# EFFECT OF MACROECONOMIC VARIABLES ON PERFORMANCE OF REAL ESTATE INVESTMENT TRUSTS IN THE NAIROBI SECURITIES EXCHANGE

BY

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# DECLARATION

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

Signature……………………………….                    Date 08/11/2021 ………………………………

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D61/35128/2019


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

Signature……………………… Date 09 NOV 2021 ……………

Prof. Iraya Mwangi

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# DEDICATION

I dedicate this paper to my family.

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# LIST OF ABBREVIATIONS

**AHP**        Amanah Harta Tanah PNB

**ALAQAR**    Al-`Aqar

**AMFIRST**    America's First Federal Credit Union

**APT**        Arbitrage Pricing Theory

**A–REIT**    Australian Real Estate Investment Trust

**ARREIT**    Amanahraya Real Estate Investment Trust

**AXREIT**    Axis Real Estate Investment Trust

**BSDREIT**    Boustead Real Estate Investment Trust

**CMA**        Capital Market Authority

**DCF**        Discounted Cash Flow

**D-REIT**    Development Real Estate Investment Trust

**EPRA**      Energy and Petroleum Regulatory Authority

**EPS**        Earnings-Per-Share

**FFO**        Funds from Operations

**GFC**        Global Financial Crisis

**I-REIT**     Real Estate Investment Trust

**M-REIT**    Malaysian real estate investment trusts

**NAV**        Net Asset Value

**NSE**        Nairobi Securities Exchange

**P/E**        Price-to-Earnings

**REIT**      Real Estate Investment Trust

**SC**         Securities Commissions

**STAREIT**    Starhill Real Estate Investment Trust

**TWREIT**      Tower Real Estate Investment Trust

**UOAREIT**      UOA Real Estate Investment Trust

# ABSTRACT

Various macroeconomic variables have been found to determine the performance of REITs as investment platforms. The key variables have been indicated as macroeconomic factors based on the kind of REITs and level of investigation. The study sought to establish the effect of macroeconomic variables on performance of Real Estate Investment Trusts in the Nairobi Securities Exchange. The study was bases on descriptive design of research. Secondary data was used in the investigation. The report's data was gathered on a monthly basis between 2016 and 2020. Data on the selected macroeconomic variables was obtained from CBK while data on stock prices of Stanlib Fahari I REIT was collected from the NSE. Monthly data was used in this investigation giving a total of 60 data point. The researcher utilizes descriptive statistics together with multiple regression and correlation for analysis of the data. The data was analyzed through SPSS 25. Multiple regression model was used to establish the effect of macroeconomic variables on Performance of REITs. In this research, significance of the model was checked utilizing ANOVA. From the research findings, the study showed that exchange rate had a weak significant correlation. This indicates that exchange rate had a weak negative relationship with Performance of REITs across Kenya. The findings showed that interest rate has an insignificant relationship with performance of REITs. On the other hand, inflation rate showed a negative relationship with performance of REITs. The study found a positive relationship between GDP and REIT performance. The study concludes that macroeconomic variables have no significant affect listed REITs' performance in Kenya. This study recommends that the government come up with relevant policies that would ensure the reduction of inflation rates and exchange rates while increasing growth rates. The study recommends similar study based on other variables, different period, and primary data.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the Study

Real Estate Investment Trusts (REITs) are one of the investment portfolio choices that investors considering alternative investments. It is less hazardous than equities, bonds, properties, and trust funds, and it has the potential to increase earnings. A real estate investment trust (REIT) is a publicly traded organization with the exclusive purpose of raising capital for real estate investment (EPRA, 2012; Ong, 2018; Oreagba, 2010). REITs are the ideal way to raise money since they allow people to invest in real estate developments while also providing investors with guaranteed returns (Asian Economic & Financial Review, 2014). Macroeconomic variables have been shown to improve the performance of REITS (Ong, 2018). Wisniewski (2011) discovered that real estate operations are influenced by a variety of macroeconomic factors, which vary based on a nation's financial and economic position. These impulses have the greatest impact on the overall performance of the industry (Mulupi, 2012).

The research will be based on a number of theories. Classical, pricing, and interest rate theories are among them. The classical theory of interest rates proposed by Ambrose and Barlow in 1987 provided a framework for analyzing products that are influenced by free market factors, such as interest rates and REITs. According to Amidu, Giza, and Joma's price theory, there must be opposing arguments prior to actually agreeing on a price, with market price representing the interaction between two opposed ideas. Changes in interest rates affect the overall cost of borrowing and consequently expenditures made with borrowed funds, according to the interest rates hypothesis proposed by Avlonitis and Indounas in 2005. The Arbitrage Pricing Theory (APT), introduced by Stephen Ross in 1976, is an asset pricing theory that states that the expected

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return of a financial asset or investment may be described as a linear relationship of several variables.

Given the demand for real estate in Kenya and the need for more financial tools, REITs are a possible option. Because there is a high demand and cultural inclination among Kenyans for property investments, capital markets can assist in mobilizing and allocating resources. For Kenya's middle class, real estate investment is seen as the ultimate aim (Nyoro, 2017). Globally, there has been an upsurge in investment in real estate and real estate trusts as growth vehicles, and this trend has caught on in Kenya. Kenya is the third African nation to create a REIT as an investment vehicle, according to the REIT's Collective Investment Schemes Regulations 2013. Investors are no longer avoiding the Africa property market, preferring to invest in places where they will be safe from the rest of the globe's economic woes (Knight Frank & Citi Private Wealth, 2010).

### 1.1.1 Macroeconomic Variables

Bugudui (2014) defines macro environment variables as key factors emanating from the environment external to a firm that cause an influence on performance or any other variable. For example, technological, economic, or political factors. Macroeconomic variables are stated as indications or major signposts for the economy's present trends (Zarnowitz, 2007). Howard and King (2008) as cited by Yahaya and Sarwe (2019) refers a macroeconomic variable as a parameter that arises through or is related to a bigger element of an economic rather than a specific population.

Economists measure a country's economic success by examining ways it might attain high levels of production and consuming increases. The macroeconomic variables are highly significant for establishing such evaluation. The researchers have shown different macroeconomic variables in their analysis. Macroeconomic elements relate to exchange rate, inflation rate, GDP, and interest rate (Dogan, Ghosh, & Petrova, 2019). Yahaya and Sarwe (2019) measured macroeconomic variables in terms of gross domestic product, inflation rate and interest rate. On the other hand, De Leon (2020) adopted macroeconomic variables relating to unemployment rate, exchange rate, inflation and national income. This paper utilized exchange rate, interest rate and inflation rate as the macroeconomic variables.

## 1.1.2 REIT performance

A real estate investment trust (REIT) is a business or trusts that aggregates funds from small investors, purchases and maintains income-generating real estate, and distributes the revenue of its own property as dividend. REITs are classified by the Securities Commissions (SC) as "property trust funds" or "investment trust investment vehicles" that invest or seek to invest at least 50% of their total assets in real estate. Direct ownership of real estate or a participation in a single-purpose corporation with real estate as its primary asset is one technique to trade in real estate (SC, 2005). A REIT is a regulated investment vehicle that allows people to pool their money or money's value in exchange for rights or interests in a trust that is divided into units with the goal of profiting or generating revenue from real estate as the trust's beneficiaries (NSE handbook, 2013).

REIT performance has been highly sensitive to demand for other high-yield assets. Generally, rising interest rates could make Treasury securities more attractive, drawing funds away from

REITs and lowering their share prices. On the other hand, REITs have not been adopted by many developing countries with the ones that have adopted them having very few REITs or experiencing declining Performance of REITs over time. REIT performance is measured using different metrics by different researchers. Koelbl (2020) used earnings-per-share (EPS) and price-to-earnings (P/E) to measure REIT performance. Ampountolas (2020) on the other hand used funds from operations (FFO) and stock returns to measure REIT performance. Arnold, Ling and Naranjo (2021) measured Performance of REITs in terms of through dividends on REIT and stock prices. In this study, the researcher used stock returns to measure the REIT performance at the NSE.

### 1.1.3 Macroeconomic Variables and REIT performance

Theoretically, REIT performance is influenced by various factors. The key determinants of REIT performance like inflation, interest rate, leverage is expected to improve Performance of REITs. Chan, Erickson and Wang (2013) in their book noted that real estate operations are influenced by a variety of macroeconomic forces, which vary based on a country's financial and economic position. These macroeconomic forces have the greatest impact on the overall success of the REITs and real estate industry in general (Olanrele, 2014). REIT markets integrates with macroeconomic variables for improved performance metrics in the long run (Loo, Anuar & Ramakrishnan, 2016). The REIT markets are sensitive towards the change in macroeconomic environment.

Empirically, the determinants of REIT performance have shown different influence on REIT performance. For example, macroeconomic determinants like exchange rate have shown positive (Ouma & Muriu, 2014) and negative (Makori, 2017) relationship with REIT performance. Interest rate, GDP and inflation has also shown mixed results with REIT performance. Reddy and Wong,

(2018) established a positive influence of interest rates on REIT performance. Soon et al (2020) showed that macroeconomic variables had mixed effects on REIT performance.

### 1.1.4 Nairobi Securities Exchange

In Kenya, the Capital Markets Act of Kenya (2002) stipulates the guidelines on corporate governance and the various rules that govern the sourcing of funds in the Kenyan financial markets. The NSE was registered under the Securities Act, 1954 has the mandate of developing securities markets and regulating trading activities. Over the year there have been changes at NSE which have improved the trading of shares and hence listed firms have access to a large number of potential investors (Nairobi Stock Exchange, 2020).

The Stanlib Fahari i-REIT, which began trading on the Nairobi Securities Exchange (NSE) in November 2015, is Kenya's only listed REIT. The performance of the Fahari I-REIT, on the other hand, has been declining since November 2015, when it was originally listed, indicating waning investor interest in the product. Since the beginning of the year, the Fahari I-REIT has traded at an average of Ksh 6.4 per share, a loss of 28.1 percent when compared to the same period in 2020, when it traded at an average of Ksh 8.9. Since its launch in November 2015, the instrument has dropped 64.5 percent, from Ksh 20.0 to Ksh 7.1 as of March 19, 2020.

### 1.2 Research Problem

Various macroeconomic variables have been found to determine the performance of REITs as investment platforms. The key variables have been indicated as macroeconomic factors based on the kind of REITs and level of investigation. The classical theory states that Performance of REITs

vary with macroeconomic forces with the interest rates theory stating that interest rates influence the performance of REITs. This shows that theoretically various macroeconomic variables influence the performance of REITs.

REITs have been available in Kenya for eight years. The REITs industry is largely undeveloped for the past eight years, with just one I-REIT but no D-REIT, with Fusion Capital D-REIT, originally debuted in 2016, failing owing to reduced subscriber numbers as well as the Cytonn D-REIT failing owing to conflict of interests by proposed banking Trustee. The market has deteriorating performance in the last five years. For example, Ilam Fahari I-REIT has experienced reduction in performance since November 2015 when it was first listed. The instrument recorded a decline of 64.5% from Ksh 20.0 in November 2015 to Ksh 7.1 as at 19th March 2020.

Performance of REITs has been an area that researchers have focused in the recent past. Globally, Ma'in et al (2016) studied the determinants of Islamic real estate investment trust performance; Newell and Marzuki (2018) studied the emergence and performance of German REITs; Khan and Siddiqui (2019) studied the factor affecting the performance of REITs in Pakistan, Malaysia, Thailand, Singapore and Hong Kong; while Ntuli and Akinsomi (2017) did an overview of the initial performance of the South African REIT market. The studies showed that both macroeconomic and microeconomic determinants influenced REIT performance.

Locally, Kipkurui (2019) studied the effect of selected macro-economic variables on performance of STANLIB FAHARI real estate investment trust, Kenya; Kamau (2016) looked at the challenges and prospects of real estate investment trusts (REITS) financing of real estate in Kenya; Njenga

(2017) studied the effect of real estate investment trusts characteristics on uptake by real estate developers in Nairobi; while Nyoro (2017) looked at the determinants of financial performance of real estate investment trusts in Kenya. The studies despite focusing on Performance of REITs they based their analysis on other variables other than macroeconomic variables. Others looked at the challenges and characteristics of real estate (Kamau, 2016; Njenga, 2017). This shows that the studies have avoided the Performance of REITs and macroeconomic variables for listed firms. This study sought to answer the question: what is the effect of macroeconomic variables on performance of Real Estate Investment Trusts in the Nairobi Securities Exchange, Kenya?

## 1.3 Research Objective

To establish the effect of macroeconomic variables on performance of Real Estate Investment Trusts in the Nairobi Securities Exchange

## 1.4 Value of the Study

This study will be valuable to various parties. The scholars and researchers will be key beneficiaries from this research. The researchers in understanding the determinants of REIT performance in the Nairobi Securities Exchange would be able to establish a research gap where the study would form a basis for future studies. The study would also recommend areas for further studies which other researchers can exploit.

The management of NSE would also find this paper valuable. Research on the determinants of REIT performance in the Nairobi Securities Exchange would provide insights into the way the

REIT is influenced by various factors. This would enable them to come up with strategies to enhance REIT performance through various macroeconomic variables.

Investors in REITs would also find this paper important. The paper would provide the investors with information on the key macroeconomic factors influencing performance of REITs at NSE. The understanding would enable them to make key investment decisions based on the influence that the macroeconomic variables have on performance.

Policy makers like CMA would also find this paper of value. The paper would give policy recommendations which may form the basis for policy formulation in regards to REITs. This would enhance Performance of REITs through favorable policies relating to macroeconomic variables.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This section offers an overview of theoretical literature. This section also gives the empirical research on the drivers of real estate investment trusts which have been conducted so far. It also includes a synopsis of the examined publications as well as areas for further research that have been highlighted. Furthermore, the conceptual framework has been established, which demonstrates the supposed connection among research variables. The section also gives a summary of literature where the knowledge gaps in the literature are established.

## 2.2 Theoretical Review

The part provides an overview of theories related to the key factors that influence the performance of REITs. In the framework of this investigation, every theory is examined. Classical theory, pricing theory, interest rate theory and arbitrage pricing theory are among major theories examined. Classical theory states that if saving exceed investment, then interest rate falls till the markets stabilizes, and vice versa. The pricing theory, on the other hand, gave a framework for settling on pricing by advocating for conflicting propositions before resolving on a price. The interest rates theory states that interest rates have an impact on the entire market, as they have an impact on the market. The arbitrage pricing theory states that expected rate of return of any investments or financial instrument can be characterized as a linear relation among several macroeconomic factors.

**2.2.1 Classical Theory**

Ambrose and Barlow proposed a classical theory for interest rates around 1987. It is founded on a knowledge of how goods such interest rates and REITs work, which are influenced by free market forces. The supply of saving is compared to the demand of borrowing in this idea. The optimal rate is derived by identifying the junction position of supply and demand curve. As a result, if saving exceed investment, then interest rate falls till the markets stabilizes, and conversely, if saving exceed investment opportunities, the interest rate rises till the benefit for saving drives larger savings rates, leading its market to saturate once more (Agaba et al., 2009). Nevertheless, aside from supply and demand, the traditional theory of interest rates misses to accommodate for aspects like funds generation, the relevance of wealth distribution, and change in the principal borrowers inside of an economy. The importance of real interest rates in market behavior has now been emphasized by contemporary economics hypothesis: real interest rates effect investments in a nation, that impacts the total amount of economic activities in stock markets (Macoloo, 1994).

Through its role in controlling interest rates, monetary policy is given a fundamental role in controlling the level of economic investment activity. It is expected that monetary authorities will modify nominal interest rates in reaction to changes in inflation expectations, causing the real interest rate to adjust in the desired direction (Amidu et al., 2008). This theory established the principles of demand and supply, guiding the research into how market dynamics of demand and supply influenced real estate investment trusts.

### 2.2.2 Price Theory

Amidu, Giza, and Joma proposed the pricing hypothesis in 2008. By advocating that there should be conflicting propositions before resolving on a price, the theory gave a framework for settling on pricing. According to the notion, the market price represents the interaction of two competing considerations. Demand considerations based on marginal utility are on one hand, while supply considerations based on marginal cost are on the other. The two concerns usually always get to a point of balance. On the buyer's side, an equilibrium price should be equal to marginal utility, and on the seller's side, it should be equal to marginal cost (Agaba et al., 2009).

Real estate is often incorrectly referred to as a career, although it is, at its core, an enterprise. Investing, operations, and brokerage are the three main sectors of a real estate industry. These differ from one another in terms of the goals pursued by those who participate in them, as well as the methods by which those individuals anticipate to profit (Amidu et al., 2008). The idea drove the research into discovering how a combination of public policies, the status of an economy, interest rates, and demography impacted REIT pricing and, ultimately, their success.

### 2.2.3 Interest Rates Theory

Avlonitis and Indounas established the interest rate hypothesis in 2005. According to the hypothesis, interest rates have an impact on the entire market, precisely as they have an impact on the market. Variations in interest rates, according to the hypothesis, influence the aggregate cost of borrowing and, as a result, the spending made with money borrowed. Rising interest rates

contribute to lower spending, while lower interest rates result in higher spending. Interest rates determine the cost of borrowing such cash.

Higher interest rates can increase the total cost of these purchases. Lower interest rates can help you save money on these expenses. That shows that the interest rate fluctuations can affect consumer and investment spending, and therefore aggregate demand. Interest rates paid by commercial banks and housing businesses have an impact on investments in the Nairobi Securities Exchange, either direct or indirect (Bienert & Brunauer, 2006). The investigation was guided by this hypothesis, that linked those forces that impact interest rates in free markets to performance of REITs.

### 2.2.4 Arbitrage Pricing Theory

Stephen Ross proposed Arbitrage Pricing Theory (APT) in 1976. It is an asset pricing theory that states that expected rate of return of any investments or financial instrument can be characterized as a linear relation among several macroeconomic factors, or as a beta value representing the correlation to variations in every component. The prototype rate of return is subsequently utilized to appropriately calculate the asset's valuation. The asset value must be the same as its predicted end-of-period asset valuation or future cash flows discounted at the model's rate. Arbitrage should return the asset value back to the threshold if it fluctuates. Although many distinct specific causes may impact the return of a given stock, APT believes that within a big and well diversified portfolio, such influences typically cancel out. Diversification is a concept that has an impact on the investment world. A REIT seems to have no means of telling if a specific person

will get sick or be engaged in a mishap, but it can correctly forecast its loss on a big sum of financial resources.

Real estate investment trusts, according to Muturi (2013), are economic ventures that collect money of investors, reinvest in assets, and then distribute earnings in suitable proportions in the sort of dividend returns. The algorithms are intended to predict the REITs that might be relevant in a competitive industry. The market price of REITs is increased by charging a pricing that is at least as high as the competitive price. The company's market worth would be lowered if it charged a lower price. As a result, financial forecasts and financial pricing are significant pieces of information for investors to know when making financial judgments when purchasing stock for the first time on the stock exchange. Assessments of market volatility pricing for the risk variables, and alpha indices for REITs, are required by model. It is conceivable to obtain a real estate model that, like other economic pricing models, provides risk-free investment decisions.

## 2.3 Determinants of Performance of REITs

The researcher discussed the determinants of Performance of REITs as the predictor variables. This were based on macroeconomic variables. These include exchange rate, interest rate, inflation and GDP growth rate.

### 2.3.1 Exchange rate

The price of a nation's currency represented in other nation's currencies is known as exchange rate. The exchange rate was calculated against the US dollar in this investigation. Many previous research has found a strong correlation between exchange rates and stock performance. For

example, in a group of developing markets, Ouma and Muriu (2014) discovered a direct association of changes in equity and global currency exchange marketplaces. Stock returns for certain firms in a sample of the NSE 20 share index, as per Ndegwa (2015), indicate a high susceptibility to variations in currency rates. The exchange rate, on the other hand, was discovered to be inversely related with share prices inside the Malaysian equity market by Ibrahim and Aziz (2003). Makori (2017) likewise discovered that the exchange rate has an inverse impact on stock market performance.

### 2.3.2 Interest rate

Interest rate is defined by Tepper and Verdelhan (2018) as the portion of money those financial institutions loan to their customers, usually stated as an annual percentage. Interest rate fluctuations can have a significant impact on a person's capacity to acquire a home (Chomba, 1999). This is because as interest rates fall, the cost of obtaining a mortgage to purchase a property decreases, resulting in increased demand for real estate, which drives up prices. In contrast, as interest rates go up, then cost of obtaining a mortgage rises, cutting demand and real estate values (Davis, 2008). Nevertheless, if considering the influence of interest rates over an equity investment, including a REIT, instead of on residential property, the connection could be compared to that of bonds (Ellison, 2007).

Whenever interest rates fall, a bond's value goes up since the dividend yield grows increasingly appealing, and whenever interest rates go up, its price drops. Likewise, as the industry's interest rate falls, REITs' higher returns becomes increasingly appealing, and the valuation rises. Whenever interest rates rise, the return on a REIT is less appealing, lowering its valuation (Nguyen, 2015).

### 2.3.3 Inflation rate

The percent change in regular consumer price index is referred to as inflation (Bernanke, Laubach, Mishkin & Posen, 2018). The inflation rate is the proportion variation in a particular period's pricing indices relative to a prior period's pricing index. This is typically assessed annually or on a year-to-year basis (Payne, 2003). In his research, Payne (2003) discovered that inflation exerts a beneficial impact on REIT performance. Nevertheless, some researchers argue that inflation has no impact on REIT returns (Lu & So, 2001) and also that the returns of REITs are unaffected by inflation (Webb, 2007). Furthermore, most studies feel that inflation has a negative impact on REIT performance (Adrangi, Chatath, & Raffiee, 2004) and that REIT performance is adversely correlated with inflation (Adrangi, Chatath, & Raffiee, 2004). (Hideki, 2007). As a result, it was evident that there was a lack of consistency throughout the numerous study projects. In addition, little research has been done in Kenya on the impact of inflation and REIT stock returns. This was critical since inflation has a detrimental impact on the economy by discouraging savings and investment.

REITs tend to do well in times of inflation, because of their ability to increase rents and then pass that income on to shareholders. Dabara, Chiwuzie, Omotehinshe and Soladoye (2019) established that inflation rate positively affected the performance of REITs. On the other hand, Olanrele, Adegunle and Fateye (2018) established that Performance of REITs improved with the improvement of the inflation rate. Adrangi et al. (2004) empirically demonstrate that the returns of REITs are negatively related to the inflation rate; in other words, the returns of REITs cannot effectively defend against inflation during inflationary periods. Cohen and Burinskas (2020) found

no significant relationship between inflation and REITs. This shows that the effect of inflation rate on REITs.

### 2.3.4 GDP growth rate

Another macroeconomic variable influencing REIT performance is GDP. It is used to compute the overall value of local output for the overall economy. The total comprises consumer expenditure, government spending, and investment spending within the country, as well as net exports. Because GDP is a measure of the economy's health, a high GDP is synonymous with a favorable economic situation, which would attract investment in REITs.

Researchers have shown differing outcomes on GDP and REIT performance. Newell and Marzuki (2018) established a direct effect of GDP on REIT performance. On the other hand, Dabara (2021) established no effect of GDP on REIT performance. Olanrele et al (2020) established a negative effect of GDP on REIT performance. This shows that there is need to investigate how GDP growth rate influence REIT performance due to the existing ambiguity on the relationship.

### 2.4 Empirical Review

The researcher reviews the researches done in relation to macroeconomic variables and Performance of REITs. This was based on the international and local studies. The knowledge gap per study was done in this section. The gaps were based on various types. Conceptual gaps related to the gaps relating to the concepts adopted in the research and which the current research sought to fill. Contextual gaps related to the population and location differences in research. Methodological gaps related to the different research methods adopted by the reviewed studies.

**2.4.1 International studies**

Ma'in et al. (2016) investigated the factors that influence the performance of Islamic REITs. The Muslim REIT enterprises across Asia and the Middle East made up the survey's representative samples. Al-Aqar Healthcare REIT and Axis REIT are two Malaysian examples, whereas Sabana REIT seems to be the only Islamic REIT organization in Singapore. Al-Munshaat REIT was a Kuwaiti Islamic REIT, while Invest REIT was a Bahraini Islamic REIT. Panel regression analytics was used to assess the performance of these Islamic REIT enterprises using the Net Asset Value (NAV) Approach. The investigation encompassed the timeframe spanning 2011 towards the third quarter in 2015, including quarterly assessments. As per findings of the investigation, business size as evaluated by market valuation was directly connected to Islamic REIT performance. When Islamic REITs improve their markets valuation, companies can do favorably. Similar to the current study the investigation used Performance of REITs as the dependent variable. The paper adopted factors like firm size with the current study focusing on macroeconomic variables. The investigation used a 5-year period same as the current one. This investigation used monthly secondary data similar to the current investigation. However, panel regression model was used in the analysis with the current using time series regression for analysis.

San, Heng, and Pong (2018) wanted to know more about the concept and evolution of Malaysian REITs, as well as the performance of Malaysian REITs using the Net Asset Value technique (NAV). The noise hypothesis is evaluated in this investigation, which illustrates why Malaysian REITs traded at NAV premiums and discounts. The Kuala Lumpur Stock Exchange, generally known as Bursa Malaysia, provided yearly set of data for 13 public real REITs (ARREIT, AXREIT, TWREIT, AMFIRST, BSDREIT, AHP, AHP2, ALAQAR, HEKTAR, UOAREIT,

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QCAPITAL, ATRIUM, and STAREIT) for the research timeframe of 2005 through 2010. All 13 MREITs' separate annual financial reports provide information on total assets, liabilities, as well as the quantity of shares outstanding. According to the findings, AHP2 has the worst NAV valuation amongst Malaysia's 13 public REITs and is trading at a discount to its NAV.

This paper investigated Performance of REITss other than relating it to macroeconomic variables. The paper was done in Malaysia with the current done in Kenya. The paper is similar to the current in that it was utilizing listed REITs. The paper was also done for a period of 5 years similar to the current study. However, the paper utilized annual data with the current utilizing monthly data. This shows that the findings may differ with the findings of the current study.

Khan and Siddiqui (2019) investigated the factors that influence REIT performance. This article looks into the elements which can influence the performance of a REIT, with a focus on REITs in developing, emerging, and developed economies. From 2008 to 2018, 350 observations were taken from a sampling of 21 public REITs across five nations of nascent, developing, and established economies, including Pakistan, Malaysia, Thailand, Singapore, and Hong Kong. The study employed NAV as a proxy for REIT performance, with internal characteristics such as payout ratio, net earnings, and capitalization, and exterior indicators such as stock index, inflation, and interest rate being considered. The findings of multivariate logistic model show that NAV has a significant link with dividend growth, net profit, size, inflation, and stock market index, but an inverse association with rate of interest. The findings of this investigation can assist investors and asset managers gain a better grasp of the market-wide characteristics that influence REIT performance. The paper focused with general factors influencing REIT performance other than macroeconomic variables. The paper is similar to the current one in that it is based on listed REITs.

The paper however, was done for a period of ten years with the current done for five years. The paper did a comparative study across many countries with the current one based on just Kenya. Multivariate logistic regression was adopted with a time series regression adopted in the current research.

Ntuli and Akinesia (2017) provided an analysis of South African REIT economy's early performances. In 2013, South Africa established the REIT structure with the goal of attracting both domestic and global investments. South African public properties were claimed to have done better than UK, European, and Asian REITs a year following adoption. Over the period May 2013 to December 2015, they evaluated the preliminary performance of South African REITs plus the portfolio diversification gains if combined with stocks, bonds, T-bills, as well as other traded properties in a mixed-asset portfolio. Stocks are indeed the top risk-adjusted performance asset, according to the research. If incorporated on the mixed-asset portfolio, REITs boost returns and contributes to greater risk end of volatility continuum. This paper, investigated the performances of REITs. However, the paper was done in South Africa where the conditions may be different from those of Kenya. The paper, on the other hand, was based on secondary data similar to the present study. However, the data collection period was 2013-2015 (3 years) with the present investigation basing research on 5 years' period.

Chuweni and Eves (2017) identify and investigate the most appropriate approaches and tools for assessing the effectiveness of I-REITs in terms of risks and profits. The effectiveness metric is vital for fund managers to optimize shareholder returns in a real estate portfolio investing as well as provide the most effective tool to allocate funds. This is a synopsis of existing research which

outlines the problems that was considered in future scientific investigations. The paper looks at REIT's performance similar to the current research. However, the paper just investigated Performance of REITs without relating the performance to macroeconomic variables.

**2.4.2 Local Studies**

Kipkurui (2019) investigated the impact of a number of macroeconomic variables upon its performance of Kenya's STANLIB FAHARI REIT. The association between the variables was measured using a correlation research approach. Secondary data was acquired over the period of 36 months from 2016 to 2018 from NSE and CBK various databases. Interest rates had a direct but statistical negligible impact on stock returns, whereas inflation rates had an adverse but statistically significant impact, and the exchange rate had an inverse but statistically irrelevant impact. Only 15.6 percent of the performance of Stanlib Fahari REIT in Kenya was impacted by macro conditions. Despite this research looking at macroeconomic variables and performance of REITs, the paper did the research over a 3-year period with the current study adopting a 5-year research period. Further, the study adopted only three macroeconomic variables with the current adopting four macroeconomic variables. In addition, the paper measured REIT performance in terms of daily returns with the current using monthly returns for analysis which may give different results. SPSS was used for analysis with the present using STATA for analysis.

Kamau (2016) investigated the constraints and potential of real estate REITS finance in Kenya. Because this is a very new investment that has been launched into the Kenyan market, the ideal study designs it'd be acceptable for this investigation is an exploratory design strategy depending on the sort of research endeavor. A total of 156 developing enterprises in Nairobi were studied,

with 70 being chosen as a sample. Questionnaires were utilized to collect primary data, as well as secondary data. Policy, rules, and processes have been mentioned as challenges, as well as a large dividend payout, a capital structure culture inside the firm, and market knowledge.

This paper was based on REITs similar to the current study. However, the main focus was challenges and opportunities in REITs finance other than Performance of REITs. The paper also focused on unlisted REITs with the current paper focusing on listed REITs. Primary sources of information were adopted with the current adopting secondary sources. On the methods, exploratory design was used with the current using descriptive design. Questionnaire was adopted for data collection with the data collection form used for the current research.

In Nairobi, Njenga (2017) investigated the impact of real estate investment trust features on property developer uptake. Property Development firms situated in Nairobi that are presently licensed with the Kenya Property Developers Association made up the research demographic. As a result, a census method was used to include all 67 enterprises, with top management officials serving as respondents. The research instrument for this study was questionnaires, which was utilized to collect primary data. The data was analyzed using quantitative analysis (descriptive statistics) methodologies. This is studied using the SPSS, and measures of central tendencies was used. In addition, because the focus was on interpretation of the results rather than quantification, the qualitative data from the open-ended questions was evaluated using content analysis. Tables were created from the analyzed data. The research reveals that whenever the three investigated qualities, including REIT Income Structure, Regulatory Framework, and Operational Framework, are combined, they have a favorable and significant effect on REIT uptake.

Conceptually, despite basing the analysis on REITs, this research looked at property developer uptake other than REIT performance. The paper also utilized qualitative and quantitative primary data other than secondary data as per the present investigation. Descriptive statistics were used with the current utilizing both descriptive and inferential. In the generation of statistics, SPSS v17 was utilized with the present research using SPSS v25 software to come up with the statistics. Nyoro (2017) investigates the factors that influence real estate investment trusts' financial success in Kenya. The study was conducted using a descriptive research design. An econometric analysis also informed the research. Managers that work with real estate investment trusts in Kenya were the target group for this study. The population of the study consisted of 36 managers. The investigation was conducted using a census method. A systematic questionnaire was utilized to gather data more efficiently. Prior to data gathering, the necessary permits and consents were obtained. The tool was pilot tested on a group of managers from REIT branches in Nakuru town who were chosen at random. Data analysis was made easier thanks to SPSS software. The study employed both descriptive and inferential statistics. Tables were used to summarize the study 's findings. The research reveals a favorable, robust, and significant association between government policies, the economy, and demographics and REIT financial performance. Interest rates and REIT financial performance have been found to have a positive, relatively strong, and substantial link. Furthermore, it was discovered that economic conditions had the largest correlation with REIT performance, whilst interest rates had the least correlation.

This research relates to this present paper in that it looks at real estate investment trusts. The research also used descriptive and inferential statistics, similar to the current research. The researcher, however, involved non-listed REITs with the current one focusing on listed REITs.

The researcher further used primary data with the present research basing the analysis on secondary data. In addition, the researcher used SPSS for generating the statistics with the present research using SPSS v25.

## 2.5 Conceptual Framework

Independent Variables                                                    Dependent Variable

Exchange rate
- USD/KSHS

Interest rate
- Interest rate

Performance of REITs
- Monthly Stock Returns

Inflation rate
- Consumer Price Index

Control Variable

Growth rate
- GDP
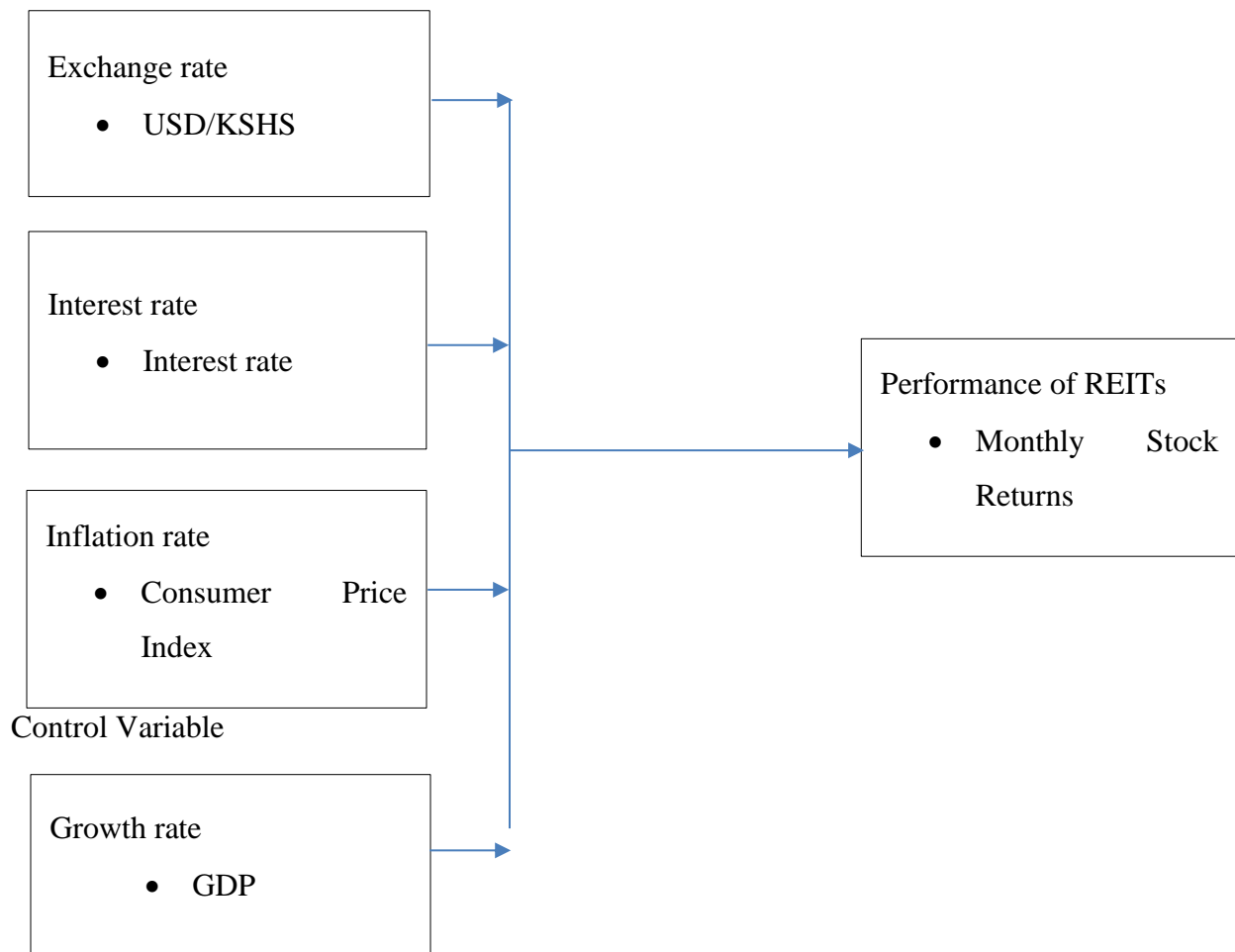
Figure 2.1: Conceptual Framework

**2.6 Summary of Literature**

Performance of REITs and macroeconomic variables has been explored extensively in the literature. The theories related to the study includes classical, price, interest rates and arbitrage pricing theories. The empirical studies reviewed in the research are majorly international. The local studies focus on case studies or other concepts other than determinants of Performance of REITs. The studies also showed conflicting relationships between the determinants and performance. This shows that various gaps exist in the area of Performance of REITs and its determinants.

## CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.1 Introduction

Methodology was discussed in detail in this article. The research design, population, data collection, and analytical tools were discussed in this section. This section also gave the tests done to diagnose the data and models used in the research. In addition, the section gave the analytical model adopted in the investigation. The tests for significance were also stated. The measures and indicators of the variables were also indicated in this section.

### 3.2 Research Design

This paper employed descriptive design of research. The design enabled the researcher to create a description of variables and parameters in an investigation. The design further enabled the researcher to establish an effect of independent parameters on dependent parameters in research. This design was utilized in the paper as it would allow the researcher to describe determinants of REIT performance and REIT performance while at the same time establish how they affected REIT performance at the NSE. According to the NSE, there was only one listed REIT in Kenya [Stanlib Fahari I REIT] which was targeted by this study.

### 3.3 Data Collection

Secondary data was used in the investigation. Secondary data was information gathered by a third party who is not affiliated with the study and was gathered for a distinct cause and at a different time in the past (Shodhganga, 2012). The report's data was gathered on a monthly basis between 2016 and 2020. Data on the selected macroeconomic variables was obtained from CBK while data on stock prices of Stanlib Fahari I REIT was collected from the NSE. Monthly data was used in this investigation giving a total of 60 data points.

**3.4 Diagnostic tests**

In this investigation, the researcher undertook various diagnostic tests to check on the assumptions of regression models. The researcher undertook diagnostics relating to normality, heteroskedasticity, and multicollinearity. Normality was done to establish whether the data is normally distributed using Shapiro Wilk test. The null hypothesis is that the data is normally distributed. Where the Shapiro Wilk statistics is above 0.05, we do not reject the null hypothesis. Where the statistics are below 0.05, we reject the null hypothesis and assume the data is not normal. Heteroskedasticity was tested using Breusch Pagan test to examine the error term variance's consistency. The error term's variation is considered to remain constant over time in homoscedasticity. The error term is not stable over time, according to heteroscedasticity. Where the significance value is above 5%, then the error term's variation is considered to remain constant over time.

Multicollinearity was tested using VIF to establish the linearity of the predictor variables. When the VIF is above 10 or the tolerance value is above 2, multicollinearity problems exist in the data. When the tolerance value is below 2, we assume that the predictor variables had no linearity. This means that multicollinearity is not a problem in the data Model specification was done using Hausman test to establish the best model to use in the analysis (fixed or random). The null hypothesis is that random effect is the preferred model. Another possibility seems to be that the model is fixed effect. If the p value is less than 5%, then the fixed model is preferred. However, where the significance value is greater than 5%, then the null hypothesis is not rejected hence random model is chosen.

### 3.5 Data Analysis

The researcher utilized descriptive statistics together with correlation and regression for analysis of the data. The data was analyzed through SPSS 25. SPSS 25 can handle a large data volume of data. Since this research adopted time series data, SPSS 25 was preferred. Descriptive statistics related measures of central tendencies. This related to mean, standard deviation, minimum and maximum. Multiple regression model was used to establish the effect of macroeconomic variables on the performance of REITs.

### 3.5.1 Analytical Model

The panel regression model took the form of:

$$Y = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \epsilon$$

Where;

$Y$      – REITs as measured by monthly stock returns of listed REITs at time, t

$\beta_0$      – constant term

$X_{1t}$      – exchange rate as measured by USD/KSHs at time, t

$X_{2t}$      – interest rate as measured by interest rate at time, t

$X_{3t}$      – inflation rate as measured by inflation rate at time, t

$X_{4t}$      – Growth rate as measured by real GDP at time, t

$t$      – Months

$\epsilon$      – Error term

### 3.5.2 Measurement of Variables

The variables of the paper were operationalized with the indicators and measurements indicated. The dependent variable was REITs. The indicators were monthly returns. The independent variables were exchange rate, interest rate and inflation rate. Exchange rate was measured by the

number of Kenya shillings per USD. Interest rate was measured through monthly interest rates. Inflation rate was measured by monthly consumer price index. Growth rate was used as the control variable. It was indicated by GDP. The variable type was also indicated in the operationalization model shown by table 3.1.

Table 3.1: Measurement of Variables

| Variable Type | Variable | Indicators | Measurement |
|---|---|---|---|
| Dependent | REITs | Monthly returns, Rt | $\dfrac{P_t - P_{t-1}}{P}$ |
| Independent | Exchange rate | Exchange rate of dollar to Kenya shilling | KSH/USD |
| | Interest rate | Monthly interest rate | Annual interest rate/12 |
| | Inflation rate | Consumer price index (CPI) | $\dfrac{\text{Current CPI-previous CPI}}{\text{Previous CPI}}$ |
| Control | Growth Rate | Gross domestic product (GDP) | Current GDP-previous GDP |

### 3.5.3 Test of Significance

In this research, significance of the model was checked utilizing ANOVA. Where the significance of the ANOVA statistics indicated by F is less than 5%, the model is assumed to be significant. Hence, the preferred model for the data. The F statistics were used to test significance since we have a population or data points exceeding 30. Otherwise, t-statistics would have been used.

**CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS**

**4.1 Introduction**

This section of the paper gives the analysis of data based on the objective and the variables adopted in the study. The chapter also presented and interpreted the findings from the analysis. The study sought to establish the effect of macroeconomic variables on performance of Real Estate Investment Trusts in the Nairobi Securities Exchange. The analysis was done based on descriptive, correlation and regression statistics presented in this research.

**4.2 Descriptive statistics**

The study sought to describe the data based on descriptive statistics. The study utilized minimum, maximum, mean and standard deviation to describe the data. The data was described based on the objective and variables of the study.

Table 4.2: Descriptive Statistics

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| REITs | 60 | 100.23 | 110.59 | 102.9318 | 2.43860 |
| EXCHANGE RATE | 60 | 11.75 | 18.22 | 13.5368 | 1.87697 |
| INTEREST RATE | 60 | 3.73 | 11.70 | 5.8837 | 1.73385 |
| INFLATION RATE | 60 | 4.20 | 6.30 | 5.3200 | .75841 |
| GROWTH RATE | 60 | -.30 | 5.60 | 3.6600 | 2.09367 |
| Valid N (listwise) | 60 | | | | |

From the findings, the REITs showed an average monthly return as a measure of REITs of 102.93% between January 2016 and December 2020. The monthly returns showed a standard

deviation of 2.439% within the same period. This indicates that the monthly returns of REITs in Kenya averages at more than 100% showing great monthly returns across the real estate market. The minimum monthly returns within the period were 100.23% with a maximum of 110.59%. Exchange rate on the other hand showed a mean of 13.537% and a standard deviation of 1.877% in the study period. The minimum exchange rate within the period was 11.75% with a maximum of 18.22%. This shows that exchange rate did not vary much between 2016 and 2020.

Interest rate showed a mean of 5.88% and a standard deviation of 1.733%. This shows that the interest rate averaged at 6% between 2016 and 2020. The minimum interest rate within the period was 3.73% with a maximum of 11.7%. This shows that interest rate did not vary much between 2016 and 2020. Inflation rate, on the other hand, showed a mean of 5.32% and a standard deviation of 0.758%. This shows that the inflation rate averaged at 5% between 2016 and 2020. The minimum inflation rate within the period was 4.2% with a maximum of 6.3%. This shows that inflation rate did not change much between 2016 and 2020. Growth rate showed a mean of 3.66% and a standard deviation of 2.09%. This shows that the inflation rate averaged at 5% between 2016 and 2020. The minimum inflation rate within the period was -0.3% with a maximum of 5.6%. This shows that inflation rate did not vary much between 2016 and 2020.

## 4.3 Diagnostics

The researcher sought to check on the assumptions of the regression model. This involved normality, multicollinearity and heteroskedasticity.

Table 4.3: Normality

**Tests of Normality**

|  | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
|  | Statistic | df | Sig. | Statistic | df | Sig. |
| REITs | .199 | 60 | .000 | .826 | 60 | .000 |
| EXCHANGE RATE | .324 | 60 | .000 | .707 | 60 | .000 |
| INTEREST RATE | .143 | 60 | .004 | .860 | 60 | .000 |
| INFLATION RATE | .178 | 60 | .000 | .879 | 60 | .000 |
| GROWTH RATE | .327 | 60 | .000 | .735 | 60 | .000 |

a. Lilliefors Significance Correction

From the normality results, based on Shapiro-Wilk test, the researcher found that the variables had significance values less than 5%. Hence, the researcher rejects the null hypothesis that data is normally distributed and assumed that the data for the variables followed a normal distribution.

Table 4.4: Multicollinearity

| Model | | Collinearity Statistics | |
|---|---|---|---|
|  |  | Tolerance | VIF |
| 1 | (Constant) |  |  |
|  | EXCHANGE RATE | .677 | 1.478 |
|  | INTEREST RATE | .704 | 1.420 |
|  | INFLATION RATE | .593 | 1.686 |
|  | GROWTH RATE | .635 | 1.576 |

In order to check on whether the predictor variables had a relationship with each other, multicollinearity test was done using VIF. The findings showed that the VIF statistics were less than 10 indicating very low levels of multicollinearity. The tolerance statistics were also less than 2. Hence, we assume that the predictor variables do noy relate with each other.

Table 4.5: Heteroskedasticity

```
------- ANOVA TABLE  --------
              SS         df        MS          F        Sig
Model       11.681     4.000    27.670      0.473       .755
Residual   278.087    55.000     5.056   -999.000   -999.000

------- Breusch-Pagan and Koenker test statistics and sig-values --------
              LM        Sig
BP          5.340      .190
Koenker     7.082      .232

Null hypothesis: heteroskedasticity not present (homoskedasticity)

if sig-value less than 0.05, reject the null hypothesis

Note: Breusch-Pagan test is a large sample test and assumes the residuals to be normally distributed
```

## 4.4 Correlation Analysis

Table 4.6: Correlation Analysis

**Correlations**

| | | REITs | EXCHANGE RATE | INTEREST RATE | INFLATION RATE | GROWTH RATE |
|---|---|---|---|---|---|---|
| REITs | Pearson Correlation | 1 | | | | |
| | Sig. (2-tailed) | | | | | |
| | N | 60 | | | | |
| EXCHANGE RATE | Pearson Correlation | -.369[**] | 1 | | | |
| | Sig. (2-tailed) | .004 | | | | |
| | N | 60 | 60 | | | |
| INTEREST RATE | Pearson Correlation | -.006 | .214 | 1 | | |
| | Sig. (2-tailed) | .966 | .100 | | | |
| | N | 60 | 60 | 60 | | |
| INFLATION RATE | Pearson Correlation | -.736[**] | .405 | -.220 | 1 | |
| | Sig. (2-tailed) | .000 | .133 | .091 | | |
| | N | 60 | 60 | 60 | 60 | |
| GROWTH RATE | Pearson Correlation | .759[**] | .276 | -.025 | .856 | 1 |
| | Sig. (2-tailed) | .000 | .533 | .851 | .120 | |
| | N | 60 | 60 | 60 | 60 | 60 |

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

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

In order to establish how macroeconomic variables, relate to the performance of REITs, correlation analysis using Pearson coefficient was done. From the research findings, exchange rate showed a correlation coefficient of -0.369 significant at the 0.01 significance level (0.004>sig.>0.01). This shows that exchange rate has a weak, negative and significant relationship with performance of REITs listed in Kenya. On the other hand, interest rate showed a weak positive and insignificant relationship with REIT performance. This is shown by -0.06 and a significance of 0.966 which is

greater than 0.05. Inflation rate showed a coefficient of -0.736 and a significance value of 0.000. This indicates that inflation rate has a strong, negative and significant relationship with Performance of REITs listed in Kenya. Growth rate showed a coefficient of 0.759 and a significance value of 0.000. This indicates that growth rate has a strong, positive and significant relationship with performance of listed REITs in Kenya.

## 4.5 Regression Analysis

Regression analysis was done to establish the effect of macroeconomic variables on performance of Real Estate Investment Trusts in the Nairobi Securities Exchange. The significance of the model was also checked through F-statistics shown by ANOVA.

Table 4.7: Model Summary

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .788[a] | .621 | .593 | 1.55584 |

a. Predictors: (Constant), GROWTH RATE, INTEREST

RATE, EXCHANGE RATE, INFLATION RATE

From the model summary, the macroeconomic variables showed a correlation (R) of 0.788 against Performance of REITs. This shows that the macroeconomic variables had a strong relationship with Performance of REITs. The summary also shows an R squared of 0.621. This shows that combined, the macroeconomic variables adopted in this research, they contribute 62.1% to the change in Performance of REITs. This show that exchange rate, interest rate, inflation rate and growth rate are the major factors influencing Performance of REITs listed in Kenya.

Table 4.8: Analysis of Variance

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 217.724 | 4 | 54.431 | 22.486 | .000[a] |
| | Residual | 133.136 | 55 | 2.421 | | |
| | Total | 350.859 | 59 | | | |

a. Predictors: (Constant), GROWTH RATE, INTEREST RATE, EXCHANGE

RATE, INFLATION RATE

b. Dependent Variable: REITs

The research sought to establish the significance of the regression model and fitness to the data.

From the ANOVA table, F-statistics showed a significance value of 0.000 which was less than

0.05. This shows that the regression model significantly fits the data.

Table 4.9: Regression Coefficients

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 112.451 | 2.756 | | 40.809 | .000 |
| | EXCHANGE RATE | -.133 | .131 | -.102 | -1.013 | .315 |
| | INTEREST RATE | -.088 | .139 | -.062 | -.629 | .532 |
| | INFLATION RATE | -.975 | .637 | -.303 | -1.531 | .131 |
| | GROWTH RATE | .551 | .207 | .473 | 2.662 | .010 |

a. Dependent Variable: REITs

The findings from the research data show that when the predictor variables (exchange rate, interest rate, inflation rate and growth rate) are held constant, Performance of REITs would stand at 112.451. The coefficient table also shows that exchange rate had a regression coefficient of -0.133 and significant value of 0.315. This indicates that a unit change in exchange rate would reduce REIT performance by 0.133. A unit change in interest rate would reduce Performance of REITs by 0.088. On the other hand, a unit change in inflation rate would reduce Performance of REITs by 0.975. Finally, the table shows that a unit change in growth rate would increase the performance of REITs by 0.551. Only growth rate showed a significant effect on performance of REITs with the other variables indicating an insignificant relationship.

## 4.6 Discussions

From the research findings, the study showed that exchange rate had a weak significant correlation. This indicates that exchange rate has a weak negative relationship with Performance of REITs across Kenya. The findings concur with those of Makori (2017) who discovered that the exchange rate has an inverse impact on stock market performance. However, they differed with those of Ouma and Muriu (2014) who discovered a direct association of changes in returns and global currency exchange.

The findings showed that interest rate has an insignificant relationship with performance of REITs. The findings differ with those of Nguyen (2015) who indicated that as whenever interest rates rise, the return on a REIT is less appealing, lowering its valuation.

On the other hand, inflation rate showed a negative relationship with performance of REITs. The findings concur with the findings of Adrangi, Chatath and Raffiee (2004) who found that inflation

has a negative impact on REIT performance. The findings differ with those of Cohen and Burinskas (2020) who found no significant relationship between inflation and REITs.

The study found a positive relationship between GDP and REIT performance. The findings concur with those of Newell and Marzuki (2018) who established a direct effect of GDP on REIT performance. On the other hand, the findings differed with the findings of Dabara (2021) who established no effect of GDP on REIT performance. It also differs with those of Olanrele et al (2020) who established a negative effect of GDP on REIT performance.

# CHAPTER FIVE

## SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 5.1 Introduction

This section of the paper summarizes the findings of the study. The summary is based on the objective of the study. This study sought to establish the relationship between corporate governance and financial performance of deposit taking microfinance institutions in Kenya. This section also provides the reader with the conclusions and recommendations based on the findings. The limitations and areas for future studies are also indicated within this section of the paper.

### 5.2 Summary of Findings

The study sought to establish the effect of macroeconomic variables on performance of Real Estate Investment Trusts in the Nairobi Securities Exchange between January 2016 and December 2020. The objective was met through data analysis using descriptive statistics as well as correlation and regression statistics. From the results, REITs showed an average monthly return of 102.93% between January 2016 and December 2020. Exchange rate showed a mean of 13.537%; interest rates a mean of 5.88%; inflation rates a mean of 5.32% and growth rate a mean of 3.66%. The variables displayed a low standard deviation which showed that they did not vary much between 2016 and 2020. From the correlation analysis, exchange rate showed a negative significant correlation coefficient. However, interest rate showed a weak positive and insignificant relationship with REIT performance; inflation rate showed a strong, negative and significant correlation coefficient while growth rate showed a strong, positive and significant coefficient with Performance of REITs.

From the model summary, the macroeconomic variables showed a strong combined relationship with Performance of REITs. The summary also showed an R squared of 0.621 showing a contribution of 62.1% to the change in Performance of REITs. Regression coefficients showed that exchange rate had a negative insignificant regression coefficient showing that increased exchange rate led to decreased Performance of REITs. On other hand, unit change in interest rate reduced Performance of REITs; inflation rate reduced Performance of REITs with growth rate causing an increase in performance of REITs. Only growth rate showed a significant effect on Performance of REITs with the other variables indicating an insignificant relationship.

## 5.3 Conclusions

From the findings, the study concludes that exchange rate has a weak, negative and significant relationship with performance of REITs listed in Kenya. This shows that listed REITs in Kenya experience reduction in their performance when the exchange rates increase. The study also found the interest rate showed a weak positive and insignificant relationship with REIT performance. This leads to the conclusion that interest rate has neither nor effect on performance of REITs listed in Kenya. On the other hand, the findings showed that inflation rate had a strong, negative and significant relationship with Performance of REITs listed in Kenya. This makes the researcher to conclude that inflation rate has a negative relationship on performance of REITs listed in Kenya.

Findings also showed that growth rate had a strong and negative relationship with performance of REITs listed in Kenya. Growth rate showed a significant positive regression coefficient indicating that it has a positive effect on performance of REITs listed in Kenya. From the model summary, the study concludes that exchange rate, interest rate, inflation rate and growth rate are the major factors influencing performance of REITs listed in Kenya. The study also concludes that exchange rate, interest rate, and inflation rate have no effect on the performance of REITs listed in Kenya.

**5.4 Policy Recommendations**

From the findings macroeconomic variables were found to make the greatest contribution to the change in performance of REITs. This study recommends that listed REITs consider the macroeconomic variables when strategizing on improving their performance. The study also found that exchange rate, inflation had a negative and significant relationship with performance of REITs. The government should encourage more international investors in REITs into the country through favourable policies. This would increase the inflow of dollars into the country which would reduce the exchange rate for improved REITs performance.

This study recommends that the government come up with relevant policies that would ensure the reduction of inflation rates. This can be done through contractionary policies that involves increased interest rates and reducing the bond prices. The study found that growth rate as measured by GDP had a positive relationship with REITs performance. The study recommends that the government lower interest rates, which have no effect on REITs performance. This would lower the cost of borrowing and increase investment in REITs. This would increase the growth rate and hence improve the performance.

**5.5 Limitations of the Study**

This paper was limited by various aspects. The limitations include the parameters and focus of this research. The research sought to establish the effect of macroeconomic variables on performance of Real Estate Investment Trusts in the Nairobi Securities Exchange. This limits the study to REITs

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which may limit the application of the findings on other firms listed and non-listed in Kenya. The study was based on listed REITs with other REITs assumed. This means that the focus on listed REITs limits the study. The study is also limited to macroeconomic variables.

The study was also limited by the period of research. The study was based on the period between 2016 and 2020. The study was also based on monthly data with use of quarterly data expected to give different results. The study was also limited to use of secondary data with studies using primary data expected for comparison. This led to recommendations for further research.

## 5.6 Recommendations for Future Studies

This study recommends a study based on other variables other than the macroeconomic variables adopted in this research. The study also recommends similar research based on other REITs other than listed ones. Similar research on other listed firms is recommended for further research. A similar study can be done focusing on a period longer than 5 years and based on primary data. A similar study is also recommended based on quarterly or annual data to compare the results.

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# APPENDICES

## Appendix I: Data Collection Schedule

| Month | Exchange rate (KSHs/USD) | Interest rate | Inflation rate | GDP | Stock Price |
|---|---|---|---|---|---|
| | Shs. | % | % | % | Kshs. |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| --- | | | | | |
| 36 | | | | | |