has the largest and most established REITs market, in Africa. The South African listed property sector has seen market capitalization rise from below 5 billion shillings in the early 1990s to approximately 380 billion shillings at the end of 2016 across the world. The Kenyan REIT has had significant returns from the year 2016 up to 2018 ranging from 106 million, 171 million and 193 million shillings consecutively. Therefore, it is believed that REITs in South Africa had lower investment base as compared to REIT in Kenya from the profitability ratios. Findings from this research may help REITs to develop policies and programs that will help them minimize macroeconomic factors that affect investment performance of the firms. Further, this research serves as a benchmark to decisions to foster better performance of the REITs both in Kenya and other countries. The study may also benefit government when

formulating appropriate investment legislations to ensure harmony between shareholders and REITs.

1.6 Conceptual Framework

Conceptual framework shows the relationship between the dependent and independent variables. In this research it was synthesized from the literature discoursed and presented in the form of figure 1.1.

Independent Variable   **Dependent Variable**
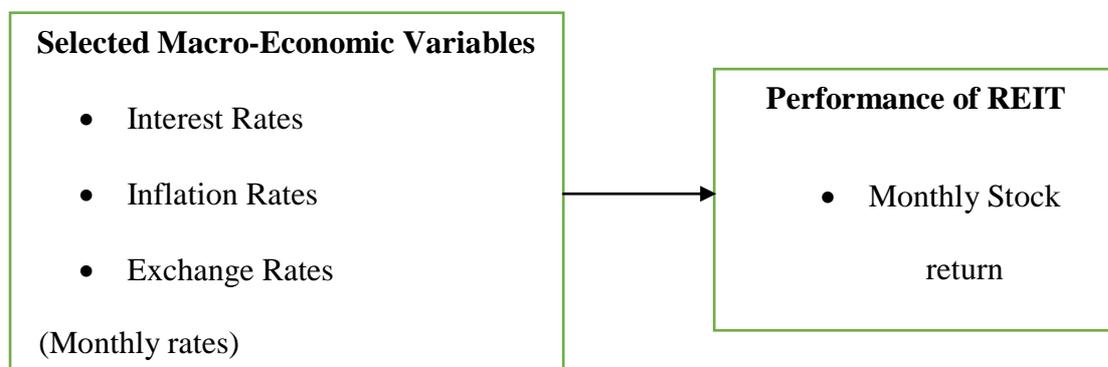
Fig.1.1: Macroeconomic variables and performance of REIT in Kenya

Source: Adapted from Payne (2003)

Independent variables are those associated with macro-economic variables as presented in the conceptual framework (figure1.1) defined as follows: Interest rate- amount due per month as a fraction of the loan amount or deposited in the general economy; Inflation rate- monthly general percentage increase in the consumer price index as a weighted average of prices for different goods in the economy; Exchange rate- monthly proportion of the unit of a US dollar exchanged for an amount of Kenya Shillings. Dependent variable on the other hand is that which relates to performance of Stanlib Fahari REIT. It will be measured using monthly stock return of the REIT. Stock return- gain or loss in value of a share in a particular period usually quoted as a percentage. They are derived from the difference in price of a stock over two time periods divided by its purchase price.

CHAPTER TWO

LITERATURE REVIEW

This section presents the theoretical framework, review of empirical studies and determinants of financial performance in real estate sector. Theoretical framework focuses on theories that explain the relationship among the variables considered important to the study. Review of empirical studies is about past and present studies that have been done on the area of study. Determinants of financial performance explain how the specific macroeconomic variables influence financial performance of REIT in Kenya.

2.1 Theoretical Literature Review

It will help to have concepts, definitions and existing theories on effects of macroeconomic variables on stock returns. It will give logic sense of the relationship between variables and factors that have been deemed relevant to the problem and will therefore guide in determining what factors to be measured.

2.1.1 Purchasing Power Parity

Purchasing power parity (PPP) theory was first ideologized in Spain during sixteenth century but named in 1920 by Swedish economist known as Cassel. This theory explains the relationship between domestic exchange rate and movement of its price level relative to that of a foreign country. PPP holds that the nominal exchange rate between two currencies should be equal to the ratio of aggregate price levels between the two countries, so that a unit of currency of one country will have the same purchasing power in a foreign country (Taylor and Taylor, 2004). The general assumption of purchasing power parity is that a unit of currency should be able to buy the same basket of goods in one country as the equivalent amount of foreign currency, at the going exchange rate, can buy in a foreign country, so that there is parity in the purchasing power of the unit of currency across the two economies. On the other hand, the theorem proposes that during a regime of floating exchange rate,

whichever purchasing power parity adjustment for two currency calculated as a ratio of price for goods traded would incline to approximation by an equivalent but contrasting equilibrium change in exchange rate of these two currencies rates move to offset the inflation rate differentials. The PPP asserts that the rate of exchange of two currencies must be alike to the price level ratio of undistinguishable services and goods in these countries. Further, it expounds on the connection between exchange rates and comparative good's prices (Imbs et al., 2002).The PPP theorem relates prices to exchange rates therefore implying that good's prices and service's prices will incline to change with changes in exchange rates. Stock prices, being not an exception from these prices described in the theory, will therefore change in relation to exchange rate changes, if the assumptions of the PPP theory are to hold. Relying on the theory, it is therefore possible to draw an association flanked by rate of exchange movements and prices of stock, which will most certainly be followed by fluctuating returns in the stock markets. One very simple way of gauging whether there may be discrepancies from PPP is to compare the prices of similar or identical goods from the basket in the two countries for example stock returns of Kenyan REIT and that of NAREIT.

2.1.2 Arbitrage Pricing Theory

Arbitrage Pricing Theory (APT) was proposed by Stephen Ross in 1976. It is an asset pricing theory that points out that the expected return of an investment or a financial asset can be modeled as a linear relationship of various macroeconomic variables or where degree of correlation to changes in each variable is represented by a beta coefficient. The model derived rate of return will then be used to obtain the price or value of the asset correctly. The asset value should equal the expected end of period asset value or future cash flows discounted at the rate implied by the model. If the asset value changes, arbitrage should bring it back to the line. APT agrees that though many different specific forces can influence the return of any individual stock, these particular effects tend to cancel out in large and well

diversified portfolio. This is the principle of diversification and it has an influence in the field of investment. A REIT has no way of knowing whether any particular individual will become sick or will be involved in an accident, but the company is able to accurately predict its losses on a large pool of funds. Muturi (2013) states that real estate investments trusts are financial investments which pools money from its shareholders, invest in them and in turn share the profits in appropriate percentages in form of dividend yields. The models are designed to estimate the REITs that would pertain in a competitive market. Charging a price at least as high as the competitive price increases the market value of REITs. Charging a lower price would decrease the company's market value. Thus, financial models and financial prices are among the important items of information that shareholders should have at their disposal when making financial decisions when buying shares for the first in the stock exchange. The model requires estimates of the market prices of risk for the k risk factors as well as the beta coefficients for REITs. Like most other financial pricing models, it is possible to get real estate model that gives the decisions of the investments free of risk.

2.1.3 Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis (EMH) theory was evolved by Eugene Fama in the year 1960s. The theory postulates that at any given time, stock prices of an efficient market reflect all the available information (Fama, 1965). This hypothesis assumes that traders are rational and that stock prices rapidly regulate to assimilate any fresh statistics. Further, Fama highlights that it is difficult for the investors to make excessive returns by making use of the available information because stocks trade at their intrinsic value. Investors can only achieve higher returns by undertaking riskier investments contrary to market timing and stock selection. Brealey, Myers and Allen (2011) affirm that a market has efficiency when it is impossible for an investor to make extreme returns. Later in 1965, Fama confirmed the Random Walk Hypothesis (RWH), which holds that stock prices are independent of each

other and follow a random pattern, and cannot therefore be forecasted using previous market data. Mishkin and Eakins (2006) continued the EMH theory and noted that for a market to be described as efficient, and then the shares and stocks traded fully reflect all available information at a particular point in time. However, EMH faces criticism and the main point of contention is that it assumes investors are rational, have access to available information and they have equal market expectations. These assumptions beat the point of trading after all given that trade signals existence of heterogeneous expectations. While the seller expects a dip, the buyer anticipates a rise in the stock price, and hence bears and bulls. Also, it is not practical for all market participants to have the same information; if it were so, there would be no need for communication. In the present-day stock market, the EMH theory is used to describe the trading conditions such a market and consequently it provides a base for the study undertaken. The information flow of macroeconomic variables which includes but not limited to inflation rate, interest rate and exchange rate. This information will have an effect on trade carried out at stock index market.

2.2 Empirical Literature Review
2.2.1 Macroeconomic Variables
Macro-economic variables are the factors that influence the performance, structure, behavior, and decision-making of an economy as a whole (Brinson, Singer and Beebower, 1991). Similarly, Evusa, Kitati and Maithya (2014), defines it in three perspectives: first as the study of macroeconomic variables that have an effect over the whole economy, secondly as any government measures put down in order to lessen any adverse economic variations that maybe brought by: inflation, fall in value of the local currency and high levels of unemployment in the country and to lastly as the monetary and fiscal policies put in place by a government in order to regulate the economy. The major variables discussed in this research are interest rate, inflation rate and exchange rate in Kenya. There exists though a contradiction on how much macroeconomic variables affect stock returns which is a measure

of performance of REIT in Kenya. Laichena and Obwogi (2015) found out that there was a existed a substantial link between the macroeconomic variables and stock returns. On the other hand, Ilahi, Ali and Jamil (2015), study found out that, there exists a weak connection between the stock returns and the macro-economic variables. This therefore necessitated this research study.

2.2.2 Performance of REIT in Kenya

Performance is a concept explaining the degree to which objectives and obligations of an organization are attained over a given period of time. A firm objective is categorized into financial or non-financial and is performance too. REITs performance is measured by dividend yields, stock returns, net asset value and Funds From Operations (Lee, 2011).In this study, stock returns will be used to determine performance of Stanlib Fahari I-REIT at NSE. Mun, Siong and Thing (2008), described stock return as a measurement used to describe performance from an investment during a period of ownership of stocks.

2.2.3 Relationship between Interest Rate and performance of REITs

Ratcliffe and Dimowski (2007) conducted a study on the responsiveness of LPT returns and their attributes for the Australian REITs over the period 2000-2005. The results showed that, A-REITs have a significantly negative relationship with long term interest rates but an insignificantly positive relationship with short term movements in interest rates. Further, Yong and Singh (2015) on their study on interest rate risk of Australian REITs through a panel analysis found that the negative impact of interest rate risk only affects A-REITs during stable and expanding market conditions.

Hao Fang, Tsang-Yao Chang, Yen-Hsien Lee and Wei-Jui Chen (2016), assessed the impact of macroeconomic factors on the real estate investment trust index return on Japan, Singapore and China. Autoregressive distributed lag (ARDL) bounds test was used and found that a long-run equilibrium exists between the REIT index and the interest rate, inflation rate, and

stock index for China and Singapore. Moreover, the coefficients of the interest rate in Japan and Singapore are significantly negative, whereas this coefficient is insignificant in China. Thus, there may be a larger influence from the interest rate in Asian countries with larger market values of REITs.

Xu and Ooi (2018) investigated factors that determine financial performance of REITs in Singapore. They concluded that interest rates affect the financial performance of REITs because it affects the rate of borrowing as well as the rate of return on investments.

Mohiuddin, et al (2008), carried out a study of the relationship between macro-economic variables and stock performance: A study of Dhaka Stock Exchange (DSE). The study aimed at investigating the explanatory power of various macro factors such as inflation rate, exchange rate, interest rate, money supply and production index on the variability of the stock price in Bangladesh. Multiple regression was used in the analysis and the results were that no significant relationship exists between the stock price and any of the macro economic factors. However, after remedial measures of heteroscedasticity were taken care of, Interest rates were found to have a negative and significant relationship with the market performance.

Kiptoo (2010) carried out an empirical investigation on selected macro-economic variables and stock price. The study based on the Nairobi Stock exchange for a period of thirty years between years 1978-2008. The macro economic variables used were inflation rate, money supply, interest rate, exchange rate and Gross domestic product. The study used Augmented Dickey-Fuller, multi collinearity, residual and stability tests. The study revealed that interest rates showed insignificant impact on stock price determination.

The above studies have each presented mixed results on the effect of interest rates on performance of REITs returns across the globe. This study therefore sought to unveil the empirical stand of the effect of interest rate on REIT in Kenya.

2.2.4 Relationship between Inflation Rate and Performance of REITs

Ding, Gan & Lee(2017), in a study on the effect of inflation on return on stocks revealed that expected inflation and real returns are not correlated. The results suggest there is a negative relationship between inflation and stock returns which may be caused by the negative impact of unexpected inflation on stock occurring in an economy where the central bank assists the government in a budget crisis by monetizing the debt created through significant deficits.

Ewing and Payne (2005), on their study on the response of real estate investment trust returns to macroeconomic shocks empirically determine that inflation produces lower expected returns for REITs. This finding differed from the existing literature by identifying the response of REIT return to unexpected change in inflation. Shocks from monetary policy and inflation lead to lower than expected returns. The results from the study suggested that the extent of sign violations should be used as an indication of quality of results only within the context of the study states that high rate of inflation returns.

Hao Fang, Tsang-Yao Chang, Yen-Hsien Lee and Wei-Jui Chen (2016), assessed the impact of macroeconomic factors on the real estate investment trust index return on Japan, Singapore and China. Autoregressive distributed lag (ARDL) bounds test was used and found that a long-run equilibrium exists between the REIT index and the interest rate, inflation rate, and stock index for China and Singapore. Specifically, the coefficients for the stock index are significantly positive in all three of these Asian countries, and the coefficients for the inflation rate are significantly negative in Singapore and China. The short-run coefficient for the inflation is non-significant in Japan possibly because Japan is a developed country and its inflation rate is high. The short-run increase in inflation rate in Japan tend to not significantly and negatively reduce the demand in Japanese investors for REITs, which leads not to negatively affect its REIT index in the short-run period.

Park, Mullineaux, & Chew (1990), investigated the relationship between REITs and anticipated inflation. The research was motivated by the contradictory results in the literature concerning hedging characteristics. Using Fischer's equation, the findings showed that REITs tend to behave like equities with respect to the hedging characteristics regardless of which measure of inflation is used. After using survey measure of anticipated inflation, however they found some evidence that REITs are partial hedges against inflation.

Lu & So(2001), on his paper on the relationship between REITs return and inflation he examined the hedge phenomenon by investigating the relationship among REITs returns. He used vector error correlation model. Empirical studies showed that inflation does not Granger because REITs returns and that REITs returns signals change in monetary policy. He observed a negative relationship between REITs returns and inflation is merely a proxy for the more fundamental relationship between REITs returns on other macro-economic variables.

Otieno, Ngugi, & Muriu (2019), conducted a study on effect of inflation on stock market returns in Kenya focusing on REITs. He used monthly data for the periods 1993 to 2015.Results from Autogressive Fractionally Integrated Moving Average (ARFIMA) model indicated that the month to month inflation rate, year to year inflation rate and stock market returns have non integer orders of integration. The model revealed that annual inflation rate positively granger cause stock market returns. This is in line with fisher effect and implies that stock market returns in Kenya provide shelter against inflationary pressures.

2.2.5 Relationship between Exchange Rate and Performance of REIT

Wanjiku (2014), studied the impact of macroeconomic variables on the Pension Funds returns in Kenya. The macroeconomic variables included interest rates, exchange rates and inflation and GDP. The study analyzed quarterly data for the period ranging from 2005 to 2013.Multivariate regression model was used in the study. An F test and Analysis of

Variance (ANOVA) were used to ensure the model's significance and goodness of fit. The study established that pension funds' industry return was heavily subjective to the selected macroeconomic variables with exchange rate having the largest influence and interest rates having the least impact. The computed R2 was established to be of 0.533 which shows there is a positive and strong correlation between the selected variables and industry returns. The outcome showed that there exists a negative association between exchange rates and pension funds returns.

Kirui, Wawire and Onono (2014), investigated the association between macroeconomic variables, volatility and stock market returns at Nairobi Securities Exchange. Variables used were gross domestic product, Treasury bill rate, inflation, and exchange rate. The data used was quarterly between the years 2000 to 2012. Engle-Granger two-step was used to test co-integration relationship between stock returns and the macroeconomic variables while Threshold Generalized Autoregressive Conditional Heteroscedasticity (TGARCH) model was used to test its volatility persistence and leverage effects at the NSE. The results of the study revealed that exchange rate had a significant and negative impact on stock returns.

Ngo (2016), assessed on exchange rate exposures on Real Estate Investment Trusts in USA. The study employed monthly returns of 371 REITs listed in the Center for Research in Security Price database (CRSP) from 1990 to 2013. The findings of the study were inconsistent as there were variations depending on the type of REIT. Exchange rate was negative and significant to returns of equity REITs while hybrid and Mortgage REITs returns showed negative insignificant exposure to exchange rates.

Balaand Hassan (2018), investigated exchange rate and stock market interactions in Nigeria using an annual data from 1995 to 2015. The study utilized Autoregressive Distributed Lag

(ARDL) model. Other variables used were economic growth, money supply. All share indexes were used as a measure of stock market. The findings showed that exchange rate have positive and statistically significant effect on stock market fluctuations in Nigeria.

Despite substantial practical evidence and stylized facts of how exchange rate fluctuations might affect stock returns, the existing studies have focused only on non-financial firms and financial firms like NSE but REIT in Kenya has been screened. Similarly, existing studies have revealed inconsistency in terms of the time period, methodology and sectorial focus of the study and therefore, this research aimed at filling the gaps depicted.

CHAPTER THREE

RESEARCH METHODOLOGY

This area discussed the methods and procedures that were employed in carrying out the research. It discusses the research design, data collection, data analysis and presentation.

3.1 Research Design

This study adopted correlation research design. According to Koo & Li (2016), correlation research design examines the relationship between two or more variables and also tests causal relationship between the variables under study.

3.2 Study Area

The study was based in Kenya. The country is situated in Eastern Africa on the Indian Ocean coast between Somalia and Tanzania. It is located within the coordinates of 1°00′N 38°00′E. It covers an area of 582,650 km^2 and a population of over 40 million people as per 2009 national census.

3.3 Target Population

According to Saw (1979) population is a full set of individual characteristics in a place. Target population in statistics is specific population about which information is desired. Our study targeted Stanlib Fahari I REIT.

3.4 Data Collection Method

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 data for the study was collected monthly for the period of 36 months (January 2016- December 2018). Data on the selected macro-economic variables i.e. interest rate, inflation rate and exchange rate were obtained from CBK while data on stock return was referenced from NSE. Stock return was calculated using the Holding Period Return model formula as follows:

$$R_t = \frac{P_t - P_{t-1}}{P_t}$$

Where R_t– Monthly Return.

P_t– Stock price at the beginning of the month.

P_{t-1}– Stock price at the end of the month.

3.5 Data Analysis

Data collected was analyzed using descriptive, correlation and regression analysis techniques. Descriptive analysis deals with describing what exists and tries to find out alternative ways according to Fox (2001). Descriptive techniques such as mean and standard deviation were used to give quantitative summary of both macroeconomic variables and stock returns. Correlation analysis was also used to measure the association between macro-economic variables and stock returns so as to measure the strength of their relationship. Regression analysis on the other hand was adopted to determine the effect between interest rates, inflation rate, exchange rates and stock returns. Godfrey (1985), asserts that correlation analysis is not influenced by units of measure such as frequency distribution, tables, percentages mean, mode and median.

3.6 Model Specification and Variable Definition

The independent variables being measured in this research were interest rate, inflation rate (CPI) and exchange rate. A multiple correlation models was used to test relationship among independent variables on performance (stock return)**.** The regression equation used in this research was as follows:

$$Y_t = \beta_0 + \beta_1 X_{1_t} + \beta_2 X_{2_t} + \beta_3 X_{3_t} + \ldots \mu$$

Y_t= Performance measured by monthly stock return.

$X_{1\,t}$= Interest rate per month.

X_{2_t}= Monthly Inflation rate (Consumer Price Index).

X_{3_t}= Monthly Exchange rate in US\$/KSH.

β_0= The coefficient of the explanatory variable of macroeconomic variables i.e.$X_{1_t}, X_{2_t}, X_{3_t}$

t = Time period i.e monthly

μ= Stochastic error term.

Where the Macroeconomic variables were subjected to the following measures:

Stock return; monthly performance measure of the I REIT.

Interest rate: measured as the monthly lending interest rate as computed by CBK.

Inflation rate: measured by the monthly percentage changes in the consumer price index (CPI).

Exchange rate: measured as monthly exchange rate of 1 US dollar to Kenyan Shillings as computed by the CBK.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings of the study, by data analysis, results and discussions on REIT within Kenya. The research sought to assess the effect of selected macroeconomic factors on performance of Stanlib Fahari real estate investment trust in Kenya. The data was collected on stock returns, interest rates, inflation rates and exchange rates. To achieve the study's objective, the data obtained was analyzed through multiple linear regression analysis.
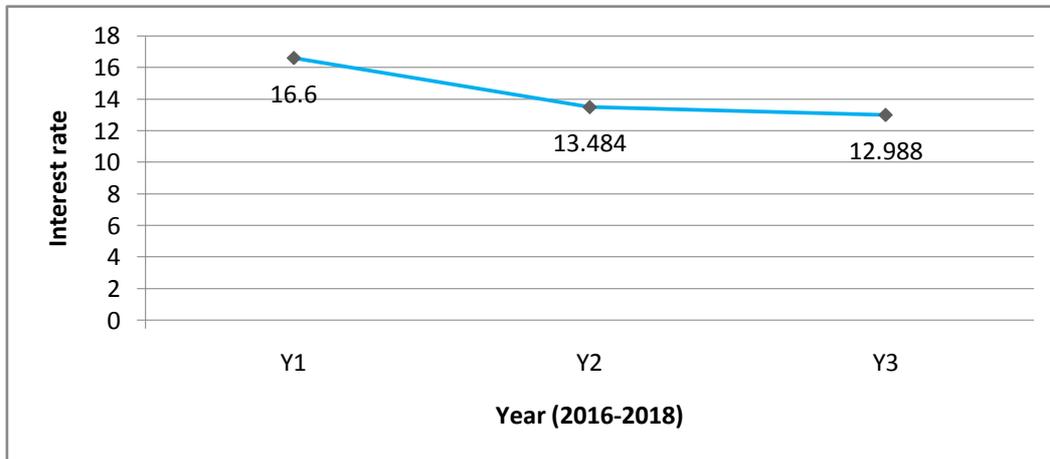
**Figure 4.1: Interest rate graph**

The graph above depicts interest rates across 2016 to 2018. It can be seen from that there is a slow but steady decline in interest rates from 16.6% in year one, 13.48% in year two finally 12.98% in year three where it hit an all-time low. The decline in the interest rates as from 2016 is attributed to the interest rate capping law passed by the government on September 2016.
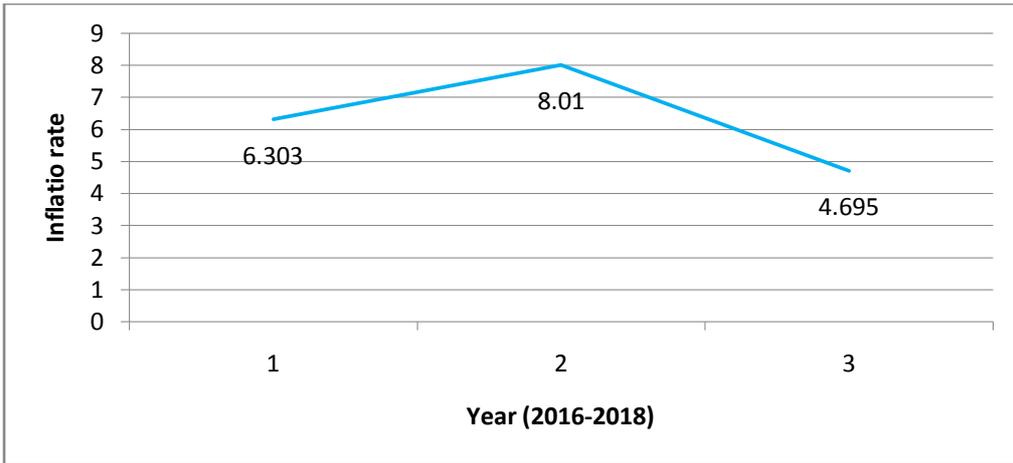
Figure 4.2: Inflation rates graph

Inflation rates hit an all-time high in 2017 (Year 2) at 8.01%. However, it was lowest in 2018 at 4.69%. The high inflation rate in 2017 may have been influenced by the political instability due to the general elections activities.
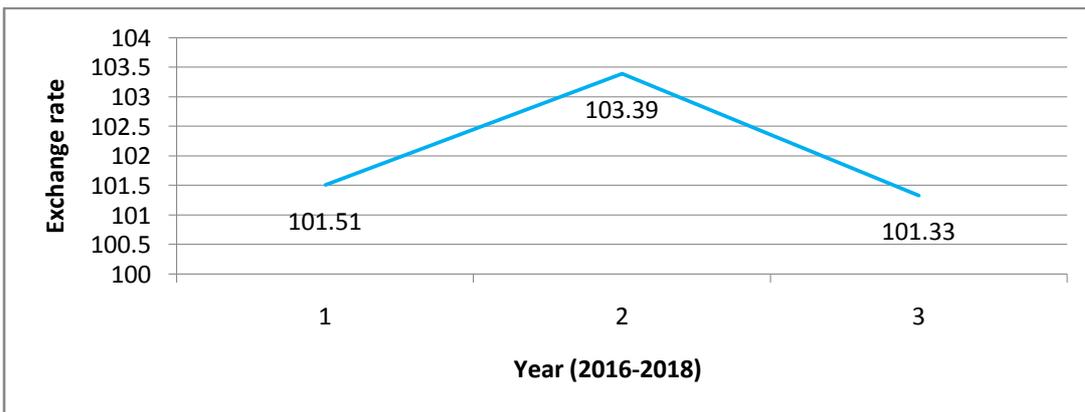
Figure 4.3: Exchange rates graph

Exchange rates in 2016 were 101.51 slightly higher than the lowest in 2018. There was a sharp but steady rise in exchange rate between years one and two followed by a sharp fall between years two and three. This shows that demand for foreign currencies was high in 2017 this led to the higher exchange rate between the US dollar and Kenyan Shilling.

4.2 Descriptive Statistics

Table 4.1 summarized the statistics main variables that have been included in the model including mean, standard deviation and skewness.

Table 4.1: Descriptive Statistics

|	Interest rate	Inflation Rate	Exchange Rate	Stock Price Return
		Statistics		
Valid N	36	36	36	36
Mean	14.3578	6.3389	102.0807	-.0083
Std. Deviation	2.08300	2.01365	1.08240	.04649
Skewness	1.253	1.143	.224	-.582
Std. Error of Skewness	.393	.393	.393	.393
Kurtosis	-.158	1.069	-1.254	.828
Std. Error of Kurtosis	.768	.768	.768	.768
Minimum	12.11	3.73	100.36	-.14
Maximum	18.45	11.70	103.96	.10

Source: Research Finding

The results showed that stock returns had a mean of -0.0083 and standard deviation of 0.04649. The lowest return for the period was -0.14 while the highest was 0.10. Stock Return in the period under study was calculated using the formulae of finding holding period return as:

$$R_t = \frac{P_t - P_{t-1}}{P_t}$$

Interest rates had a mean of 14.3578, a maximum of 18.45, a minimum of 12.11 and standard deviation of 2.80300. This shown by standard deviation value lower than the mean value depicts a low variability in stock performance. Interest rates had skewness of 0.393. This depicts a positively skewed distribution. Inflation rate had a mean of 102.0807, minimum of 3.73, maximum of 11.7 and a standard deviation value of 2.01365. Exchange rate had a mean

of Ksh.102.08, minimum of Ksh.100.36 and a maximum of Ksh.103.96 and standard deviation of 1.08240.

4.3 Pearson Correlation Analysis

The study also carried out Pearson correlation analysis to designate the correct linear connection among dependent and independent variables; which assisted in shaping the relationship in the representation. Trying to find which variable best explained the relationship between interest, inflation, exchange rates and performance as measured by stock return for the period. It also helped in deciding which variable(s) to drop from the equation given low linear relationship or multi- collinearity.

Table 4.2: Pearson Correlation Analysis

		Interest rate	Inflation Rate	Exchange Rate
	N	36	36	36
Stock Price Return	Pearson Correlation	.132	-.194	.181
	Sig. (2-tailed)	.443	.258	.290
	N	36	36	36

Source: Research Findings

From the Table 4.2, we can draw a conclusion that there was optimistic significance correlation among stock price return and interest rate given correlation value (R) of 0.132, at $p = 0.443$. The inflation rate also had a weak negative significant correlation with Performance. The values of the coefficients were as follows($R = - 0.194$; $p = 0.181$). This shows a weak association between inflation rates and performance. Exchange rates also depicted a weak positive correlation with performance ($R = .181$; $p = .290$).

4.4 Regression Analysis

Table 4.3 Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.237[a]	.156	.132	.04724	.156	3.634	3

Source: Research Findings

The model has a R value of 0.237 which depicts a good linear relationship between predicted and explanatory variables. The model shows R-square values of 0.156. This depicts that the independent variables explain 15.6% of the changes in stock performance of Stanlib Fahari REIT. This means that 84.4% of stock returns are influenced by other factors other than the study variables.

Table 4.4: Analysis of Variance (ANOVA)

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	.262	3	.131	3.634	.000[b]
1	Residual	.100	32	.004		
	Total	**.361**	**35**			

a. Dependent Variable: Stock Return

b. Predictors: (Constant), Exchange Rate, Interest rate, Inflation Rate

Source: Research Findings

From the ANOVA statistics, the processed data, which is the population parameters, had a significance level of 0.000 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The

significance value was less than 0.05, an indication that the model was statistically significant.

Table 4.5: Regression Coefficients

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	.193	1.013		.190	.000
	Interest rate	.003	.004	.118	.642	.525
	Inflation Rate	-.004	.005	-.164	-.741	.011
	Exchange Rate	-.002	.010	-.049	-.213	.833

a. Dependent Variable: Stock return

From the standardized beta coefficient, the analytical model was expressed using the following regression model:

$$Y_t = 0.193 + 0.003\ X_{1_t} - 0.004\ X_{2_t} - 0.002X_{3_t} + 1.013$$

From this regression equation it was revealed that holding interest, inflation and exchange rates to a constant zero, stock return of Stanlib Fahari REIT would be at 0.193. A unit increase in interest rate would lead to an increase in performance of the industry by a factor of 0.003. Unit increase in inflation rates would lead to a decrease in performance factor by 0.004 and lastly a unit increase in exchange rates would trigger a decrease in performance by a -.002 factor.

At 5% level of significance and 95% confidence level, interest rates had a 0.525 *p* value; inflation rates showed a 0.011 *p* value and exchange rate had 0.833 value. Generally, inflation rates had the greatest effect on the stock returns of the REIT.

4.5 Interpretation of the Findings

The actual maximum stock price return earned during the period of study was 0.10 as per the descriptive statistics. However, the regression coefficient analysis indicated that holding all the macroeconomic variables at zero, the stock return would have been 0.193. This shows that the macroeconomic variables had an effect on the stock returns lowering them from 0.193 to 0.10. These findings concur with the Arbitrage Pricing Theory which indicates that stock prices are affected by the unanticipated events in this case the macroeconomic variables.

Findings from this study showed that for the period 2016 to 2018, the selected macroeconomic variables i.e. interest rate, inflation rate and exchange rate had a weak effect of 15.6% on the stock returns indicated by the R squared. This agreed with the findings by Ilahi, Ali and Jamil (2015) which indicated that there was a weak correlation between macroeconomic variables and stock returns in Pakistan. This also contradicted with Laichena and Obwogi (2015), who found out that there is a strong relationship between macroeconomic variables and stock returns. Interest rates showed an insignificant but positive effect on the stock returns of the REIT in Kenya. This concurred with the findings by Ratcliffe and Dimowski (2007) who conducted a study on the responsiveness of listed property trusts returns and their attributes for the Australian REITs, that, A-REITs have an insignificantly positive relationship with short term movements in interest rates. The inflation rates had a negative and significant association with stock returns. This agrees with Hao Fang, Tsang-Yao Chang, Yen-Hsien Lee and Wei-Jui Chen (2016), who found that inflation rates had a negative and significant effect on REITs returns in Singapore and China.

Exchange rates also depicted a negative effect on the REIT's stock returns. In addition, exchange rates had insignificant association with the stock returns as it had p value more than 0.05. This contradicts the findings by Ngo (2016), that exchange rates were negative and significant to returns of equity REITs while hybrid and Mortgage REITs returns showed positive insignificant exposure to exchange rates. In this study, Kenya's only REIT is categorized as Equity REIT.

CHAPTER FIVE

SUMMARY, CONCLUSION& RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the summary, conclusion and recommendations from the study. The study had intended to determine effect of selected macroeconomic factors on performance of Stanlib Fahari real estate investment trust in Kenya. Also, included are the major limitations faced in the course of this study and the recommendations for policy, practice and further research.

5.2 The Study Summary

The research employed monthly secondary data on interest rates, inflation rates, exchange rates and calculated stock returns which were obtained from CBK and NSE respectively. Data analysis was done using multiple linear coefficient matrix, regression models and ANOVA analysis. From the analysis, holding the independent variables constant at zero, stock return could yield 0.193 results. A unit increase in interest rate would lead to an increase in performance of the industry by a factor of 0.003. Unit increase in inflation rates would lead to a decrease in performance factor by 0.004 and lastly a unit increase in exchange rates would trigger a decrease in performance by a -.002 factor. From the regression analysis, inflation rate ($p = .011$) was found to be the most significant in explaining the firm's performance better than exchange rates ($p=0.833$) and interest rates ($p =.0.525$). The explanatory variables explained 15.6% (R^2 on the regression summary model) of the variation in the dependent variable. Jointly, all the variables were found to be significant as depicted from the F-statistic ($p =.000$).

5.3 Conclusion

The study concludes that there is a weak negative effect between the selected macro-economic variables and Stanlib Fahari real estate performance in Kenya for the period 2016

to 2018. This is supported by the fact that inflation rate showed a negative effect while inflation rate depicted a weak positive effect and lastly exchange rate showed a weak negative effect on the performance measure of REIT in Kenya.

In addition, increase in; interest rates, inflation rate and exchange rates do not individually influence the performance of the firm, but the combination effect of the change of the macro-economic variables does.

5.4 Policy Recommendation

Study recommends that the Central Bank of Kenya (CBK) should plan in advance and intensify implementation of policies to timely regulate interest rates, inflation rates and exchange rates in the economy since they affect the REIT performance. 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. This intends to enhance better performance of REIT in Kenya.

The study further recommends NSE which is the home of the only REIT in Kenya should enhance free flow of information to the public and its investors. This will ensure that more investors are made aware of the changes in the economic environment and thus plan well before stock returns are adversely affected by unfavorable macroeconomic factors.to reap better returns. This is in line with Efficient Market Hypothesis theory.

5.5 Limitations of the Study

The study relied on secondary data, which was obtained from the various institutional data banks and thus any errors in the data may have been passed to the study. The selected macroeconomic variables data were used as obtained and therefore the researcher couldn't have validated the accuracy of the same data.

The study made use of only three macroeconomic variables i.e. interest rate, exchange rate and inflation rate to understand the effect of macroeconomic variable on the stock returns. However other variables could have been included in the study to understand if the findings would havestand. The validity of data was assumed to have met the minimum threshold without any verification for the use in this study. Hence the result of the study relied heavily in the validity of the data which was not tested priori to commencingthe study.

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

Further research should explore other variables that were external to this study since they could have significant effect on the criterion variable. Also, study on interest rate, inflation rate and exchange rates should be investigated for relationship with other macro-economic variables not used in this study.

More studies should be conducted on the performance of REIT in Kenya since this is a new venture in the real estate sector and NSE in Kenya. This will contribute immensely to the growth and expansion of the sector and more so to wider pool of knowledge.

Finally, studies should be triangulated in terms of data sources to facilitate use of both primary and secondary data. This will mitigate the weaknesses of the secondary data used in this study.

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APPENDICES

APPENDIX I: RAW DATA

YEAR	MONTH	STOCK PRICE RETURN %	INTEREST RATE %	INFLATION RATE %	EXCHANGE RATE KSH/US$	PRICE
2016	JAN	-9.09	18.45	7.78	102.283	20
	FEB	0	18.25	6.84	101.697	20
	MAR	12.5	18.14	6.45	101.334	22.5
	APR	-3.33	18.08	5.27	101.141	21.75
	MAY	-8.05	18.2	5	100.831	20
	JUNE	8.75	18.09	5.8	101.102	21.75
	JULY	-17.24	17.84	6.4	101.389	18
	AUG	-38.33	17.96	6.26	101.359	11.1
	SEP	26.13	13.74	6.34	101.262	14
	OCT	-6.43	13.48	6.47	101.459	13.1
	NOV	-0.76	13.49	6.68	101.877	13
	DEC	-10.38	13.49	6.35	102.486	11.65
2017	JAN	3.43	13.3	6.99	103.956	12.05
	FEB	-5.39	13.32	9.04	102.975	11.4
	MAR	-3.51	13.29	10.28	103	11
	APR	0	13.3	11.48	103.222	11
	MAY	-5	13.44	11.7	103.381	10.45
	JUN	20.1	13.38	9.21	103.712	12.55
	JUL	-2.79	13.65	7.47	103.911	12.2
	AUG	0	13.66	8.04	103.143	12.2
	SEP	-10.25	13.65	7.06	103.247	10.95
	OCT	-6.39	13.68	5.72	103.694	10.25
	NOV	7.8	13.6	4.73	103.253	11.05
	DEC	-3.17	13.54	4.5	103.232	10.7
2018	JAN	4.21	13.61	4.83	102.357	11.15
	FEB	-6.28	13.75	4.46	101.617	10.45
	MAR	8.61	13.4	4.18	100.847	11.35
	APR	-1.32	13.29	3.73	100.361	11.2
	MAY	2.68	13.3	3.95	101.481	11.5
	JUN	-1.74	13.23	4.28	101.05	11.3
	JUL	2.65	13.16	4.35	100.408	11.6
	AUG	-13.79	12.9	4.04	100.646	10
	SEP	2	12.52	5.7	100.956	10.2
	OCT	3.43	12.42	5.53	101.847	10.55
	NOV	-5.21	12.11	5.58	102.544	10
	DEC	9.5	12.17	5.71	101.846	10.95