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# Analysing the determinants of the performance of listed Real Estate Investment Trusts in Africa.

Chirchir, Linda Chepkorir
*Strathmore Business School*
*Strathmore University*

# ANALYSING THE DETERMINANTS OF THE PERFORMANCE OF LISTED REAL ESTATE INVESTMENT TRUSTS IN AFRICA

**Linda Chepkorir Chirchir**

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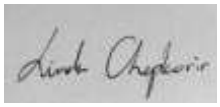
## DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the thesis/dissertation itself.



Name of Candidate: **Linda Chepkorir Chirchir**

Signature: 

Date: **28th October 2021**

**Approval**

The dissertation of Linda Chepkorir Chirchir was reviewed and approved for examination by the following:

Prof. S. Wagura Ndiritu

Associate Professor

Strathmore University Business School

Dr. George Njenga

Executive Dean

Strathmore University Business School.

Dr. Bernard Shibwabo

Director, Office of Graduate Studies

# ABSTRACT

The emergence of real estate investment trusts (REITs) was expected to be a game changer within the financial markets in Africa. However, reports have shown that there has been low uptake of REITs which has been attributed to the general poor performance of the market, among other challenges. Despite the notable performance struggles within REITs, there has been insufficient examination of the determinants of the financial performance of the REITs. This study analysed the determinants of the financial performance of the listed REITs in Africa. The study specifically focussed on the interest rates, inflation rates, gross domestic products (GDP), and firm characteristics effect on financial performance. The study was premised on the resource-based view theory. The research adopted a positivism research philosophy with a descriptive correlational research design being the central design guiding the study. The target population for the study was the 34 listed REITs in South Africa and Three in Nigeria, and One in Kenya. The study adopted a census survey of all the listed REITs in the continent. Data were collected using a secondary data extraction form from the financial statements of the listed REITs between 2010-2020. The collected panel were compiled in Microsoft Excel and analyzed using Stata 16. The research adopted descriptive analysis, correlation analysis, and panel regression analysis. The findings were presented in line with the objectives of the study. The panel regression results indicated that interest rates, inflation rates, GDP, leverage, liquidity, firm age, and size were responsible for 52.70% of the financial performance of listed REITs in Africa. The study concluded that inflation rate, interest rate, and liquidity had an insignificant effect on the financial performance of the listed REITs. Conclusions were further made that GDP, leverage, firm size, and age of the firm had a significant effect on the financial performance of listed firms in Africa. The study recommends that the firms should collaborate with regulatory bodies in the development of institutional benchmarks to guide the management of inflation and interest rates as well as guide REITs investments during economic boom periods. Further, the study recommends the firms should focus on strategies that will guide the management of the debt within the firm as well as advocating for prudent management of the firm assets and investments. Lastly, the firms should develop clear liquidity management measures that will ensure that the firm is able to meet its financial obligations.

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# LIST OF ABBREVIATIONS

| | |
|---|---|
| ARCH | Autoregressive Conditional Heteroscedasticity |
| ARDL | Autoregressive distributed lag |
| ARFIMA | Autoregressive Fractionally Integrated Moving Average |
| BI | Bank of Indonesia |
| CAHF | Centre for Affordable Housing Finance Africa |
| CPI | Consumer Price Index |
| ECM | Error Correction Model |
| EMH | Efficient Market Hypothesis |
| EPRA | European Public Real Estate Association |
| FMI | First Metro Investment |
| FTSE | Financial Times Stock Exchange |
| GDP | Gross Domestic Product |
| GARCH | Generalized Autoregressive Conditional Heteroscedasticity |
| MSCI | Morgan Stanley Capital International |
| NACOSTI | National Commission for Science, Technology and Innovation |
| N-REIT | Nigeria-REIT |
| NGN | Nigerian Naira |
| NIM | Net Interest Margin |
| NSE | Nairobi Stock Exchange |
| PLS | Partial Least Square |
| POLS | Pooled Ordinary Least Square |
| RBV | Resource-Based View |
| REIT | Real Estate Investment Trusts |
| ROA | Return on Assets |

| | |
|---|---|
| ROE | Return on Equity |
| ROI | Return on Investment |
| ROS | Return on Sales |
| SACCO | Savings and Credit Cooperative Organization |
| VIF | Variance Inflation Factor |

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# DEDICATION

I dedicate this dissertation to my husband Victor Kipkorir and my extended family for their prayers, support, encouragement and understanding.

# DEFINITION OF TERMS

**Exchange rate:** The value of two currencies relative to each other (Harvey, 2012).

**Financial performance:** This refers to a firm's ability to achieve planned financial results as measured against its intended outputs (Mutende, Mwangi, Njihia, & Ochieng, 2017). Financial performance is usually measured using financial ratios, such as ROE, ROA, return on capital, return on sales (ROS), and operating margin (Gilchris, 2013).

**Firm characteristics:** A firm's demographic and managerial variables, which, in turn, comprise part of the firm's internal environment (Zou and Stan, 1998). They include firm size, leverage, liquidity, sales growth, asset growth and turnover (Kogan and Tian, 2012).

**Gross domestic product:** The current dollar value of all final goods and services that are produced within a country within a given period of time. (Garın et al., 2018)

**Inflation:** It is a persistent rise in the general level of prices (Jhingan, 2002). Inflation rate measures changes in the average price level based on a price index (Akers, 2014).

**Interest rate:** Crowley defined interest rate as the price a borrower pays for the use of money they borrow from a lender or fee paid on borrowed assets. It is a price of money that reflects market information regarding the expected change in the purchasing power of money or future inflation (Ngugi, 2001)

**Leverage:** Refers to the proportion of debt to equity in the capital structure of a firm (Omondi and Muturi, 2013). It strives to measure what portion of the total assets is financed by debt funds.

**Macroeconomic factors:** This refers to the Gross Domestic Product (GDP), interest rates, inflation rates, exchange rates and population growth.

# CHAPTER ONE: INTRODUCTION

This section of the dissertation presents the study background, a brief overview of real estate investment trusts and literature on factors that influence their performance. It then presents the statement of the problem, the research objectives and hypotheses, the study scope and significance of the study to various stakeholders.

## 1.1 Background to the Study

Real Estate Investment Trusts (REITs) have numerous definitions in literatures and past studies but with similar keywords. A REIT has been defined as a company that owns or finances income-producing real estate whose shares are publicly traded in a way similar to any other stock (*EPRA*, n.d.; Oreagba, 2010; Grupe, 2018) . REITs can be viewed much like mutual funds in that they allow investors - both institutional and retail (individuals) - to pool capital and invest in a larger, more diversified real estate portfolio through the purchase of shares (Smotrich et al., 2012; *Nareit*, n.d.). REITs are designed to facilitate the flow of rental income and/or mortgage interest to investors and are fundamentally corporate entities that own, operate, acquire, develop, and manage real estate assets (Smotrich et al., 2012; *Nareit*, n.d.). Real estate properties include office buildings, residential buildings, shopping malls, tourism-related facilities, healthcare facilities, industrial facilities, and infrastructure (FMI, 2010).

REITs must comply with several distribution and income stream requirements, as well as major ownership restrictions. REITs qualify for special tax treatment, providing a conduit for earnings to be taxed at the investor level and not at the entity level (Grupe, 2018). It must distribute at least 90% of taxable income (Smotrich et al., 2012; Olanrele, 2014). At least 75% of gross income must come from real property investments or debt secured by real property. At least 95% of gross income must be derived from real property, dividends, interest, and gains from security sales. At least 75% of assets must be invested in equity ownership of real property, mortgages, other REIT shares, government securities, and cash. No more than 50% of shares outstanding can be owned by five or fewer individuals. The shares must be owned by at least 100 shareholders. The taxable REIT subsidiary can be no larger than 25% of the REIT's assets (Smotrich et al., 2012).

Thus, common REIT features to all definitions of REIT from various literature include a registered company, association, trust, or corporation; investment in income yielding real estate properties and/or real estate mortgage; generation of revenue from real estate properties; and distribution of revenue before tax to investors in the form of a dividend. Despite significant evidence pointing to the impact of REITs in promoting access to funds for real estate development, Kenya still has only one listed REIT firm, the Ilam Fahari i-REIT. However, according to a publication by Cytonn (2021), the company has been reporting negative returns since it began operations in 2015. According to the report, the value of the instrument has dropped by 64.5% since its inception, indicating dwindling interest by investors. Further, attempts by Fusion Capital D-REIT and the Cytonn D-REIT to enter into the market were unsuccessful due to low subscription and conflict of interest between prospect partners.

Cleland (2020), in reporting for the REITs Association of Kenya, affirmed that the Covid-19 pandemic was having a significant negative impact on the real estate sector. Significant unexpected increases in operating costs associated with containment efforts and regulatory requirements, a projected inability of tenants to continue paying rent, a reduction in-office use and a reduction in construction activities, and a drop in value of listed units are among the challenges that REITs face during the global pandemic. It is against this background that this study sought to examine the factors that influence real estate investment trust performance in Africa.

### 1.1.1 Real Estate Investment Trusts

The REIT structure was first established in 1960 in the United States (US) (Brounen and Sjoerd, 2012) and arose in response to problems in the US property market. Most of the first REITs were mortgage companies. At the time, banks in the US were finding themselves in possession of large portfolios of income-producing properties, whose mortgages had not been repaid. In the process of attempting to off-load these properties, the banks found that they were unable to sell them to traditional investors – due to the inaccessible nature of large real estate assets (Feng et al., 2011).

In the 1960s, the US Congress commenced the creation of REITs which would provide affordable access to investment in commercial property to all investors. Prior to the establishment of the US REIT regime, the commercial property market was dominated

by high net-worth individuals or institutional investors. US REITs allow retail investors to purchase partial ownership of large-scale income-producing properties. In addition, US REITs would also offer investors tax advantages as they are pass-through vehicles, meaning that income tax is exempted at the corporate level (Pham, 2013).

The REIT concept was thus developed as a strategy to "unitize" property and permit collective investment by the average investor. In other words, the REIT structure was established with the aim of providing the average investor with a way to participate in the property market (CAHF, 2017). Over the last fifty years, investment in US REITs has increased, with US REITs becoming the most important indirect investment vehicle in property. As of December 2011, US REITs made up 88.5% of the total listed property market in the US (Macquarie, 2011). According to (Nareit, 2021), although the US still has the largest listed real estate market in the world, more than 40 countries around the world have enacted REIT legislation, and more than 500 companies have been listed in the FTSE/EPRA/Nareit Global Real Estate Index.

The emergence of the REIT structure ultimately succeeded in changing the investment landscape in the US and widening the pool of capital available to income-producing property owners and developers (Packer et al., 2014). Over the last two decades, REITs have demonstrated large-scale growth – not only in the pioneering market of the USA but globally through the introduction of REIT regimes in the majority of large capital markets (Stevenson, 2013). Today, the REIT structure can be found in 39 countries worldwide (*Nareit*, 2020), and the global REIT market has grown to a total market capitalization of US$9.6 trillion (MSCI, 2020).

### 1.1.2 Real Estate Investment Trusts in Africa

Although REITs were introduced in the US in the 60s, Cytonn (2019) reports that these instruments are still a recent phenomenon in the African real estate scene. South Africa, Nigeria, Ghana, Kenya, and Tanzania are the only African countries that have introduced REIT structures. Legislation and regulations governing REITs have been introduced in other African countries, including Rwanda (2013), Morocco (2015), and Uganda (2017). South Africa has the most REITs, having registered more than 35 REITs, a significant growth from the 17 registered in the country in 2013. Nigeria has three, while Ghana and Kenya both have one listed REIT. The South African National

Treasury considered the introduction of the internationally adopted REIT structure in 2013 with legislation that came into effect in April 2013 which has transformed the listed fund to modern REIT and grow the property market resulting in about 33 REIT companies in South Africa as at the end of 2015 (EPRA, 2015). Currently, South African REIT firms have the biggest market capitalization in Africa ($8.4 billion as of 2020). Although still considerably high, this is a significant drop in value from its highest recorded value of $30 billion in December 2018. A 230% reduction in market capitalization.

Ghana's first REIT firm was established in 1994 by the Home Finance Company, using corporate bonds and several collective investment schemes to finance mortgage and ending activities. The Securities and Exchange Commission (SEC) of Nigeria issued the first set of guidelines for the registration and issuance of requirements for the operations of REITs in Nigeria following the enactment of the Investment and Securities Act (ISA) of 2007 (Akpan & Ogunba, 2015). In 2007, the first REIT in Nigeria was the SKYE Shelter REIT launched by SKYE Bank Plc 2007 with NGN2billion. Today, there are three REITs in Nigeria REIT (N-REIT).

Kenya's regulatory framework for REITs was launched in 2013. However, the rate of development in the industry has stagnated. For starters, the country has only one registered REIT firm known as STANLIB Fahari I-REIT, and it began operations in 2015 after approval from the Capital Markets Authority (Cytonn Investments, 2019). Being an i-REIT, this firm owns and manages income-generating real estate. I-REITs are required to distribute at least 80% of their income as dividends. The country has 10 licensed REITs managers, with Acorn Investment Management being the most recently approved REIT manager. The company aims to establish a D-REIT and an I-REIT by 2024. Currently, the firm has increased investment in the development of student hostels and the acquisition of property for rental income.

According to the World Bank Group (2015), the majority of housing investment in most African countries comes from government debt or domestic savings rather than from international capital markets and domestic institutional investment markets, as is the case in developed economies.

Various researchers have looked into the factors determining REIT performance. Xiao, Lin, and Li (2014), in a study of United States REITS, noted that expected REIT returns were negatively affected by changes in short-term interest rates, inflation rate, and market conditions. Olanrele, Adegunle, and Fateye (2018) assert that macroeconomic indicators such as interest rate, exchange rate, inflation rate, market capitalization, and all share index all have significant explanatory power in REIT performance. Njeri and Muturi (2019) determined that interest rate, inflation rate, economic growth, and exchange rate were the main macroeconomic factors influencing REIT performance. Below is a discussion of some of the macroeconomic variables that impact REIT performance.

### 1.1.2 Macroeconomic Factors and Financial Performance

According to Rodrik (2008), macroeconomic factors emerge from the study of microeconomics, which studies how a country's economy behaves as a single unit of total output, income, employment levels, and the interrelationship among diverse economic sectors (Rodrik, 2008). Macroeconomic variables are those factors that economists use to analyse an economy and can be looked at in terms of interest rates, inflation, and exchange rates (Du, Tepper, & Verdelhan, 2018). Most researchers identify the following variables as having the most influence on an economy; exchange rate, inflation, gross domestic product (GDP), interest rates, legal and regulatory framework, and market risk (Issa & Antwi, 2017).

Evusa, Kitati, and Maithya (2015) look at macroeconomic variables from three perspectives: as an assessment of the variables that impact the whole economy; as all measures instituted by the government to counter adverse economic variations such as increased inflation or devaluation of the nation's currency; and as monetary and fiscal policies instituted to regulate an economy. According to Zhu (2012), macroeconomic factors include foreign direct investment, investment, inflation rate, interest rate, consumption, informal sector employment, money supply, aggregate price levels, national savings rate, GDP per capita savings, and GDP growth rate. These factors determine the spending power of a nation's citizenry. They also influence productivity levels since they determine the cost of acquiring essential materials and associated factors (Shephard, 2016).

Various studies explore the impact of macroeconomic variables on stock profitability, albeit producing varied results. Laichena and Obwogi (2015) found a strong relationship between the variables and stock value, while Ilahi, Ali, and Jamil (2015) reported that the relationship was insignificant. Olanrele, Adegunle, and Fateye (2018) noted that interest rates and inflation rates had an insignificant impact on investment trusts returns. Ajide (2014) noted that government spending significantly impacts GDP growth which in turn has a direct impact on all sectors of the economy, including the real estate sector. Kola (2016) reported that interest rates have varying effects on REIT performance depending on the conditions, with the high interest rates being more profitable for firms in developed economies as opposed to those in developing economies. Another study by Kim and Lim (2021) affirmed that mortgages and the ability of investors to secure loans are influenced by interest rates.

#### 1.1.2.1 Interest Rates and Financial Performance

Interest rate is the loan cost or price change paid to a borrowed fund over time (Ahmed, Rehan, Chhapra, & Supro, 2018). Interest can be thought of as "rent of money" and are fundamental to the health of a capitalist economy. They are usually expressed as an annual percentage rate. Mohsin (2018) affirms that interest rate changes have a profound impact on individuals' and companies' saving and consumption behaviours. Interest rate change has been noted to have influenced stock index profitability both positively and negatively. High interest rate results in increased costs which has a direct impact on a firm's profitability attributable to increased products' prices and reduced capacity of consumers to afford the products and services (Bui, 2020). Further, high-interest rates are a deterrent to national spending since people and businesses will hold a large sum of their money in the banks, thus reducing national spending.

Mnang'at, Namusonge, and Oteki (2016) found a significant relationship between interest rate and financial performance of micro-enterprises in Kenya. Rao (2016) noted that interest rates have a significant negative relationship with financial performance. Murungi (2014) sampled insurance firms and determined that interest rates and GDP significantly impact firm outcomes. However, Ongore and Kusa (2013) reported that interest rates have no significant impact on bank performance. Similarly, Njoroge (2013) noted that interest rates have an insignificant impact on equity returns among firms listed at the New York Stock Exchange. Barnor (2014) found a significant negative effect of interest rate on stock market returns of listed firms in Ghana.

#### 1.1.2.2 Inflation Rate and Financial Performance

Ha, Kose, and Ohnsorge (2019) define inflation as the constant increase in the average price of goods and services. The inflation rate is mainly evaluated in terms of the GDP Deflator or a CPI indicator. Increased inflation results in a weakening of the economy's ability to increase spending (Akers, 2014). According to Nduri (2013), inflation is among the most harmful phenomena that are present in all world economies. High inflation rates have been associated with higher cost of living, and this has a significant impact on credit and reinvestment measured (Ernayani, Robiyanto, & Sudjinan, 2017). Mokhova and Zinecker (2014) noted that increased inflation negatively affects the profitability of investment projects, which simultaneously impacts stock market returns. These findings were also collaborated by Mutuku and Ng'eny (2015) and Barakat, Elgazzar, and Hanafy (2016).

Various researchers link inflation to firm returns, including Haider et al. (2018), who reported a significant relationship between inflation rate and ROA of firms across various industries. Mohammed, Shukor, Affandi, and Mahmood (2013) reported that inflation and GDP growth have a positive relationship with return among unit trusts. Issah and Antwi (2017) investigated the role of macroeconomic variables on a firm's performance in the UK. The results found a significant effect of the adjusted unemployment rate, benchmarked unit labour costs, real GDP, and exchange rate on the return on assets. In Nigeria, Owolabi (2017) indicated that inflation rate, interest rate, and exchange rate do not impact the returns of manufacturing firms. Gado (2015) reported that inflation and government expenditure had significant impacts on the returns of the 20 most capitalized companies in Nigeria.

#### 1.1.2.3 Gross Domestic Product and Financial Performance

Tan and Floros (2012), on a sample of banks in China, reported a negative relationship between GDP growth and bank profitability. Sinha and Sharma (2016) documented a positive relationship between profitability and GDP in India, while Trujillo-Ponce (2013), on a sample of banks in Spain, also reported a positive impact of GDP growth on ROA and return on equity (ROE). In Kenya, Otambo (2016) noted a positive relationship between GDP growth and returns among banks. The study determined that other macroeconomic variables such as interest rates and exchange rates have negative impacts on banks' ROA, while the inflation rate had an insignificant impact on the financial institutions' returns.

Kiganda (2014) carried out a case study of Equity Bank in Kenya and revealed that GDP, inflation rate, and exchange rate did not affect profitability measures. Patrick (2013) noted that GDP was positively correlated to increased performance among Microfinance firms. Kirui, Wawire, and Onono (2014) found that GDP growth was one of the main factors impacting stock market performance. Leah (2014) reported a positive relationship between pension funds returns and interest rate, consumer price index, and the NSE index.

### 1.1.3 Firm Characteristics and Financial Performance

Lopez-Valeiras et al. (2016) revealed that the relationship between size and financial performance is negatively mediated by indebtedness. Bhutta and Hasan (2013) noted that in the Karachi food industry, firm size was negatively related to profitability, while food inflation had an insignificant impact on profitability. Chandrapala and Knápková (2013) found a significant relationship between the size of the firm and its profitability measures among Czech firms. Debt ratio was noted to significantly reduce income within the firms.

In the Nigerian agricultural sector, Lasisi (2017) reported that leverage significantly reduces the firms' income while liquidity increases the firms' income. Among selected life insurance firms in Kenya, Kaguri (2013) determined that firm size, leverage, and liquidity significantly impact returns. Firm size and leverage were also noted to be key factors predicting profitability in Ethiopia (Mehari, 2013) and in Pakistan (Sumaira, 2013). However, studies by Bist et al. (2017) in Nepal revealed that while leverage significantly improved returns, firm size and liquidity had insignificant impacts on profitability.

### 1.1.4 Financial Performance

Financial performance can be defined as an approach to determining the extent to which the financial goals such as increase in shareholder value, profitability and cash flows are achieved in a particular period of time (Bist, Mali, Sabita Puri, Kayastha, & Bhattarai, 2017). Financial performance explains how a company generates high incomes, makes good profits, and effectively utilizes the assets (Ernayani, Robiyanto, & Sudjinan, 2017). It, therefore, indicates how effectively companies put into use their resources in the generation of incomes. Financial performance measures the creditworthiness, liquidity, and cost-effectiveness of a company (Kipkurui, 2019). Further, a company is considered financially healthy when it is in a position to generate

high sales volume, make profits, and manage its expenses in a sustainable way while maintaining a healthy asset and cash flow position over time (Lasisi, 2017). The importance of financial performance is that it enables companies to sustain their operations since high performing companies are considered to be financially healthy (Ernayani, Robiyanto, & Sudjinan, 2017).

Financial statements provide information to management, investors, and creditors on the available assets, how they are financed and how the company uses the assets to generate revenue (Kiganda, 2014). Financial statements give quantitative information related to operation, which highlights the profitability and performance of a firm. This information is always subject to analysis and interpretation (Nyoro, 2017). Financial performance is measured using absolute and relative measures such as earnings before tax, return on investments, return on assets, profits and return on equity. Measures frequently used include ROE and ROA (Rao, 2016).

Other financial measures include the Return on Investment (ROI), profit margin, dividend pay-out, while marketing performance indicators include indicators such as expansions of sales and share of the growing market (Makau, 2016). The current research applied ROA to measure the financial performance of the REITs. The metric was selected due to its wide application in the audited financial statements of institutions, thus ensuring that a standardized measure is adopted for all the REITs in Africa.

### 1.2 Statement of the Problem

The emergence of REITs as a new regulated investment vehicle was perceived to be a game changer in the continent where real estate and infrastructural development are still in the nascent stage (Carstens & Freybote, 2018). Globally, REITs are associated with high returns, with MSCI Japan (2020) reporting that in developed economies, REITs can realize up to 27% returns. However, as noted by Cytonn 2019, there has been low uptake of REITs which has been attributed to the general poor performance of the market, among other challenges. Furthermore, CAHF (2017) notes that despite REITs ballooning in the South African market, there has been no notable growth of REITs across the continent. More so, Ernst and Young (2014) noted that the implementation of REITs in developing economies in Africa has been met with resistance in the uptake of the vehicles, which has resulted in minimal performance as compared to

developed nations. Lack of common understanding and a combination of downward pull factors have seen the sector experiencing slow growth (Cytonn, 2020).

In the Kenyan market, Cytonn (2021) reported that despite the Fahari-REIT being at a nascent age, since inception in 2017, the investment vehicle has seen a 44.5% drop in its issue price. Furthermore, the REIT was only able to offer a 2.6% yield on the dividends issue signaling poor performance. The same report indicates that in 2019, US-based REITs generated approximately 12.99% in value to investors, while Australian REITs realized a 17% rate of return. Asian REITs were even more profitable, with Japan reporting a 26% return rate and Singaporean firms generating 23% in returns. Akpan and Ogunba (2015) observed that the performance of REITS in Nigeria has been dismal as compared to the expected potential in the industry. From the above, it is evident that there are glaring issues limiting the performance of REITs in Africa. However, to date, there has been no extensive study that has examined the factors affecting the financial performance of all the listed REITS in Africa. This study examined this problem.

A number of studies have been conducted at the country level examining the determinants of performance of REITs. Chang, Chou, and Fung's (2012) study established that REITs in developed economies are insensitive to changes in interest rates but that there is a negative correlation in developing markets. Lee (2019) demonstrated that inflation provides an illusionary effect on investors, thus significantly impacting their investment decisions. Lang and Scholz (2015), in their study, established that systematic risk factors, market size, and liquidity factors affected the risk-adjusted returns of REITs. Ntuli and Akinsomi (2017) indicated that REITs in South Africa had produced above-average returns for their investors driven mainly by a mixed-asset portfolio. Akpan and Ogunba (2015) indicated that low and negative returns by Nigerian REITS have resulted in minimal foreign and domestic investments. Kipkurui (2019), in a study of the Stanlib Fahari REIT, established that the interest rate and the exchange rate had an insignificant effect on stock returns. Further, results showed a that inflation rate had a significant and negative effect on the stock returns. Nyoro (2017) revealed that government policies, economic factors and demographic factors positively affected the performance of REITs in Kenya.

While most of the studies above have been done on REIT performance in both developed and developing countries, little has evolved and focussed on the listed REITs in the African continent. Furthermore, the studies have focussed on varying predictor variables, which have led to the exclusion of particular factors that this study examined. There is, therefore, a need for further examination into the simultaneous effect of various factors on the performance of REITs and reduce any contradictions in mapping their performance in Africa. As such, this research examined the effect of macroeconomic factors and firm characteristics on the financial performance of listed REITs in the African market.

## 1.3 Objectives of the Study

The general objective of the study was to analyse the determinants of the performance of listed REITs in the African market.

### 1.3.1 Specific Objectives

i. To establish the effect of inflation rate on the financial performance of listed REITs in Africa.
ii. To establish the effect of interest rate on the financial performance of listed REITs in Africa.
iii. To establish the effect of gross domestic product on the financial performance of listed REITs in Africa.
iv. To establish the effect of firm characteristics on the relationship between macroeconomic factors and the financial performance of listed REITs in Africa.

## 1.4 Research Hypothesis

**$H_{O1}$** There is no significant effect of inflation rates on the financial performance of listed REITs in Africa.

**$H_{O2}$** There is no significant effect of interest rates on the financial performance of listed REITs in Africa.

**$H_{O3}$** There is no significant effect of gross domestic product on the financial performance of listed REITs in Africa.

**$H_{O4}$** There is no significant effect of firm characteristics on the relationship between macroeconomic factors and the financial performance of listed REITs in Africa.

### 1.5 Scope of the Study

The study was geographically limited to an examination of all the listed REITs that are operational within Africa. The contextual scope of the research focused on the macroeconomic factors (GDP growth rate, interest rate, inflation rate), firm characteristics (firm size, leverage, liquidity, age), and the financial performance (profitability metric). The research was premised on the resource-based view theory and efficient market hypothesis. The methodological scope of the research was quantitative in nature and applied a quantitative instrument in the examination. The time scope of the study relied on the period 2010-2020, focussing on 38 listed REITs in Africa.

### 1.6 Significance of the Study

The results of the study are anticipated to be beneficial to a number of stakeholders within the REITs industry. These include property owners, property developers, property brokers, financial institutions, home buyers, investors, landlords, tenants, construction companies, and their employees, among others. This study is expected to provide property owners, investors, and construction companies with evidence on the factors that influence the performance of firms in the real estate industry. Such evidence is a crucial source of information that could be used to improve investment decisions. From the findings, management teams will be better placed to evaluate how the macroeconomic environment impacts their firm's financial performance, hence enhancing their decision making. The results will also improve the decision-making within the firms by allowing the management teams to restructure their firm characteristics to stimulate better financial performance.

The findings are also expected to improve policy formulation with regard to the REITs industry. The REITs industry has been lagging behind performance-wise; hence the findings will support policy formulation, development of new regulations, and designing of incentives that can expand the performance of the firms.

Further, government agencies can utilize the results of the study to develop requirements for the operational REITs firms, which will ensure that they can sustain their performance. The findings will further be beneficial to potential investors as they will offer them a trend of the financial performance of the firms. More so, the findings will provide the investors with a summary view of how the REITs performance has responded to both macroeconomic and firm-level factors. The study results are further expected to enhance the quality and adequacy of the reference material that can be utilized in future research work. The results can also be utilized to expand the knowledge on the performance of REITs in the continent.

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# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

The second chapter of the study focused on a review of the literature that guided this study. The chapter is comprised of the review of the theory that anchors the study, the empirical studies, research gaps, conceptual framework, and the operationalization of study variables.

## 2.2 Theoretical Review

The study was premised on the resource-based view (RBV) theory by Barney (1991) that calls on firms to realign their competitiveness and responses based on the unique capabilities and their ability to respond to environmental changes, acquire and sustain competitive advantage. The RBV theory will be supplemented by the efficient market hypothesis (EMH), which seeks to explain how external macroeconomic factors influence investors' decisions.

### 2.2.1 Resource-Based View Theory

The resource-based view theory by Barney (1991) explains how businesses can adapt and strategically position themselves in the competitive environment (Barney, 2001). This theory tries to explain how an organization can utilize the resources they have to gain a competitive advantage over the same players in the market (Lockett, Thompson, & Morgenstern, 2009). It continues to state that organizations should combine and align their resources accordingly to be able to derive the most out of the available resources and to be able to differentiate themselves from the rest (Barney & Mackey, 2005).

The central idea of the theory is that firms are unique in their package of resources, and they benefit from the same while exploiting the weaknesses of the other firms to achieve a competitive advantage (Arend & Lévesque, 2010). The resources-based view (RBV) has an 'inside-out' view of a firm. This view is described as firm-specific and attempts to explain why firms' performances vary from one to the other (Foss & Ishikawa, 2007). The RBV theory argues that a firm's performance is enhanced through the value it creates, the capabilities it has, and the core competencies present (Barney, 2001).

It advocates for the firm's uniqueness in its resources, complexity in operations, specialty production, intangible skills, and dynamism in its operations (Masika & Simiyu, 2019). The theory also looks at how a firm can combine its resources to

produce a unique set of capabilities and products that cannot be easily emulated, resulting in value creation and performance enhancement (Semuel & Teddy, 2014). The resource-based view also evaluates what a firm possesses, the potential for value generation, and finally defines a strategy that allows a firm to capture the maximum value in a sustainable way (Armstrong & Shimizu, 2007). For an organization to create a niche, they should do things in a unique way and in a way different from its competitors. This ensures that they gain customer loyalty and retain them since no organization is able to offer substitutes products or services close to theirs, thus leading to organizational success (Barney & Mackey, 2005).

The theory goes way beyond the traditional norm of just the ordinary provision in the surrounding environment and generates sustainable competitive advantage and outstanding performance. As such, this study relies on the theory as it can guide listed REITs firms to align their competencies and adaptability to achieve better performance. Through evaluation of their environment, REITs can be able to respond to changes in the macroeconomic factors and respond proportionally by utilizing their unique firm characteristics. This can be critical to achieving better financial performance within the firms.

### 2.2.2 Efficient Market Hypothesis

This theory evolved from the Random Walk Hypothesis, and its first ideas can be attributed to Bachellier's (1990) writings. However, the modern form of the hypotheses was developed between 1950 and 1965. The nomenclature and final conceptualization of the theory are attributed to research papers by Eugine Fama (1965-1970), and it has since been expanded to explain different market situations and how they are influenced (Mutwiri, Omagwa, & Wamugo, 2021). According to this hypothesis, the price of an asset reflects all the information about its value. This implies that beating the market is impossible for a single investor since the prices of assets can only change depending on the information available to all traders in the market. This theory is essential in understanding how investors predict market prices (Ejem, Ogbonna, & Okpara, 2020). For organizations, the current market process should be an accurate representation of the estimated intrinsic value of the firm. The main assumption in this theory is that the traders are rational and that the information in the market is actually reliable and reflects the actual value of an asset.

According to a report by Brealey, Myers, and Allen (2011), in an efficient market, it is impossible for an investor to make unreal returns unless they make risky investments that go against the information that has been made available in the market. This theory identified three forms of hypotheses; weak, semi-strong, and strong forms of efficiencies distinguished by the degree of information available and reflected by the prices of securities. In a weak market, the prices of assets reflect records of previous market information. In these markets, the pricing of assets will be random since consistent profit superiority cannot be predicted by analysing previous prices. In a semi-strong market, asset prices are reflective of information that is currently available in the market. Thus, prices change according to the information in the public spectrum. For strong markets, the market prices reflect both public and primary information, enabling investors to predict asset prices from information acquired from detailed internal and external environment analysis. From these three hypotheses, new market information has a significant impact on investors' purchase decisions. Therefore, no investor can generate higher returns than those of a carefully selected portfolio of random stocks (Fama & French, 1996).

The theory has been challenged by momentum investors, behavioural economists, and fundamental analysts (Malkiel, 2003). Momentum investors argue that through the analysis of short-term and medium-term information, investors can find a pattern that can be used to predict the future asset value. Behavioural economists such as Ye, Li, and Cao (2020) argue against the assumption of the EMH that investors make rational decisions based on the availability of information by asserting that investors often make irrational decisions, overreacting in some and underreacting in others. Their study found evidence of herding behaviour in China's A-share market. Fundamental analysts argue that through analysis of a businesses' health and value, together with its external operating environment, investors can make accurate stock value predictions on an asset's intrinsic value. The researchers Kelikume, Olaniyi, and Iyohab (2020) argue against momentum investors by affirming that momentum strategies do not work well in all markets. They also argue against fundamental analysts by stating that the measures do not contradict the EMH since occasional anomalies are acceptable since they have no long-term effect on asset value. However, the theory acknowledges that the market does misprice securities and that it is impossible for an investor to accurately predict when a misprice will occur.

This theory also came under severe criticism after the 2008 financial crisis, with spectators such as Martin Wolf, the chief economics commentator for the Financial Times, calling it a useless way of analysing how markets function in reality. However, the managing director of PIMCO, Paul McCulley, showed that the theory neglected human nature in its conception. Fama noted that the hypothesis had held up, only that the market had too many poorly informed investors who misled the market (Malkiel 2011).

The theory was relevant to the current study because it explains the investment decisions of most investment trusts which seek to find sectors to invest in to return maximum profits for shareholders. This theory can support the resource-based view by explaining the reasoning behind managers who are able to consistently outperform the market; and how investment funds seek managers with the skillsets to beat the market (Fama, 2018). While the RBV focuses on competencies, the EMH explains how predicted changes in the balance of payments would impact investors' profit-maximizing behaviour, impacting an entity's, industry's, and economy's financial performance. Thus, it enables the researcher to understand how investment managers make decisions based on changes in the macroeconomic environment.

## 2.3 Empirical Review

### 2.3.1 Inflation Rates and Financial Performance of REITs

Fang, Chang, Lee, and Chen (2016) carried out a multi-country analysis to determine the impact of macroeconomic factors on the real estate investment trust index return. The study used a combination of autoregressive distributed lag (ARDL) bounds test, ARDL long-run model and an error correction model (ECM), and the Granger non-causality test to test for; cointegration relationships between the variables, long- and short-run elasticity of the macroeconomic variables and to examine the causal relationship between the macroeconomic variables and REIT index respectively. The study used monthly data sourced from Data stream, Tokyo Stock Exchange, and the Morgan Stanley Capital International Index. In China and Singapore, it was determined that a cointegration relationship is existent between macroeconomic variables and the REIT index. The long-run ARDL model determined that in all the countries, the stock index is significantly related to the REIT index. The inflation rate and interest rates were determined to negatively impact the REIT index. The study

adopted multiple analyses methods, while the current study adopted descriptive analysis.

Mohd and Siddiqui (2020) carried out a comparative sectoral analysis aimed at determining the relationship between select macroeconomic factors on returns among various firms. The study assessed the 10-year financial returns of five companies, each operating across seven Pakistani industries (35 firms). The study adopted the generalized method of moments in analysis. Results ascertained that the inflation rate has a negative and significant impact on returns within the food, ceramics, automotive, textile, and cement industries. The exchange rate positively and significantly impacted the food, sugar, textile, garments, cement, and ceramics industries. The labour unit cost significantly reduces returns across all reviewed industries. The rate of Foreign Direct Investment resulted in increased returns on investment among the firms. The study was a comparative sectoral analysis, while the current focus was on the REITs industry.

Korkmaz (2019) sought to determine the impact of Housing price dynamics on inflationary pressure in Turkey's 26 regions. The study used the House price index and CPI data collected from the Central Bank Republic of Turkey database between 2010 and 2019. The Konya Causality (2006) test was applied to the data to determine the causal relationship between the variables. The study determined that housing prices are among the contributors of inflationary pressure in certain regions, while inflation was similarly noted to impact the prices of houses. Recommendations were for public policy to be centred towards promoting stability in the demand and supply of housing stock. The study assessed the relationship between housing prices and inflation and did not assess other factors influencing housing investment.

Yunita and Robiyanto (2018) investigated the impact of exchange rate changes, BI rate, and inflation rate on the financial sector stock price index in Indonesia. The study adopted the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) methodology in analysing the time series data collected between 2011 and 2017. The study concluded that while the exchange rate has a significant negative impact on stock price index return in the financial sector, inflation and BI rate have an insignificant impact on the rate of return. The study looked at financial sector stock price returns, while the current focus was on macroeconomic variables and REIT returns in Africa.

In a study on the impact of inflation on stock market returns, Otieno, Ngugi, and Muriu (2019) focussed on Kenya's REITs. The study used monthly data reported between 1993 and 2015. Data analysis involved the use of the model. The study determined that the inflation rate had an insignificant impact on stock market results, suggesting that the annual inflation rate positively granger cause stock market returns. The research Autoregressive Fractionally Integrated Moving Average (ARFIMA) only considered inflation rates while this study extended and evaluated more macroeconomic factors and incorporated firm characteristics as a predictor of financial performance.

In a study on the impact of macroeconomic factors and their impact on bank profitability, Kiganda (2014) focused on Equity Bank as a case study. The study looked at how real GDP, inflation, and exchange rate impact banks' profitability. The study was anchored on the theory of production and adopted a correlational research design. The Cobb–Douglas production function, transformed into a natural logarithm, was adopted in analyzing data collected from the bank's financial reports from 2008 to 2012. Generalized ordinary least square analysis revealed that the variables explored all had an insignificant effect on bank profitability, accounting only for 5% of changes. The study focused on a single bank which limits the generalizability of the findings to the current research, which examined listed REITs firms in Africa.

Based on the above empirical evidence this study sought to test the following hypotheses;

**$H_{O1}$** There is no significant effect of inflation rates on the financial performance of listed REITs in Africa.

### 2.3.2 Interest Rates and Financial Performance of REITs

Razali, Jalil, and Nguyen (2020) sought to assess the impact of macroeconomic factors on the volatility of real estate investment trust return in Malaysia. The study adopted the Autoregressive Conditional Heteroscedasticity (ARCH) and Generalised Autoregressive Conditional Heteroscedasticity (GARCH) models in the assessment of the factors determining REIT return volatility. The study used data collected between 2010 and 2017 from 17 listed REITs in Malaysia. Various quantitative methods were used in the analysis revealed that the Base Lending Rate, the rate of industrial production, the gross domestic product, the consumer price index, and money supply

significantly impact the rate of return among Malaysian REITs. The study adopted focussed on a single country while the current assessed REIT performance across multiple countries.

Olanrele et al. (2020) investigated the impact of macroeconomic predictors on the profitability of Nigerian REITs. The variables explored in the study include interest rate, inflation rate, exchange rate, market capitalization, and the all-share index. The study adopted a qualitative research design and obtained secondary data sourced from various financial statements published by official government institutions. The data collected was for the period 2008-2017. Data analysis involved the use of Autoregressive-distributed lag (ARDL) and Bound tests. It was determined that Interest rate and all share indexes have a long-term relationship with returns of REITs. Market capitalization showed a negative relationship in the short run and an insignificant positive long-run relationship. The exchange rate had no significant impact both in the long-term and short-term, while inflation had a negative but insignificant impact. The study considered REITs in Nigeria, the current study focussed on listed African REITs.

Kamweru and Ngui (2017) sought to determine the effect of interest rates on the performance of Kenya's real estate industry. The study adopted a descriptive survey research design that collected data from registered developers in Nairobi city, Kenya. From the analysis, it was determined that lending interest rates negatively and significantly impact real estate investment. Interest rates on deposits were determined to have an insignificant impact on real estate investment. On a long-term basis, overdraft interest rates were noted to significantly impact real estate growth. The gross domestic product was noted to have a significant positive relationship with investment in real estate, both in the long-run and short-run. Inflation was noted to significantly reduce real estate growth in Nairobi. The study focussed on real estate developers and failed to assess the real estate investment trust companies.

Makau (2016) examined the relationship between selected macroeconomic variables on financial returns among Kenya's unit trust funds using a correlation research design approach. The research involved all 20-unit trusts operating in Kenya under the license of the Capital Markets Authority as of 2015. A multiple linear regression equation and Karl Pearson's coefficient of correlation were adopted to analyse the relationship between the variables and the performance of the unit trusts. The selected variables

were interest rate, money supply, GDP, and inflation. The variables were determined to account for more than 90% of the financial outcomes of Kenyan unit trusts. The study looked into all unit trusts in Kenya, while the current study focused on real estate trusts.

Kipkurui (2019) carried out a case study on Stanlib Fahari real estate investment trust with the aim of determining how selected macroeconomic variables impact stock returns. The variables selected include interest rates, inflation rates, and foreign exchange rates. The study was anchored on the efficient market hypothesis theory, the purchasing power parity theory, and the arbitrage pricing theory. A correlational research design was adopted, and data was collected from NSE, and Central Bank reports covering a four-year period between 2016 and 2018. Interest rates were determined to have a positive but insignificant effect. Inflation had a significant negative impact, while the exchange rate had a negative but insignificant impact on stock returns. The study did not assess performance across various REITs.

As detailed in the empirical review there is insufficient empirical evidence linking interest rates and financial performance of listed REITs hence this study sought to test the following hypotheses;

**$H_{O2}$** There is no significant effect of interest rates on the financial performance of listed REITs in Africa.

### 2.3.3 Gross Domestic Product and Financial Performance of REITs

Bosco and Emerence (2016) analyzed the impact of GDP, inflation, and interest rate on investment among Rwandese private investment firms. The study applied econometrics methodology based on the co-integration and Error Correction Model (ECM) to analyze secondary data collected from reports sourced from the National Bank of Rwanda's Department of Statistics. The data collected was from the period between 1995 and 2019. From the findings, GDP was noted to significantly influence the rate of private investment both in the long-term and short-term. Empirical studies indicated a positive relationship between the rate of inflation and private investment. The study suggested that developing countries can indeed benefit from the cycle linking increased investment in the private sector since this leads to real GDP growth. The study focused on private investment firms, while the current focus was on REITs returns.

In an attempt to determine the relationship between macroeconomic factors and real estate investment outcomes in Nigeria, Elile, Akpan, and Raju (2019) focussed on real GDP, inflation, and exchange rate. The study considered the monetarism theory of inflation and structural form theory as the anchoring theories. A descriptive research design was adopted in the study. The study period lasted between 1980 and 2017, a 35-year period. Both descriptive and inferential statistics were adopted in the data analysis. The study determined that real GDP and inflation rate have a positive and statistically significant relationship with REIT returns. The exchange rate had a negative relationship with the stock returns of Nigerian REITs. The study was based in Nigeria while the current study is based on the African market.

Robinson and Olanrewaju (2020) investigated the impact of foreign inflows on the growth of the real estate investment industry in Kenya. The variables of foreign inflows included foreign direct investments, diaspora remittance, and portfolio management since these have been determined to significantly impact spending decisions in developing economies. The study was grounded on the portfolio theory, pure self-interest, pure altruism, and financial intermediation theories. It then adopted a causal research design that employed the Autoregressive Distributed Lag bounds test and the Dynamic Ordinary Least Squares methodology in analysis. Time series were collected for the period between 1990 and 2019. It was determined that FDI and portfolio management were influential to real estate development, albeit only in the short run. They had no effect on the overall long-run real estate development, pointing to the need to explore alternative funding options to guarantee long-term growth. The study looked at foreign inflow's relationship with real estate growth; the current assessed impact of different macroeconomic variables on real estate investment performance.

Semuel and Teddy (2014) investigated the impact of inflation, interest rates, and exchange rates, using GDP as the dependent variable. Partial Least Square (PLS) was adopted in hypothesis testing. The path analysis method was adopted to explain the relationships between the variables. The data period was between 2005 and 2013. The analysis determined that interest rates negatively impacted GDP growth while exchange rates improved GDP. Inflation was noted to have no significant impact. The

dependent variable for the research was the GDP, whereas the current study examined how macroeconomic factors affect African REITs.

Mungai (2016) looked into the impact of different financing options on real estate growth in Kenya's main Metropolitan city, Nairobi. The study put forward that personal savings alone are not sufficient sources of finance and sought to assess the impact of mortgage financing, venture capital financing, and equity financing on real estate investment. The study sampled eighty-one (81) registered developers operating in Nairobi Metropolitan. Confirmatory factor analysis was employed, revealing that equity financing and mortgage financing were the main options that fostered sustainable growth. The study focussed on multiple financing options' impact on real estate development while the current assessed macroeconomic variables and their impact on REITs' outcomes.

Thus, the study focussed on evaluating the third hypotheses of the research, that is;

**$H_{O3}$** There is no significant effect of gross domestic product on the financial performance of listed REITs in Africa.

### 2.3.4 Firm Characteristics and Financial Performance of REITs

Jalil and Ali (2015) carried out a literature review in a bid to determine the main factors determining the performance of Malaysian real estate investment trusts. The study argued that a combination of determinants was key to improving REIT performance in the Malaysian economy. The study determined that institutional determinants of REIT performance include diversification, firm size, management style, and the participation of institutional investors. It was determined that diversification strategies could be characterized as diversification in terms of the type of property and concentration in the portfolio and diversification in terms of the location of the properties. The study reported that larger REITs post higher returns, have reduced capitalization rates and capital costs. Increased diversification in terms of property type and location was also noted to reduce associated risks. Finally, it was determined that legal requirements and the capital cost of REITs were also significant factors determining the rate of growth of the REITs. The study carried out a literature review of determinants of REIT performance during the current use of a descriptive research design.

In Nigeria, a study was carried out to explore the relationship between macroeconomic factors, firm characteristics, and financial performance of selected manufacturers in Nigeria. The study, by Egbunike and Okerekeoti (2018), was anchored on the systems theory and the resource-based view theory, and adopted an ex-post facto research design. The analysis involved the use of multiple linear regression techniques. The macroeconomic variables assessed included the inflation rate, the interest rate, the GDP growth rate, and the exchange rate. The firm characteristics were size, leverage, and liquidity levels. Analysis revealed that the interest rate and the exchange rate had an insignificant impact on returns. The inflation rate and rate of GDP growth were noted to significantly impact the ROA of the manufacturers. The firm characteristics were all determined to significantly impact ROA. The study assessed manufacturing firms while the current one assessed REITs.

Dioha, Mohammed, and Okpanachi (2018) looked into the effect of various firm characteristics on profitability among Nigeria's consumer goods firms. The variables selected include firm size, age, leverage, sales growth, and liquidity. Reported data from the period 2011 to 2016 was collected from 18 firms. The analysis involved multiple regressions. Fixed and random-effects models were used to assess the panel data. It was determined that the size of the firm, leverage, and sales growth significantly influence firm returns. In contrast, the age of the firm and its liquidity levels had no significant relationship with the profitability of the firms. The study looked at consumer goods firms' returns, while the current looked at REIT firms' returns.

Rani and Zerga (2017) assessed the impact of internal and external variables on returns of commercial banks in Ethiopia. The Net Interest Margin (NIM) and ROE were the selected measures of profitability. Descriptive statistics and multiple regressions were used to analyse the data collected between 2005 and 2015. The bank-specific characteristics selected (management efficiency, capital adequacy, liquidity ratios) were noted to significantly influence ROE. Capital adequacy and earnings ratio was significantly associated with Net Interest Margins. Macroeconomic variables (tax rates, inflation, GDP, and exchange rate) were determined to have an insignificant impact on commercial banks' returns in Ethiopia. The study was limited to commercial banks, while this examination was focused on the financial performance of REITs.

Masika and Simiyu (2019) sought to determine how firm characteristics impact financial outcomes of licensed deposit-taking Savings and Credit Cooperative OrganiSationS (SACCOs). The study was anchored on the agency cost theory, pecking order theory, trade-off theory, growth of the firm, and stakeholder's theory. The characteristics focused on include the size of the firm, leverage, liquidity, and growth, and the researcher adopted a causal research design. The population consisted of 34 firms and was collected across four years, between 2012 and 2015. Data analysis involved the use of panel data regressions. Findings indicated that firm size, leverage, growth, and liquidity significantly impact returns among deposit-taking SACCOs. The study assessed returns among deposit-taking SACCOs while the current investigated REIT performance.

The research thus sought to determine if the firm characteristics adopted in this study have an effect on financial performance hence the study sought to tests the following hypotheses;

**$H_{O4}$** There is no significant effect of firm characteristics on the relationship between macroeconomic factors and the financial performance of listed REITs in Africa.

### 2.4 Summary of Research Gaps

Ajide (2014) adopted multivariate modeling in a study of determinants of economic growth in Nigeria. Azmin and Shariff (2016) adopted pooled ordinary least square (POLS) in their study of Malaysian REIT. Fang et al. (2016) adopted ARDL bound test in their study of macroeconomic factors impact of REIT index in three Asian markets of Japan, Singapore, and China to establish long-run cointegration equilibrium between REIT index and macroeconomic factors of interest rate, inflation, and stock index.

**Table 2.1 Summary of Research Gaps**

| Author | Title | Findings | Gap to be addressed | How the gap was addressed |
|---|---|---|---|---|
| Kamweru and Ngui (2017) | Effect of interest rates on the performance of Kenya's real estate industry | The Gross Domestic Product was noted to have a significant positive relationship | The study focussed on real estate developers and failed to assess the real estate | The study investigated the effect of macroeconomic factors on the performance of real estate |

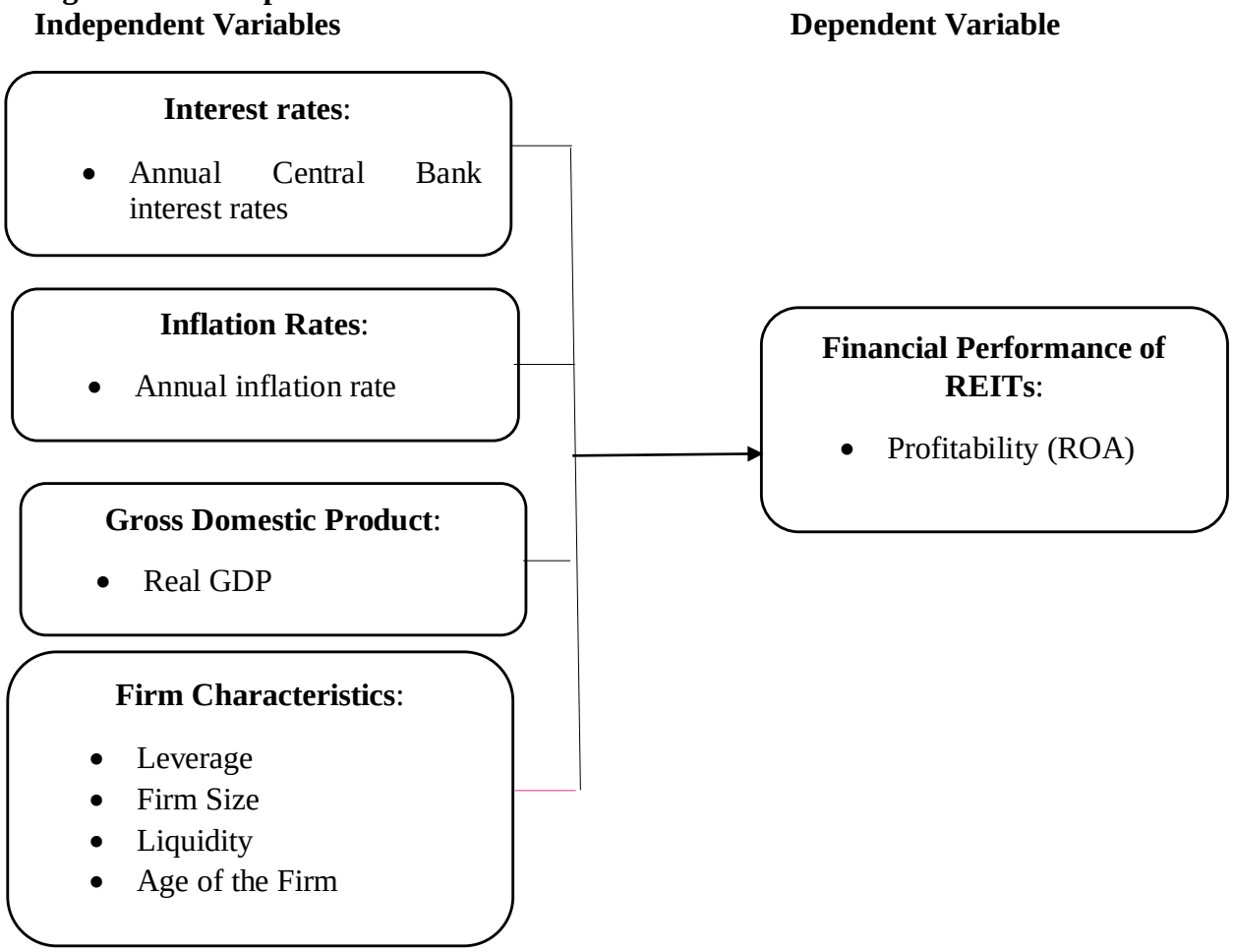
| | | | | |
|---|---|---|---|---|
| | | with investment in real estate, both in the long-run and short-run. | investment trust companies. | investment trust companies. |
| Mohd and Siddiqui (2020) | Relationship between select macroeconomic factors on returns among various firms | Results ascertained that the inflation rate has a negative and significant impact on returns within the food, ceramics, automotive, textile, and cement industries. | The study was a comparative sectoral analysis aimed at determining the relationship between select macroeconomic factors on various firms. | This study explicitly focused on addressing REIT firms' performance. |
| Mungai (2016) | Impact of different financing options on real estate growth in Kenya's main Metropolitan city, Nairobi | Results showed that equity financing and mortgage financing were the main options that fostered sustainable growth. | The study focussed on multiple financing options' impact on real estate development while the current assessed macroeconomic variables and their impact on REIT's outcomes. | The current study did not assess financing options. Instead, it addressed macroeconomic factors and their influence on REIT firms in Africa. |
| Otieno, Ngugi and Muriu (2019) | The impact of inflation on stock market returns | The study determined that the inflation rate had an insignificant impact on stock market results | The research only considered inflation rates while this study extends and evaluates more macroeconomic factors. | This study adopted various macroeconomic factors instead of focusing on one macroeconomic factor |
| Rani and Zerga (2017) | Impact of internal and external variables on returns of commercial banks in Ethiopia | Macroeconomic variables (tax rates, inflation, GDP, and exchange rate) were determined to have an insignificant | The study focus was on commercial banks while this research examined the financial performance of | This study focused on addressing the effect of macroeconomic factors on the REITs industry and not on banks and other |

| | | | | |
|---|---|---|---|---|
| | | impact on commercial banks' returns in Ethiopia | REITs in Africa. | financial institutes |
| Razali, Jalil and Nguyen (2020) | Impact of macroeconomic factors on the volatility of real estate investment trust return in Malaysia | The gross domestic product, the consumer price index, and money supply significantly impact the rate of return among Malaysian REITs | The study focussed on a single country while the current assessed performance across multiple countries. | This study investigated performance in REIT firms in three African nations. |

## 2.5 Conceptual Framework

The conceptual framework presented the relationship between the macroeconomic factors, firm characteristics, and the financial performance of listed REITs in Africa. The independent variables include interest rate, inflation rate, gross domestic product, and firm characteristics, while REITs financial returns were the dependent variable. Wanjiku, Bosire, and Matanda's (2021) study ascertained that aggregated price levels, savings rate, income volume, and balance of payment all significantly impact REITs financial performance. Bioreri (2015) reported that a nation's inflation rate, gross domestic product, diaspora remittances, and interest rates are the most significant indicators of performance within real estate firms. This study thus sought to determine the effect of these macroeconomic factors on REITs performance in Africa. The interaction between the variables is presented in Figure 2.1.

**Figure 2.1 Conceptual Framework**




The above conceptual framework outlines the measures of the performance of REITs using profitability and market performance measures—the macroeconomic factors considered in the study include interest rates, inflation rate, and GDP. The firm characteristics are conceptualized as the leverage, firm size, liquidity, and age of the firm. The research variables are operationalized in table 2.2. These variables originate from studies by Mnang'at, Namusonge, and Oteki (2016), Mohammed, Shukor, Affandi, and Mahmood (2013), Kirui, Wawire, and Onono (2014), and Kaguri (2013).

**Table 2.2 Operationalization of Research Variables**

| Variable | Constructs | Indicators | Data Collection and Analysis | Data Analysis |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Macroeconomic Factors | Interest rate | Annual Central Bank interest rate | Data Extraction Tool (2010-2020) | Descriptive and Inferential Analysis |
| | Inflation rate | Annual inflation rate | | |
| | GDP | Real GDP | | |
| Firm Characteristics | Firm size | Log of Total Assets | Data Extraction Tool (2010-2020) | Descriptive and Inferential Analysis |
| | Leverage | Debt/Equity Ratio | | |
| | Liquidity | Current Ratio | | |
| | Age of Firm | Number of Years | | |
| Performance of REITS | Profitability | ROE | Data Extraction Tool (2010-2020) | Descriptive and Inferential Analysis |

Research data (2021)

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 Introduction

The third chapter focused on the presentation of the methodology that was applied in the course of the study. The chapter comprised of areas such as the philosophy, the research design, population of the study, sampling procedures, the data collection instruments, procedures, and analysis of the extracted research data.

## 3.2 Research Philosophy

The philosophical foundation for this study was based on the positivist paradigm. Positivism views that only factual knowledge gained through observation, including testing and measuring, is dependable (Flick, 2015). The researcher's role in the positivism approach is limited to data collection and interpretation through an objective approach. The research findings are observable and quantifiable, which leads to statistical analysis (Opoku, Ahmed, & Akotia, 2016). The approach assumes that knowledge is produced deductively from a theory or hypotheses which are either accepted or rejected (Igwenagu, 2016). The adoption of the positivist research philosophy was critical to this study as it supports the application of a quantitative approach in determining the interaction between the variables. Hence, the study adopted the philosophy in the examination of the hypotheses stated on the relationship between macroeconomic factors, firm characteristics, and the financial performance of REITs in Africa.

## 3.3 Research Design

The research design is the overarching strategy that is adopted and utilized in the study and which integrates diverse aspects of the research in a systematic way and generates coherent and logical results (Flick, 2015). Through research design, a study ascertains that all the elements of the problem implicit in the general and specific objectives and which are to be studied are effectively addressed and in a manner that is both reliable and valid (Engwa & Ozofor, 2015). This research adopted a descriptive correlational research design. The design was suitable for this study since it made it possible for the assessment of the factual hypothesis, which in this study was implicit in the research topic. The design allowed for the implementation of quantitative techniques in establishing the relationship between macroeconomic factors, firm characteristics, and the financial performance of REITs in Africa.

### 3.4 Population and Sampling

#### 3.4.1 Target Population

Opoku, Ahmed, and Akotia (2016) conceive the population in statistics and research as the larger pool of items, events, and individuals upon which the researcher conducts the study and from which a representative sample for a study is obtained. More specifically, the target population not only provides the pool of individuals that provide the information, which is required by the researcher but it also on the target population that the researcher projects the results of a study. The population for this research was on REITs listed and operational in Africa. There are currently 34 listed REITs in South Africa and Three in Nigeria, and One in Kenya. So far, these are the only countries in Africa with publicly listed REIT firms and published reports on the performance of their respective firms. These companies are listed at the Johannesburg Stock Exchange (Potelwa, 2013), the Nigeria Stock Exchange (Olanrele, Said, Daud, & Ab, 2015), and the Nairobi Stock Exchange (Kamau, 2016). The population of the research was key to this study as it covers the listed REITs, which allowed for ease of access to their financial data. The study, thus, focused on these listed REITs as the unit of analysis of the research.

**Table 3.1 Target Population**

| Country | Number of Listed REITS |
|---|---|
| South Africa | 34 |
| Nigeria | 3 |
| Kenya | 1 |
| Total Population | 38 |

#### 3.4.2 Sampling and Sample Size

The blueprint for identifying and selecting competent and accessible individuals within the chosen and population is the sampling design (Kumar, 2018). The validity of the study is, to a great extent, dependent on the study sample selected. By choosing a representative sample to include in the study, the researcher enhances the validity of the study (Flick, 2015). The sampling frame has been defined by Opoku, Ahmed, and Akotia (2016) as the list of persons that make up a population and from which the research takes a representative sample. As such, it shows the list of the persons in the target population from which the researcher systematically and methodically picks the

sample. The sample frame for this study was the 38 listed REITs in Africa. The study adopted a census sampling of all the listed REITs drawn from Africa's major economies.

### 3.5 Data Collection Instruments

Data collection involves all the methods and tools that are applied in the collection of the information and data required to answer the study problem (Flick, 2015). This research study was quantitative in nature and dominantly used secondary data. The utilization of secondary sources was selected due to the ease in the analysis of quantitative and minimized errors in the collected research data (Kumar, 2018). The study extracted research data from the 38 REITs firms in Africa between 2010-2020. This time period is selected because it is during this period that most REIT firms have been registered in Africa. Further, this is the same period that has seen a significant number of regulations being introduced to different countries around the world. Igwenagu (2016) opined that utilization of more than 5 years of secondary data allows for observable trends in the variables, and the observations can be adequate for statistical analysis.

### 3.6 Data Collection Procedures

The secondary data on financial performance and the independent variables was collected and collated from the target population. This procedure involved a self-administered approach by the researcher to minimize variation in data collection procedures and to ensure consistency. The checklist contained details of each REIT firm from the sampled institutions. The study ensured that all necessary approvals and permits were obtained from the institution prior to the extraction of research data. Where not computed, the researcher manually computed the values for each of the indicators.

### 3.7 Data Analysis and Presentation

According to Kothari and Garg (2014), data analysis involves bringing order and meaning to the information assembled. The study utilized secondary quantitative data that was extracted from the audited financial statements of listed REITs in Africa. The extracted research was coded to Excel and exported to Eviews 10 and Stata 16 to support the quantitative analysis of the research data. The study applied descriptive analysis techniques such as means, standard deviation, maximum and minimum in the analysis of the raw research data. Further, the study adopted correlation analysis to

determine the relationship between the variables. Correlation was conducted using a 1-tailed test setting a significance value at 0.05. A value smaller than the significance value (0.05) was significant, while values greater than 0.05 were interpreted as insignificant.

The research further employed panel data regression analysis techniques to determine the strength of the relationship between the variables. Panel data contain observations of multiple phenomena obtained over multiple time periods for the same firms or individuals (Hsiao, 2014). Hsiao further opined that panel data regression was selected since it allows for the control of individual heterogeneity, making it possible to exclude biases deriving from the existence of individual effects.

The general empirical model was;

$Yit = \alpha + \beta MFit + \beta FCit + \varepsilon it$ …….... 3.1

Where;

Yit is the dependent variable profitability of the REITS at time t

MFit is the composite term for the macroeconomic factors at time t

FCit is the composite term for the firm characteristics at time t

β represents the coefficient of the independent variables

Equation 3.1 was expanded to accommodate all the study factors that were employed in the panel regression as follows. The control variables were considered for all the listed REITS in Africa as shown below;

$$\mathbf{PT_{it}=\alpha+\beta_1 IR+\beta_2 INR+\beta_3 GDP+\beta_4 LV+\beta_5 FS+\beta_6 LQ+\beta_7 AF+\varepsilon \ldots\ldots\ldots\ldots\ldots 3.2}$$

Where;

i denotes the observation (REITS Firms) i= 1--------38

t is the time period t= 2010--------2020.

$PT_{it}$ will represent the profitability of the REITS at time t

IR represents the interest rates at time t

INR represents the inflation rates at time t

GDP represents the gross domestic product at time t

LV represents the leverage ratio at time t

FS represents the firm size at time t

LQ represents the liquidity at time t

AF represents the age of the firm at time t

ε represents the error term of the regression model

When performing panel data analysis, one has to determine whether to run a fixed-effects model or a random-effects model. To determine which of these two models is appropriate, coefficients are estimated by both fixed and random effects. Hausman's specification test was applied to determine the appropriate model for utilization in this research (Hsiao, 2014).

### 3.7.1 Hypothesis Testing

The study further employed hypothesis testing at a 5% significance level, and the following criterion was applied in the interpretation.

**Table 3.2 Hypothesis Testing**

| Research Hypothesis | Measurement | Analysis Techniques | Interpretation |
|---|---|---|---|
| **$H_{01}$:** There is no significant effect of inflation rate on the financial performance of listed REITs in Africa | Secondary data (ratio) | Multiple regression analysis<br>$Y= \alpha+ \beta_1X_1 + \varepsilon$<br>$\alpha$ =constant (intercept)<br>$X_1$= is the coefficient for inflation rate<br>$\varepsilon$ = Error term | If $P \leq .05$, then there is a significant effect of macroeconomic factors inflation rate on the financial performance of listed REITs in Africa |
| **$H_{02}$:** There is no significant effect of interest rate on the | Secondary data (ratio) | Multiple regression analysis<br>$Y= \alpha+ \beta_2X_2 + \varepsilon$ | If $P \leq .05$, then there is a significant effect |

| | | | |
|---|---|---|---|
| financial performance of listed REITs in Africa | | α =constant (intercept)<br>$X_2$= is the coefficient for interest rate<br>ε = Error term | of macroeconomic factors interest rate on the financial performance of listed REITs in Africa |
| **$H_{03}$:** There is no significant effect of gross domestic product on the financial performance of listed REITs in Africa | Secondary data (ratio) | Multiple regression analysis<br>$Y= \alpha+ \beta_3X_3 + \varepsilon$<br>α =constant (intercept)<br>$X_3$= is the coefficient for inflation rate<br>ε = Error term | If P ≤ .05, then there is a significant effect of gross domestic product on the financial performance of listed REITs in Africa |
| **$H_{O(4-7)}$** There is no significant effect of firm characteristics (firm size, leverage, liquidity, age) on the financial performance of listed REITs in Africa. | Secondary data (ratio) | Multiple regression analysis<br>$Y= \alpha+ \beta_{(4-7)}X_{(4-7)} + \varepsilon$<br>α =constant (intercept)<br>$X_7$= is the coefficient for firm characteristics<br>ε = Error term | If P ≤ .05, then there is a significant effect of firm characteristics (firm size, leverage, liquidity, age) on the financial performance of listed REITs in Africa. |

### 3.7.2 Diagnostic Tests

#### 3.7.2.1 Normality Tests

The research was checked if the data to be analysed represented the symmetrical distribution or not before the application of any parametric test. The study employed the Kurtosis and Skewness normality tests. The test determined if the data were well modelled and normally distributed for the results to be generalized beyond the sample. According to the probability of the Kurtosis and Skewness test, if the significant value is less than 0.05, the data were normally distributed.

The study employed the Shapiro-Wilk normality tests. The test determined if the data were well modelled and normally distributed for the results to be generalized beyond the sample.

**Table 3.3 Normality Results**

| Variable | Pr (Skewness) | Pr(Kurtosis) | adj chi2(2) | Prob>chi2 |
|---|---|---|---|---|
| ROA | 0.9909 | 0.1830 | 1.98 | 0.3713 |
| Interest rates | 0.1382 | 0.8830 | 2.50 | 0.2863 |
| Inflation rates | 0.4041 | 0.1106 | 3.90 | 0.1117 |
| GDP | 0.1639 | 0.0105 | 2.38 | 0.250 |
| Leverage | 0.7522 | 0.0054 | 3.96 | 0.3308 |
| Firm size | 0.5045 | 0.3401 | 2.71 | 0.2212 |
| Liquidity | 0.4448 | 0.1468 | 2.34 | 0.2489 |
| Firm age | 0.3795 | 0.4028 | 1.63 | 0.4422 |

**Source:** Research Data (2021)

According to the probability of the Kurtosis and Skewness test, if the significant value is less than 0.05, the data were normally distributed. From the results above, according to the Skewness test for normality, residuals show normal distribution since the chi(2) is greater than .05.

#### 3.7.2.2 Collinearity Tests

The study checked for the presence of multicollinearity in the regression model by running Variance Inflation Factor (VIF) and Tolerance analysis, which present a coefficient through which the decision of the presence or absence of multi-Collinearity can be determined (McManus, 2015). According to Lewis-Beck and Lewis-Beck, (2015), the use of VIF and Tolerance tests is recommended as the appropriate techniques for simultaneously assessing both vertical and lateral Collinearity.

The study checked for the presence of multicollinearity in the regression model by running Variance Inflation Factor (VIF) and Tolerance analysis, which present a coefficient through which the decision of the presence or absence of multi-Collinearity can be determined (McManus, 2015).

**Table 3.4 Collinearity Results**

| Variable | VIF | 1/VIF |
|---|---|---|
| Interest rates | 4.85 | 0.206 |
| Inflation rates | 5.87 | 0.170 |
| GDP | 3.28 | 0.305 |
| Leverage | 3.26 | 0.307 |
| Firm size | 3.24 | 0.309 |
| Liquidity | 1.63 | 0.612 |
| Firm age | 1.32 | 0.757 |
| Mean VIF | 3.35 | |

**Source:** Research Data (2021)

The findings of the collinearity tests above indicated that all the predictor variables had a variance inflation factor of less than 10, which was an indicator of no collinearity problems. The tests also showed that the tolerance values (1/VIF) were above 0.1, which was an affirmation of the lack of collinearity issues within the regression model.

### 3.7.2.3 Autocorrelation Tests

Further, autocorrelation was tested using the Durbin Watson approach. Autocorrelation means that adjacent observations are correlated. If they are correlated, then regression underestimates the standard error of the coefficients, and the predictors can seem to be significant when they are not actually significant. Durbin-Watson value, d should be $1.5 < d < 2.5$, and any values outside of this range suggest a form of autocorrelation (Lee, 2016).

Further, autocorrelation was tested using the Durbin Watson approach. If they are correlated, then regression underestimates the standard error of the coefficients, and the predictors can seem to be significant when they are not actually significant.

**Table 3.5 Autocorrelation Results**

| | |
|---|---|
| Durbin-Watson stat | 1.654918 |

Durbin-Watson value, d should be $1.5 < d < 2.5$ and any values outside of this range suggest a form of autocorrelation (Lee, 2016). The results above indicated a D-W statistic of 1.655, which falls within the stated standard range; hence the study holds there were no serial correlation violations within the regression model.

### 3.7.2.4 Heteroscedasticity Tests

Heteroscedasticity could be a situation where the variance of the residual term varies with changes in explanatory variables (Westerlund, 2014). Heteroskedasticity is perceived as a selected feature of cross-sectional data, but that does not mean it cannot be related to time-series data (Hsiao, 2014). The study adopted the Breusch-Godfrey LM test statistic to check for the presence of Heteroscedasticity. As a standard, the p-values should be less than .05 to ensure there is no heteroskedasticity problem.

Heteroskedasticity is perceived as a selected feature of cross-sectional data, but that does not mean it cannot be related to time-series data (Hsiao, 2014).

**Table 3.6 Heteroscedasticity Results**

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ROA

chi2(1) = 0.41

Prob > chi2 = 0.5216

**Source:** Research Data (2021)

The study adopted the Breusch-Godfrey LM test statistic to check for the presence of Heteroscedasticity. As a standard, the p-values should be less than .05 to ensure there is no heteroskedasticity problem. The tests results showed a Prob > chi2 = 0.5216 for model one fitted for ROA, which was greater than the critical value of 0.05, indicating the existence of panel-level heteroscedasticity.

## 3.8 Ethical Considerations

The research ensured that all ethical guidelines were observed in the conduct of this research work. This involved ensuring that all the research data that is obtained is used for the stated academic purposes. Further, the research ensured that all necessary approvals were obtained from NACOSTI and the Strathmore University Ethical Review Committee. The research further ensured that any utilized research data was

well-referenced, and academic guidelines by the university were adhered to during the study process.

# CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

## 4.1 Introduction

This chapter is comprised of the presentation of the findings of the study. The section contained the descriptive results, the correlation tests, and the diagnostic analysis. Lastly, the study adopted panel regression analysis to determine the relationship between the predictor variables and the financial performance of the listed REITs in Africa.

## 4.2 Descriptive Analysis

The study collected research data from listed REITs in Africa with quantitative techniques applied in the analysis. The summary of the research observations was presented using descriptive analysis. The study used measures of central tendency such as means, observation (frequencies), maximum and minimum.

The findings are presented in table 4.1 below. The study was able to obtain data from 28 listed firms from the targeted 38. The study did not extract research data from 10 firms that were cross-listed or were domiciled in countries outside the African continent. This represented a representation of 74% of the sample firms for this research. The study relied on panel data for the period 2010-2020.

**Table 4.1 Summary of Descriptive Analysis**

| Variable | Obs. | Mean | Std. Dev | Min | Max |
|---|---|---|---|---|---|
| Return on Assets | 280 | .0371 | .0794 | -.5539 | .1872 |
| Interest rates | 33 | 6.1774 | 3.4413 | 1.0677 | 13.5961 |
| Inflation rates | 33 | 7.9940 | 3.6713 | 3.2833 | 16.5475 |
| GDP | 33 | 11.3319 | .3859 | 10.6021 | 11.7377 |
| Leverage | 280 | 4.0549 | 23.0263 | 0 | 217.1815 |
| Firm size | 280 | 7.0067 | 1.30695 | 0 | 9.9851 |
| Liquidity | 280 | 18.8196 | 243.6676 | 0 | 4074.826 |
| Firm age | 28 | 6.0318 | 3.4808 | 1 | 16 |

**Source:** Research Data (2021)

The findings above indicate that, in general, the listed REITS within Africa had an average of 3.7% ROA within the study period, with the highest ROA registered at

18.72% and a minimum of -55.39% within the study period. The results also revealed that the selected African nations had an average interest rate of 6.17%, with an inflation rate averaging around 7.99% annually within the selected countries. The analysis also noted that the GDP rate within the nations annually was averaged around 11.33% within the period 2010-2020.

The analysis of the firm characteristics pointed out that the firms had average leverage of 4.05% with minimum leverage of 0. Within the study period, the selected firms posted average liquidity of 18.81% within the study period and an average age of the firms at 6.03 years. The findings also pointed out that the average size of the listed REITs was 7.0067 with a deviation of 1.30695 from the mean log of firm size. These findings point to some stability within the listed REITs as indicated by resilience in firm characteristics as well as positive posting in the average financial performance as measured by the ROA.

### 4.3 Correlation Analysis

The study employed correlation analysis to determine the direction of the relationship between the research variables. Correlation was conducted using a 1-tailed test setting a significance value at 0.05. A value smaller than the significance value (0.05) was significant while values greater than 0.05 was interpreted as insignificant.

**Table 4.2 Correlation Results**

| | Return on Assets | Interest rates | Inflation rates | GDP | Leverage | Firm Size | Liquidity | Firm Age |
|---|---|---|---|---|---|---|---|---|
| **Return on Assets** | 1.000 | | | | | | | |
| **Interest rates** | 0.257 | 1.000 | | | | | | |
| | 0.274 | | | | | | | |
| **Inflation rates** | 0.328 | 0.169 | 1.000 | | | | | |
| | 0.158 | 0.474 | | | | | | |
| **GDP** | -0.289 | -0.152 | 0.155 | 1.000 | | | | |
| | 0.217 | 0.523 | 0.514 | | | | | |
| **Leverage** | 0.519* | 0.394 | 0.454* | -0.292 | 1.000 | | | |
| | 0.019 | 0.086 | 0.044 | 0.212 | | | | |
| **Firm Size** | -.311* | 0.203 | 0.209 | 0.649* | -0.331 | 1.000 | | |
| | 0.018 | 0.391 | 0.377 | 0.001 | 0.154 | | | |
| **Liquidity** | -.152* | -.463* | -.656* | 0.025 | -0.538* | -.108 | 1.000 | |
| | 0.002 | 0.039 | 0.001 | 0.915 | 0.014 | 0.649 | | |
| **Firm Age** | -.494* | -0.108 | -0.667* | -0.124 | -0.617* | 0.303 | 0.473* | 1.000 |
| | 0.027 | 0.649 | 0.001 | 0.601 | 0.004 | 0.193 | 0.035 | |

**Source:** Research Data (2021)

### 4.3.1 Objective i: establish the effect of inflation rate on the financial performance of listed REITs in Africa

The correlation test established that interest rates and inflation rates had a weak positive and insignificant effect on the return on assets of listed REITs in Africa (r = 0.328. Sig = 0.158>.05), as shown in Table 4.2 above.

### 4.3.2 Objective ii: establish the effect of interest rate on the financial performance of listed REITs in Africa

The findings in table 4.2 established that interest rates have a weak positive and insignificant effect on the return on assets of listed REITs in Africa (r = 0.328. Sig = 0.158>.05).

### 4.3.3 Objective iii: establish the effect of interest rate on the financial performance of listed REITs in Africa

Findings in Table 4.2 also indicated that gross domestic product had a weak negative and insignificant effect on the return on assets of listed REITs in Africa (r = -.289. Sig = .217>.05).

### 4.3.4 Objective iv: establish the effect of firm characteristics on the relationship between macroeconomic factors and the financial performance of listed REITs in Africa

The study findings in table 4.2 indicated that firm size had a weak negative and significant effect (r = -.311. Sig = .018<.05), age of the firm had a moderate negative and significant effect (r = -.494. Sig = .027<.05) while leverage had a positive and significant effect on the return on assets of the REITs in Africa (r = .519. Sig = .019<.05).

### 4.4 Hausmann Specification Tests

To determine which of these two models is appropriate, coefficients are estimated by both fixed and random effects. Hausman's specification test was applied to determine the appropriate model for utilization in this research (Hsiao, 2014). The findings of the specification tests are presented in this section.

**Table 4.3 Hausmann Specification Results**

Model 1. Fitted for Return on Assets

| Variable | (b) fe | (B) re | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
|---|---|---|---|---|
| Interest rates | .0037 | .0041 | -.0004 | - |
| Inflation rates | -.0041 | -.0089 | .0047 | .0039 |
| GDP | -.2016 | .0356 | -.2373 | .2012 |
| Leverage | .1094 | .0597 | .0496 | .0282 |
| Firm size | .1489 | .0109 | .1381 | .1053 |
| Liquidity | -.0002 | -.0001 | -.0001 | .0000 |
| Firm age | -.0150 | -.0141 | -.0008 | .0029 |

Test: Ho: difference in coefficients not systematic

chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 2.48

Prob>chi2 = 0.9286

**Source:** Research Data (2021)

The Hausman test is distributed as chi-square with 1 degree of freedom. From the results above, the probability of the cross-section random effects was 0.9286, which is greater than 0.05, implying that it's appropriate to adopt the random effects model.

### 4.5 Panel Regression Analysis

The research further employed panel data regression analysis techniques to determine the strength of the relationship between the variables. Panel data contain observations of multiple phenomena obtained over multiple time periods for the same firms or individuals (Hsiao, 2014).

**Table 4.4 Panel Regression Results**

| Variable | Coefficient | Std. Error | Z | P>\|z\| |
|---|---|---|---|---|
| Interest rates | .0041 | .0054 | 0.76 | 0.445 |
| Inflation rates | -.0089 | .0095 | -0.93 | 0.351 |
| GDP | .0356 | .0156 | 2.282 | 0.008 |
| Leverage | .0597 | .0221 | 2.701 | 0.001 |
| Firm size | .0109 | .0042 | 2.595 | 0.001 |
| Liquidity | -.0001 | .0003 | -0.61 | 0.542 |
| Firm age | -.0141 | .0065 | -2.169 | 0.002 |
| _cons | 1.250 | 13.157 | 0.09 | 0.924 |
| Weighted Statistics | | | | |
| R-sq: | | Wald chi2(3) = 13.37 | | |
| within = 0.5173 | | Prob > chi2 = 0.036 | | |

between = 0.9982

overall = 0.5270

**Source:** Research Data (2021)

### 4.5.1 Analysis of the determinants of the performance of listed REITs in the African market.

The panel regression results above examined the relationship between macroeconomic factors, firm characteristics and financial performance of listed REITs in Africa. Based on the findings; $R^2 = 0.5270$, *Wald chi2(3) = 13.37, Prob > chi2 = 0.036,* reveals a positive and significant relationship. Thus, it was established that 52.70% of the financial performance of listed REITs in Africa can be determined by the interest rates, inflation rates, GDP, leverage, liquidity, firm age and firm size.

### 4.5.2 Objective i: establish the effect of interest rate on the financial performance of listed REITs in Africa

**$H_{01}$**: There is no significant effect of interest rate on the financial performance of listed REITs in Africa. The results showed a *coefficient = .0041, P>|z| = .445>.05* thus. The study accepts the null hypotheses of the study. The research concluded that interest rates do not have a significant effect on the financial performance of listed REITs in Africa.

### 4.5.3 Objective ii: establish the effect of inflation rate on the financial performance of listed REITs in Africa

The second research hypothesis stated that;

**$H_{02}$**: There is no significant effect of the inflation rate on the financial performance of listed REITs in Africa. The results showed a *coefficient = -.0089, P>|z| = 0.351>.05* thus, the study accepts the null hypotheses of the study. The research concluded that inflation rates do not have a significant effect on the financial performance of listed REITs in Africa.

### 4.5.4 Objective iii: establish the effect of gross domestic product on the financial performance of listed REITs in Africa

The third research hypothesis stated that;

**$H_{03}$**: There is no significant effect of gross domestic product on the financial performance of listed REITs in Africa. The results showed a *coefficient = .0356, P>|z| = 0.008<.05* thus, the study rejects the null hypotheses of the study. A change in the

GDP rate will result in a .0356 change in the financial performance of listed REITs in Africa.

### 4.5.5 Objective iv: establish the effect of firm characteristics on the relationship between macroeconomic factors and the financial performance of listed REITs in Africa

The fourth research hypothesis stated that;

**$H_{04}$**: There is no significant effect of leverage on the financial performance of listed REITs in Africa. The results showed a *coefficient = .0597, P>|z| = 0.001<.05* thus, the study rejects the null hypotheses of the study. A change in the leverage rate will result in a .0597 change in the financial performance of listed REITs in Africa.

The fifth research hypothesis stated that;

**$H_{05}$**: There is no significant effect of firm size on the financial performance of listed REITs in Africa. The results showed a *coefficient = .0109, P>|z| = 0.001<.05* thus, the study rejects the null hypotheses of the study. A change in the firm size will result in a .0109 change in the financial performance of listed REITs in Africa.

The sixth research hypothesis stated that;

**$H_{06}$**: There is no significant effect of liquidity on the financial performance of listed REITs in Africa. The results showed a *coefficient = -.0001, P>|z| = 0.542>.05* thus, the study accepts the null hypotheses of the study. The research concluded that liquidity did not have a significant effect on the financial performance of listed REITs in Africa.

The seventh research hypothesis stated that;

**$H_{07}$**: There is no significant effect of firm age on the financial performance of listed REITs in Africa. The results showed a *coefficient = -.0141, P>|z| = 0.002<.05* thus, the study rejects the null hypotheses of the study. A change in the firm age will result in a -.0141 change in the financial performance of listed REITs in Africa.

# CHAPTER FIVE: DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

## 5.1 Introduction

The fifth chapter of the study focused on the presentation of the discussion of the results in relation to the empirical literature, the conclusions drawn from the results, and the recommendations drawn from the study findings. The chapter also presented suggestions for future research.

## 5.2 Discussion

The study was grounded on a positivism research philosophy with the target population of the study drawn from listed REITs in Africa. The study relied on secondary panel data that was collected from the listed REITs in Kenya, Nigeria, and South Africa. The collected research was compiled in Microsoft Excel and exported to Stata 16 for subsequent data analysis. The research utilized both descriptive and inferential analysis. The study results were presented in line with the stated objectives and hypotheses of the research.

The main aim of the study was to analyze the determinants of the financial performance of listed REITs in Africa. The study was grounded on the resource-based view theory, which proposes that firms can utilize the resources they have to gain a competitive advantage over the same players in the market, and the efficient market hypothesis, which explains the reasoning behind executive investment decisions. As such, if the listed REITs are able to align their competencies and adaptability to the environment, they can achieve better performance. This was corroborated by the study findings that showed a positive and significant relationship between firm characteristics, inflation rate, interest rates, GDP, and the financial performance of the listed REITs in Africa. The results showed that relying on their internal resources bundles and managing the macroeconomic environment can result in the improved financial performance of the listed REITs.

According to the RBV theory, a firm's unique resources, complexity in operations, specialty production, intangible skills, and dynamism in their operations are key to determining their performance. The EMH, on the other hand, explains how the managers use this market information as a competency that is used to improve the firm's investment decisions. The results showed that the information that is available

in the market could be used by fund managers to make predictions of future asset prices and improve investment decisions.

### 5.2.1 Inflation Rates and Financial Performance

The study findings were able to establish the existence of a negative and insignificant effect of inflation rate on the financial performance of listed REITs in Africa. These findings are corroborated by Fang, Chang, Lee, and Chen (2016) in their study in China and Singapore, where they established that inflation rates had a negative effect on the REIT index. Similar results were noted by Yunita and Robiyanto (2018), who revealed that the inflation rate has an insignificant impact on the rate of return in listed firms in Indonesia. Locally, Otieno, Ngugi, and Muriu (2019) also found out that the inflation rate had a negative effect on the stock returns of listed REITs in Kenya. In a study of banking industry firms, Kiganda (2014) also noted an insignificant effect of inflation rates on the profitability of the selected firms. However, the findings are not consistent with Mohd and Siddiqui (2020), who revealed the presence of a negative and significant effect of the inflation rate on the returns of firms listed in Pakistan.

### 5.2.2 Interest Rates and Financial Performance

The research results revealed the existence of a positive and insignificant effect of the inflation rate on the financial performance of listed REITs in Africa. The findings resonate with a study of the Kenyan real estate industry by Kamweru and Ngui (2017) which showed that interest rates on deposits were determined to have an insignificant impact on real estate investment. Kipkurui (2019) solely examined the listed REIT in Kenya and concluded that interest rates were determined to have a positive but insignificant effect on the stock returns of the firm. These results were not consistent with Razali, Jalil, and Nguyen (2020), who noted that the lending rate and inter-bank rates had a significant effect on the rate of return among Malaysian REITs. Olanrele et al. (2020) also revealed that interest rates had a significant long-run relationship with the returns of REITs in Nigeria. Makau (2016) research found there was a strong and significant effect of interest rate, money supply, Gross Domestic GDP), and inflation rate on the financial performance of unit trusts.

### 5.2.3 Gross Domestic Product and Financial Performance

The research results revealed the existence of a positive and significant effect of gross domestic product rate on the financial performance of listed REITs in Africa. These results were consistent with Bosco and Emerence (2016), who found out that gross

domestic product had a significant effect on the financial returns of the selected firms in Rwanda in both the short and long term. The findings also resonated with Elile, Akpan, and Raju (2019), who reviewed REITs in Nigeria and revealed that that real GDP had a positive and statistically significant relationship with REIT returns. Robinson and Olanrewaju (2020) study found out that increased direct investments and overall productivity in the country have a short-run effect on the growth of the real estate industry in Kenya.

### 5.2.4 Firm Characteristics and Financial Performance

The study further examined the effect of the firm characteristics on the financial performance of the listed REITs in Africa. The findings showed that leverage had a positive and significant effect on the financial performance of the listed REITs in Africa. The results also indicated that firm size had a positive and significant effect on the financial performance of the listed REITs in Africa. These findings are in line with Egbunike and Okerekeoti (2018), who revealed that leverage and firm size, as well as liquidity, significantly contributed to improved return on assets within listed REITs in Nigeria. Dioha, Mohammed, and Okpanachi (2018) were also able to confirm the existence of a significant influence of the size of the firm and leverage on the returns of REITs in Nigeria. Masika and Simiyu's (2019) study also found out that firm size, leverage significantly impact the returns among deposit-taking SACCOs.

The findings revealed that liquidity had a negative and insignificant effect on the financial performance of the listed REITs in Africa. This is consistent with Dioha, Mohammed, and Okpanachi (2018), who revealed that liquidity levels had no significant relationship with the profitability of the REITs institution. The findings also revealed that the age of the firm had a negative and significant effect on the financial performance of the listed REITs in Africa. These findings are inconsistent with Dioha, Mohammed, and Okpanachi, who showed that the age of the firm does not have a significant relationship with the profitability of the firms.

## 5.3 Conclusions

The main objective of the study was to analyze the determinants of the financial performance of listed REITs in Africa. Based on the study findings, it is concluded that macroeconomic factors (inflation rate, interest rate, and GDP) and firm characteristics (leverage, liquidity, firm size, age of the firm) have a positive and significant relationship with the financial performance of the listed REITs in Kenya.

The study also found out that inflation rates and interest rates have an insignificant effect on the financial performance of the listed REITs in Africa.

The research concluded that gross domestic product has a positive and significant effect on the financial performance of the listed REITs in Africa. Further, the findings supported the conclusion that leverage of the firms and the size of the firm have a positive and significant effect on the financial performance of the listed REITs in Africa. The study results lead to the conclusion that the age of the firm has a significant effect on the financial performance of the listed REITs in Africa. Lastly, the findings support the conclusion that liquidity does not have a significant effect on the financial performance of the listed REITs in Africa.

## 5.4 Recommendations

### 5.4.1 To Policy

The inflation rate is not constant, and it has been revealed that it has a negative effect on a firm's performance as such, the REITs firms should make ample adjustment for inflation so that during seasons of high inflation, the firms do not run at a loss. The study recommends that regulatory bodies within the continent should find ways of stabilizing the inflation within their economies as this will shield the local REITs from the price shocks that could negatively impact their financial performance. Its' further recommended that the REITs firms should improve on their capital base and investment portfolio selection to ensure they are cushioned from any economic shocks resulting from inflationary movements within the country. The research also recommends that the national governments within the selected markets should ensure that the prevailing central banks rates are supportive of the business environment by being set optimally. This will result in manageable lending rates being implemented by commercial banks.

### 5.4.2 To Practice

Further, the REITs firms should leverage on available government bonds or interest rate futures in order to be able to lock in interest rates and hedge their various portfolios. This will ensure that the REITs are not exposed to the negative impacts of higher interest rates within the market. The study further recommends that the REITs should develop dynamic strategies that will ensure the firms are able to leverage on periods of economic boom, which can lead to better financial performance. Further, the firms should, in collaboration with regulators, develop policies anchored on the

evidence of this research. These policies can be focused on developing guidelines that the firms can utilize in the formulation of inflation and interest rates management benchmarks.

### 5.4.3 To the Management

The study findings showed that leverage and firm size had a significant effect on the financial performance of listed REITs. To this end, the study recommends that the management of the trusts should focus on strategies that will guide the management of the debt within the firm, as well as advocating for prudent management of the firm assets and investments. Due to the contributions of the factors on the financial performance, the management should ensure there is constant monitoring of the firm assets to ensure the trust does not hold highly depreciating assets that may reduce the firm size. Further, the management should pay attention to the leverage ratio to ensure the firms balance the levels of debt which will ensure the firm is not exposed to negative impacts of servicing the debt. Lastly, the study recommends the organization should review their liquidity management to ensure the firms have adequate cash to meet their financial obligations. This will be key to eliminating the negative effect of liquidity on the financial performance of the firms.

### 5.4.4 Contribution to Theory, Practice, And Policy

The study recommends the government should initiate policies that will stabilize the macroeconomic factors that determine an asset's value. The study contributed to theory by showing how REITs leverage on their internal and external environment factors to improve on their financial outcome. This study used the RBV and EMH theories to expound on this knowledge. As such, the study expounds on the applicability of the theory in future finance studies focusing on the performance of financial institutions.

## 5.5 Limitations of the Study

The study utilized secondary data, which had already been obtained and was in the public domain, unlike the primary data, which is first-hand information. During the conduct of the research, there were various limitations. Due to the multi-country nature of the examination the data collection was largely limited to firms which did not have an up-to-date publication of their financial reports.

## 5.6 Areas for Further Research

The study was only limited to a single financial performance measure that is profitability (ROA). Hence a similar study could be conducted examining the effect of the selected factors on other measures of financial performance within the listed REITs. The study was also limited to only three mac roeconomic factors, another study is recommended examining other factors such as infrastructure development, exchange rate, political risk index, government debt, and money supply effect on the development of the REITs market. The study recommends that further studies should be conducted examining the challenges influencing the growth of the REITs industry in Africa. With the low presence of listed REITs in the continent it is vital to understand what has curtailed their growth in a continent witnessing a boom in the real estate sector. A recent forum held by the NSE highlighted that investors are not well-informed on how REITs are run. Thus, the study also recommends that the effect of investor characteristics on REITs market should be examined as an area for further research. Further, research work can be considered factoring more diverse macroeconomic factors and other proxy measures of the financial performance of REITs to expand the available empirical knowledge.

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# APPENDICES

**Appendix I: List of REITS Listed in Africa**

South Africa:

1. Accelerate Property Fund Limited
2. Arrowhead Properties Limited
3. Attacq Limited (Atterbury Property)
4. Capital & Regional PLC
5. Delta Property Fund Limited
6. Dipula Income Fund Limited
7. Emira Property Fund Limited
8. Equites Property Fund Limited
9. Fairvest Property Holdings Limited
10. Fortress REIT Limited
11. Gemgrow Properties Limited
12. Growthpoint Properties Limited
13. Hammerson PLC
14. Hospitality Property Fund Limited
15. Hyprop Investments Limited
16. Indluplace Properties Limited
17. Investec Australia Property Fund
18. Investec Property Fund Limited
19. Liberty Two Degrees REIT
20. Oasis Crescent Property Fund Managers Limited
21. Octodec Investments Limited
22. Orion Real Estate Limited
23. Redefine International (RDI) REIT PLC
24. Rebosis Property Fund Limited
25. Redefine Properties Limited
26. Resilient REIT Limited
27. SA Corporate Real Estate Limited
28. Safari Investments RSA Limited
29. Schroder European REIT PLC
30. Spear REIT Limited
31. Stor-Age Property REIT Limited

32. Texton Property Fund Limited
33. Tower Property Fund Limited
34. Vukile Property Fund Limited

Nigeria:

1. Union Homes REIT
2. UACN Property Development Company (UPDC) REIT
3. Skye Shelter Fund (SFS) REIT

Kenya:

1. ILAM Fahari Income REIT (formerly Stanlib Fahari Income REIT)

Source: (Cytonn Investments, 2019); (Johannesburg Stock Exchange, 2020) (Dabara, Joseph, Omotehinshe, & Soladoye, 2019)

## Appendix II: Ethics Review Committee Authorization

Strathmore UNIVERSITY

26th March 2020

Ms Chirchir, Linda
linda.chirchir@strathmore.edu

Dear Ms Chirchir,

**RE: Analysing the Performance of Listed Real Estate Investment Trusts in Africa**

This is to inform you that SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is **SU-IERC0694/20**. The approval period is **26th March 2020 to 25th March 2021.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Dr Virginia Gichuru.
**Secretary; SU-IERC**

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
26 MAR 2020
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

**Cc:** Prof Fred Were,
**Chairperson; SU-IERC**

## Appendix III: NACOSTI Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 241637

Date of Issue: 28/May/2020

**RESEARCH LICENSE**

This is to Certify that Ms.. Linda Chepkorir Chirchir of Strathmore University, has been licensed to conduct research in Nairobi on the topic: Analysing the Performance of Listed Real Estate Investment Trusts in Africa for the period ending : 28/May/2021.

License No: NACOSTI/P/20/5078

241637

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

**Appendix IV: Data Extraction Form**

| Year` | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inflation | | | | | | | | | | | |
| Interest | | | | | | | | | | | |
| GDP | | | | | | | | | | | |
| Leverage | | | | | | | | | | | |
| Liquidity | | | | | | | | | | | |
| Age of Firm | | | | | | | | | | | |
| Total Assets | | | | | | | | | | | |
| ROA | | | | | | | | | | | |