

**THE RELATIONSHIP BETWEEN INTEREST RATES AND
INVESTMENTS IN AFRICAN COUNTRIES**

BY

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DECLARATION

I do declare that this management research project is my original work and has not been submitted for an award in any university or institution of higher learning



Sign.....


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This management research project has been submitted for presentation with my approval as the University supervisor.



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DEDICATION

I dedicate this project to my mother and family members in recognition of their support, motivation and inspiration.

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LIST OF ABBREVIATIONS

BOP	Balance of Payments
CBK	Central Bank of Kenya
GDP	Gross Domestic Product
IFC	International Finance Corporation
KNBS	Kenya National Bureau of Statistics
NSE	Nairobi Securities Exchange
US	United States of America

ABSTRACT

Investments, being a crucial aspect for the general growth of any economy, have been thought to be influenced by interest rates. The current study aimed at establishing the relationship between the two; interest rates and the level of investments within the continent of Africa. The study also attempted to establish whether other factors which included exchange rates, unemployment levels, political stability and accessibility to domestic credit for private firms also had an influence on the level of investments in the different countries within the continent of Africa. The research established that interest rates and exchange rates affect the levels of investments negatively and significantly. The variables had a p-value of 0.041 and 0.021 respectively. Unemployment rate also was found to affect levels of investments negatively with a significant p-value of 0.021. Availability of domestic credit to the private sector and political stability was found to affect level of investments positively. While availability of domestic credit had a significant effect, political stability was found to have an insignificant influence on the levels of investments. These results indicate that, to boost investments in the continent, measures need to be taken to optimize on the interest rates and also strengthen currencies so that the exchange rates against the dollar do not move adversely. Countries also need to be conscious of contributing factors like political instability. Considering the established effect of availability of domestic credit to the private sector which is positive, economies need to take measures to increase lending to the private sector. The credit availability will provide the private sector with the required capital to invest and cause an investment growth. On unemployment, nations need to take steps to reduce unemployment levels in the continent. This can be achieved through proper training and research and emphasizing on self-employment which should be complemented with availing credit and at reasonable interest rates to ensure it does not have the negative effect it may have.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Among the many benefits of investments in an economy, is its ability to influence the productivity capacity of an economy. Some of the related benefits include generation of revenue for governments, creation of markets for both raw materials and finished goods, provision of employment opportunities and source of inventions among others. Investment need inputs and a key input is capital. For lack of enough personal funding, investors have to acquire external funding which attracts interest. According to Khurshid (2015), interest charged is a cost to the business and the higher the interest rate, the higher the cost. Increased cost is expected to make investors shy away from the financing and this is expected to negatively affect uptake of financing and consequently, growth in investments.

On this subject matter, theorists have attempted to explore the issue around interest rates and investments. For example, contributions by Abstinence Theory of Interest rates by McCulloch (1864), Accelerator Theory of Investment by Clark (1917), and the Productivity Theory of Interest Rates by Brown and Philip, as noted by Knight (1967). Abstinence Theory helps in appreciating that interest has to be charged as a compensation for forgoing consumption by the lending party to avail funds to the borrowing party. Accelerator Theory of Investment helps in understanding how other factors in an investment are complimented by capital. It is important to note that it is this capital which attracts interest rates. Productivity Theory on the other hand shows the contribution of interest in attracting capital to productivity in investments.

As reported by the National Bureau of Economic Research (2020), Africa has lagged behind in terms of investment growth regardless of its diverse resources. This has led to poor and

slow economic growth in the continent making it rely on imports for some items that would otherwise have been produced (Julius, 2015).

Several studies have identified that interest rates do actually affect the growth of investments. Rachael and Smith (2018) established that low interest rates affect investments negatively but their findings contradicted those of Xaba (2018) which established an inverse relationship between the two variables indicating that low interest rates lead to positive growth in investments. These contradictions are expected as enlightened by Khurshid (2015) who established that other factors play into the relationship and affect it. It is in light of these contradicting findings where a study focusing on interest rates and growth of investments in Africa and taking into account expected other factors, which can affect the relationship, has become necessary.

1.1.1 Interest Rates

Heath, Jarrow, and Morton (1992) denoted the term interest rate to mean a cost associated with the use of debt. It is expressed as a percentage of the principal debt. According to Khurshid (2015), interest rates are a reflection of the economic situation in an economy. Interest rate levels are therefore affected by many factors that play in an economy. As identified by Khurshid (2015), some of the factors are GDP, BOP, rate of economic growth, unemployment levels and price levels among others. These factors cut across and indicate how important interest rates are, in any country.

According to Capital.com (n.d), interest charged is a cost to the borrower and income to the lender. Based on this, higher interest rates mean higher costs to a business and are therefore expected to affect a business negatively. This would reduce incentives for investment and reduce or retard growth in investments. Khurshid (2015) observed that higher interest rates would reduce income from an investment and consequently make investors withdraw from

such an investment. As noted by Bacon (1992) about the Abstinence Theory of Interest Rates, a key factor of interest rates is risk associated with the abstinence of use of capital to allow another party to use it. According to the Productivity Theory of Interest Rates, capital compliments and enhances productivity of labour, consequently interest accrues on account of productivity.

Just as economies are managed differently, different interest rates are charged in different countries. Broadly, there are three types of interest rates that exist in economies; according to MacDonald and Murphy (1989) these include nominal interest that depicts the budget deficit interest, real interest which is a consideration of the inflation impact on the economy while effective interest caters for the prevailing market conditions in an economy. For the current study, real interest rates shall be used to measure the variable of interest rates. There are also different systems and ways of determining interest rates with some countries capping their interest rates while others allowing them to be determined by forces of demand and supply. In Kenya, the rates were capped in 2016 and were reviewed in 2019 after it was found to negatively affect businesses' ability to get financing (Mutua, 2019).

A study by Baillie and McMahon (1981) indicates that under different policies, the effect of interest rate on investments is different. This shows that there are other factors, which can dictate the direction and magnitude interest rates would have on investments. In this study, other factors expected to influence the relationship between interest rates and growth of investments in Africa were also analyzed so as to have a better understanding of the whole issue surrounding investments and interest rates.

1.1.2 Investments

Investment was defined by Picardo (2020) as the act of resources (especially money) allocation with the expectation of future revenue or profit generation. Growth in investments therefore denoted an increase in such commitment of resources. As observed by Holopainen, Ollonqvist and Viitanen (2006), different sectors of the economy have different attractiveness and the key consideration is profitability. Several researchers have conducted investigations into factors influencing the growth of investments as it is very much related to economic development. Factors like natural resource endowment, economy openness, international reserves and inflation have been found to impact on the growth investments (Onyeiwu & Shrestha, 2004). Others are interest rates and existing policies as observed by Khurshid (2015).

Investments play a key role in the growth of economies. They help in solving unemployment issues, provide goods and services, act as markets for raw materials and have a preferable impact on BOP through exporting of excess production. It was found that investments in South Africa and especially foreign direct investments facilitated growth in her GDP (Asafo-Adjei, 2007).

There are different ways of measuring growth of investments in an economy. Several authors have used different measures to determine investments. Jorgenson and Fraumeni (1992) used the amounts of capital commitment while Asafo-Adjei (2007) used the amounts of foreign direct investments. For the purposes of this study, the number of new businesses registered in a year was used to determine growth in investments an approach which was adopted by Djankov, Ganser, McLiesh, Ramalho, and Shleifer (2010). This is because the number of new businesses is a good measure of the actual number of capital commitments, which have been done by the individuals in a particular economy. The number of new capital commitments

has been considered due to the fact that they have a long term implication on growth based on the fact that people will be pushed to even invest more in attempt to secure their initial investment as opposed to the amount committed which may land to a few firms and not be promising in the future growth (Höllerer, 2013).

1.1.3 Interest Rates and Investments

Interest rates have been varying over time and across regions. This situation makes investors operate in a kind of an unpredictable environment as even within the same economy, different financing institutions may offer credit at different interest rates. It is thus important for investors to understand how movement in interest rates would affect their investments and if the effects are significant or not. This knowledge would facilitate proper decision-making-

As advised by the abstinence theory of interest rates, investors should expect interest to be charged, as the lenders have to forgo consumption to avail the funds. They should however have their focus more on the productivity of their investments as that is what would determine if the debt would appear costly or not. As per his findings, which were in support of the accelerator theory of interest rates, Hochstein (2018) found that demand affected growth for investments positively through need for production of the needed goods and services.

Studies done have indicated varying conclusions depending on the focus of the researchers but they all tend to agree that investments growth and interest rates are related in a way. Asheghian (2004) denoted that financiers would offer more capital leading to growth of investments when interest rates are high. This can be attributed to the opportunity costs of such funds, as investors have to compete with other opportunities. Khurshid (2015) also determined that lower interest rates had a positive impact on investments as they meant lower costs of financing making investments attractive. He however noted that other underlying

conditions like policies could influence the direction of the relationship. Other conditions, identified by other scholars, which was considered in this study in determining the relationship between interest and growth in investments, are the levels of unemployment, political situation in an economy, foreign investment activities and availability of credit to the private sector. Considering them in the study would ensure good exploration of the issue and would make the study more informing and considerate as it recognizes the findings by Khurshid (2015) that other conditions can affect the relationship

1.1.4 African Countries

Africa is the second largest continent on earth after Asia (Kröner, 2020). According to Worldometer (n.d), the continent has 54 countries. The countries have diverse economic conditions but most of them are still developing or underdeveloped countries. Because of this underdevelopment, any factor, which can contribute to economic development like growth in investments, is worth studying. As a young continent crawling out of effects of colonization, Africa has a great investment potential. It is lagging behind in industrialization and thus it's yet to exploit its investment potential.

Among the varying factors, which can affect investment, growth in Africa is the interest charges on its credit facilities. Whereas institutions like World Bank and IFC deal with governments and bigger institutions, the informal sector form the bulk of investments and do not get a direct access to cheap loans from such facilities. They are thus limited to the facilities at their surrounding which charge interest differently as they are also forms of investments specialized to give credit. Although high interest rates may enhance credit availability, it may be expensive thus having a counter effect on uptake and thus investment growth. Apart from interest rates, other factors in Africa expected to limit or enhance growth of investments are levels of unemployment, domestic credit availability and the levels of

foreign direct investments. This study shall explore the diversity of interest rates in African countries focused at answering the question; what is the relationship between interest rate levels and growth of investments in Africa?

1.2 Research Problem

Africa has lagged behind in investments growth regardless of its resources. This has derailed efforts put towards attainment of economic and social goals. Among the key factors, which may influence investments, is interest rates. This is because investments are tied to availability of capital among other factors. Capital can come in form of a debt, which attracts interest. As interest is a cost to an investment, interest rates become key factors in investments. Advanced theories have not been able to solve the investments challenge and this has exposed African countries to slow growth of investments. Abstinence theory, as cited by Bacon (1992) has only suggested the rationale behind interest rates but has not been able to link it to growth of investments. This has left scholars just aware of why interest rates are charged but not informed on how their variation can affect growth in investments. Similarly, theories like Accelerator Theory of Investment by Clark (1917) and Productivity Theory of Interest by Brown and Philip, as noted by Knight (1967), are also useful but not comprehensive in explaining investment growth.

Apart from availability of resources, ideas, and favorable environment, availability of funds is a key factor, which can stand in between investing and not investing. The funds are never provided free but interest is charged, as one has to forgo current consumption to avail the funds and hence requires compensation. In free economies, the forces of demand and supply determine interest rates. The demand and supply of finances is on the other hand determined by, among other factors, need for investments. The amount of interest charged can therefore influence the uptake or otherwise, of the funds. The interest charged, if costly, may make

possible investors shy away thus fail to invest leading to a negative effect on investments or even attract foreign investments. This kind of contradicting expectations calls for a study to explore the exact effect of interest rates on the level of investments in African countries.

Knight (1967) observed that capital compliments labour and therefore without it, other factors of production do not operate at an optimum level. The result is slow growth of investments. Higher interest does not directly translate to lower investments as profits expected may make the perceived high interest look small and therefore an investor may go ahead and invest. This study therefore sought to identify the actual effect of interest rates on the growth of investments in African countries with a view to contributing to theory, policy and practice.

Several researches have been conducted in the area but due to diversity of times and economies, it may be misleading to rely on their results directly. In the international context, Asheghian (2004) established that, higher interest rates made it possible for credit to be provided by lenders. Another study by Ammer, Claessens, Tabova and Wroblewski (2019), found that lower interest rates in some countries increased investments in US bonds. This meant that capital was less available in those other countries with less interest rates and therefore investments were impacted negatively whereas in US they were positively impacted. In China, Xu (2017) established that interest rates and real estate investments growth were inversely related. These studies are very informing but may not be representative of the case in Africa as the economies studied are very advanced compared to most African states. They also focused on different subjects and even contradicted each other in their findings.

Locally in Kenya, Nelson and Emase (2018) established a negative significant effect of real interest rates on investments. Another study by Koskei (2020) established that higher interest

rates attracted foreign investments thereby contributing positively to investment growth in the country. As observed in the research by Ammer, Claessens, Tabova and Wroblewski (2019), interest rates in some countries affected their levels of investment. Based on this, it would not lead to optimal decisions if a country were studied in isolation. This fact forms the basis for studying all African countries as they share related challenges and opportunities and are in close proximity to each other hence able to affect each other. These deficiencies in existing literature and theories and also the importance of investment to economic growth are the basis for this research. The research therefore sought to answer the question; what is the relationship between interest rates and level of investments in African countries?

1.3 Research Objective

To determine the effect of interest rates on the level of investments in African Countries.

1.4 Value of the Study

This study shall be beneficial to many and in many ways. Key beneficiaries are government policy makers, interest rate interested parties, investors and students especially those in the field of finance and economics. Findings of the study shall assist government policy makers develop better policies in respect of interest rates to aid in the growth of investments in their countries.

Other interested parties are investors. By relying on the results of this study, investors are able to invest in countries with the most investment friendly interest rates. Since the study is also undertaken with other expected control variables, investors understand to a greater depth the possible factors that can affect investment growth and thus strive to make the factors conducive by advocating for policies and best practices.

In theory, the research shall also benefit those in the academic world like researchers, students and lecturers in the field of finance. The study shall form a reference point for

interest rates and investments related literature. By adding to the existing literature, the study shall complement existing research works and improve on coverage of the subject matter.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents a review of related literature in respect of interest rates, growth in investments and factors that may be contribute to the relationship between interest and growth of investments. In the chapter, a review of related theories and empirical studies relating to interest rates and growth of investments, determinants of growth of investments, and a conceptual framework for the study are presented and concludes with a summary of the literature reviewed.

2.2 Theoretical Framework

In this section of the chapter, a review of the existing theories shall be done in respect of the study variables, which are interest rates and growth of investments. In order to achieve the research objectives, the study shall review abstinence theory of interest rates due to its connection with interest rates, accelerator theory of investment due to its explanation of investment growth and productivity theory of interest due to its linkage between the two variables.

2.2.1 Abstinence Theory of Interest Rates

The abstinence theory of interest rates was advanced by McCulloch in 1864 as per Bacon (1992) and was prominently known as the remuneration theory. The theory looks at capital or finances as stored labor which should be paid for by anyone who intends to utilize it. The theory looks at interest rates as the reward for abstaining to use one's money today and providing it to another person to utilize it. According to Bacon (1992), the longer the period of abstinence the higher the risk of the borrower, and the greater the incentive that should be provided to the owner of the money who forfeits his/her current spending.

The theory assumed that there is proportional abstinence cost an individual incurs by not spending his money to day and the reward they get which become a major weakness of the theory as his critiques observed (Bowley, 2013). According to Bohm as cited by Bowley (2013), the level of interest is not always equivalent to the value of the sacrifice one gives due to the alteration of the time value for money as present goods are valued higher than future goods.

The theory has been adopted for the current study due to the support it offers to interest being charged whenever someone forgoes the current benefit by either investing in long-term projects or giving out the capital to another person for future repayment. Even though scholars like Chapra (2000) advocated for the prohibition of interest in capitalism, the prohibition has not been possible making it hold to the proposition of the abstinence theory where one should have to gain interest for abstinence while the person who enjoys value for current money will have to forgo that abstinence benefit.

2.2.2 Accelerator Theory of Investment

The accelerator theory can be traced to Clark (1917) who thought of investment as a function of the stock of capital. The theory was built on the same principles argued by Keynesian that the real economic performance was determined by aggregate demand. The theory assumed that as demand in the market increases, firms and individuals would have to readjust and invest more in order to take advantage of the prevailing market conditions. According to Hochstein (2018), investment in plant and equipment is influenced by the level of market demand for commodities being produced using those plants and equipment. Therefore, whenever demand increases for real products, this was associated with an increase in the level of investments.

According to a study by Kazakova and Kuzminykh (2017), the accelerator theory was found to be quite relevant to municipalities. The study established that even though the multiplier effect may be delayed, in the long run, it will eventually occur. However, the causative impact has not been very clear in relation to the two variables as observed by Celik, Karlis and Nguyen (2018) hence questioning the validity of the theory. Their study established that investment could also be seen to trigger demand as evidenced in the fiscal policy makers.

This theory has been adopted for the current study due to its explanation of the reason as to why individuals have to invest over period. As per Kazakova and Kuzminykh (2017), investment has become inevitable whenever an opportunity has been offered by the market, which normally comes in the form of existing demand. As firms plan to take advantage of such opportunities, they are forced to increase their production capacity by investing in capital assets to improve their productivity so as to meet that demand at a better return for future gains.

2.2.3 Productivity Theory of Interest

Brown and Philip as noted by Knight (1967) who established the theory, argued that interest is the charge for the capital services offered. According to the argument, interest is perceived to accrue on account of productivity. The theory establishes that there is more likelihood of labour supported by capital to be more productive than that which is not supported by capital. As a result, the outcome of the investment that is made by a business shall depend largely on the capital and labour that has been employed in the production process.

According to the economic discussion, interest is paid on investment based on the level of productivity of capital., Critics, however, have established that the theory may have failed to reliably measure productivity and also only focus on high level of productivity in its consideration of interest. In reality, interest has been charged on anticipated future returns,

which at time tend to be negative meaning that interests will even be paid when returns are negative especially when owed to a third party.

2.3 Determinants of Investments

Investments have been a major concern for many nations in the attempt to sustain their economies and achieve desired levels of growth. There are a number of underlying factors that have influenced the growth of investments in African nations. A discussion of the factors follows below.

2.3.1 Foreign Investment Activities

Foreign investment activities have been a major boost of the growth of investments for different countries especially in the developing nations. With most nations, which are perceived, to be having stronger currency attracting more investors from other nations, this tends to boost investments growth within the nation (Jovančević & Kennedy, 2007). This is normally as a result of new ways of doing things which is brought by foreigners and availability of finances for investment brought by the foreigners as they transact with local businesses. With increase in the demand brought about by these investments as well as the investors who reside within the nation, this tends to boost internal investments in a country.

According to Gui-Diby (2014), foreign direct investments, which were made easy by the existence of foreign direct investment treaties between nations and also the strength of currency as indicated by exchange rates, influenced the growth of economies in a positive manner.

2.3.2 Political Stability

Political stability has been a major concern of most nations within the continent of Africa. Shahzad, Mithani, Al-Swidi and Fadzil (2012) established that political instability leads to gloomy environments that reduce the confidence of investors within the country. Countries

which have enjoyed stable governance over years have been seen to be performing better than their counterparts who have been experiencing political instability. People will be willing to make investments provided they are assured of peaceful co-existence of communities. This provides assurance of the security of investments as well as demand for the products.

Musibah, Shahzad and Fadzil (2015) also established that political stability was having a positive significant influence on the growth of both internal and external investments within any country. While political instability shy away investors, it also poses a threat to the existing businesses which means lesser investment decisions will be made.

2.3.3 Unemployment Levels

The issue of unemployment within a nation and how it influences the level of investments and economic growth has been viewed with contradicting opinions by different scholars. According to Stamatiou and Dritsakis (2014), policy makers should develop modalities that aim at reducing unemployment by boosting investment and government spending. When investments are made, it is necessary to have the human resource to support that capital in order to translate the efforts of investors into return. This lead to reduction of unemployment levels within the nation. Ademola and Badiru (2016) indicated that there is a positive relationship between unemployment and inflation to economic growth which contributes to investment.

According to Mauro and Carmeci (2003) there is a negative long run relationship between investment and unemployment. This has been attributed to the fact that when unemployment increases within a country, it leads to decline in the output, which leads to reduced growth in investments. However, economists argue that at full employment, increased investment lead to inflation instead of economic growth indicating a complex relationship between the variables.

2.3.4 Availability of Domestic Credit to Private Sector

Availability of domestic credit to private sector has been one of the major key sources for finances required for investments. When there is readily available domestic credit, people with business ideas get the option to get the necessary capital to put the ideas into practice. Countries that have limited domestic credit to the private sectors have been known to be also limited in the extent to which they develop their economies which leads to negative investment growth (Obeng-Amponsah, Sun, Havidz and Dey, 2019).

According to Bui (2020), the availability of domestic credit to the private sector was known to influence investments growth in a positive way. This was attributed to the availability of funds which are used for investment with ease. However, it was established that a negative relationship came into existence whenever the appetite for credit became too high based on the returns payable to the credit source (Bui, 2020).

2.4 Empirical Review

This section provides a review of related studies conducted globally, regionally and locally.

2.4.1 Global and Regional Studies

A study by Asheghian (2004) in United States sought to explore the determinants of economic growth with a focus on the role of foreign direct investments. Using annual data for a period of 40 years, and exploring the data using the Beach MacKinnon Technique, the study established that, there existed some direct relationship between interest rates and the growth of investments. The study found that there was a high willingness by investors to offer their finances to the market when interest rates are high, as they tend to get better return in the form of interest. The study however, focused on US only.

In China, Xu (2017) sought to determine the relationship between interest rates income, GDP and house prices, which are real estate investments in China. Housing data was collected for

the years 1996- 2008 and analyzed through regression. The study established that the interest rates were inversely related to the investments in real estates. This was attributed to the increased cost of investing which made investors shy from investing in the industry. There is however a different environment in Africa which may bring about opposite results. Another gap in the study is that it focused on real estate investments only. The current study focused on the entire growth of investments in the countries.

Rachel and Smith (2018) sought to establish if low interest rates were going to be persistent in the UK. The study focused on some factors which could have led to the decline in the interest rates and desired levels of investments being one of the factors focused on. Data was collected for the years 1980 – 2010 and used quantitative methods to analyze the data. The researchers observed that interest rate was low all over the world and that investments were also on a fall over a period of 30 years. This could be attributed to the fact that the price of capital was termed to be so low and provided no incentive for investors to forego their spending for investment. People opt to hold the finances in other forms limiting the money available for banks to offer credit and hence resulting into lowered level of investments. However, the context of the current study differs from that of Rachel and Smith (2018) since it was done in a developed country.

A study in South Africa by Xaba (2018) studied the relationship between interest rates, savings and investments in the country. SPSS software was run a simple linear regression for the variables; interest rates, savings and investments. 10-year period data from South Africa was used for the years between 2007 and 2017. The results showed a positive relationship between interest rates and saving but a negative relation for interest rates and investments.

Ammer, Claessens, Tabova and Wroblewski (2019) studied the effect of interest rates on investment on US bonds by foreign investors. They focused on 31 selected countries and

used data from the year 2003-2016. The researchers used regression technique with both time and country fixed effects to enhance their focus. Using the selected countries home interest rates and relative holding of US bonds by foreign investors from such countries, it was established that lower interest rate in other countries had boosted the performance of bonds and other investments in the US as they offered a better return to investor. The study however, concentrated on foreign investment alone whereas, in the current study, both internal and external investments shall be studied.

A study in Nigeria by Adenuga (2020) sought to determine the relationship between interest rates and the growth of investments within the nation. Data was collected for the years 1986-2018. The study adopted a co-integration and vector error correlation approach in its analysis and had the first lag providing evidence of positive relationship, while the second lag supported negative relationship between interest rates and the levels of investments in a country. Based on the contradicting results, it is necessary for the current study to be conducted to establish the exact relationship between the two variables and also to expand it beyond Nigeria.

2.4.2 Local Studies

In Kenya, a few researchers have ventured to establish the relationship between interest rates and the growth of investments within the nation, which has been seen to stagnate. Kiplagat (2016) researched on the effect of interest rates on foreign direct investment activities in Kenya. The study adopted a descriptive research design and secondary data was collected from 1971 to 2014. Descriptive and inferential data analysis was done where SPSS software version 17.0 was employed. The study established that, interest rates had a positive but insignificant effect on foreign direct investments in the country. These findings contradict those of Nelson and Emase (2018) which calls for further researches to explore the issue further.

Nelson and Emase (2018) established a significant negative relationship between real interest rates and the investment levels within the nation. The study had adopted a causal research design and used secondary data from CBK, World Bank and KNBS for the years 1971-2014. The study attributed this to high cost of borrowing associated with the high interest rates that lower the motivation of borrowers who use borrowed capital to boost their investments. However, beyond 2016, interest rates in the country were capped, and probably distorting the influence as the rates had remained low even after the capping review. This necessitates another research to confirm or find contrary results to the previous researches.

Koskei (2020) conducted a study which concentrated on the impact of interest rates on foreign investments in Kenya. The study established a positive significant relationship between the investment of foreigners in the NSE and interest rates. This was based on the perceived good returns, which will be earned when interest rates are high based on good economic performance. Based in these contradicting results, it is important for the current study to be conducted to establish the relationship between interest rates and the growth of investments in African continent.

2.5 Conceptual Framework

Below is pictorial presentation of the expected relationship between the variables under study

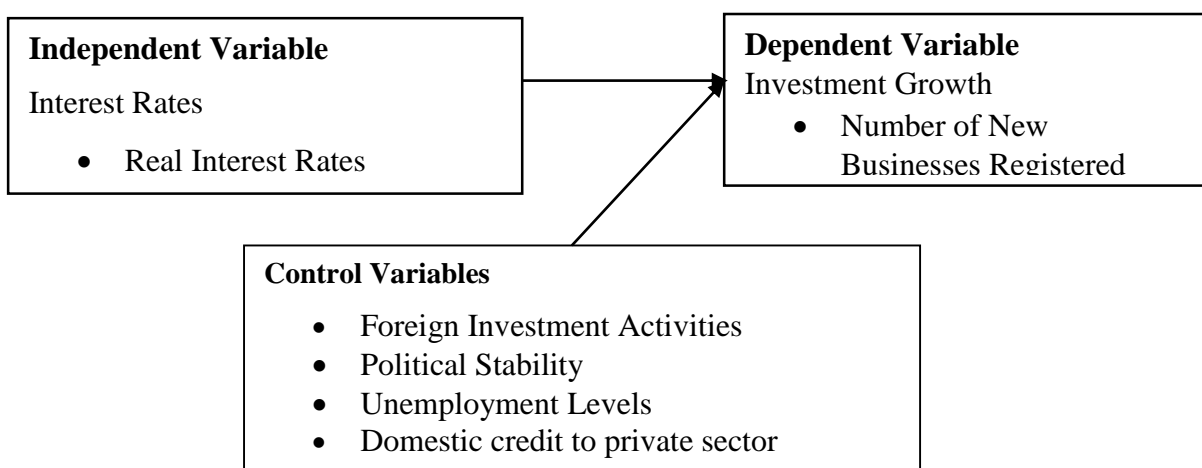


Fig 2.1: Conceptual Framework

2.6 Summary of Literature Review

Studies have been put forth to establish the relationship between interest rates and the growth of investments with diverse results being observed. For instance, Asheghian (2004) established a positive relationship between the two variables but only considered the supply side of investments. These results were in line with those of Rachel and Smith (2018) in the context of United Kingdom, which still established a positive relationship. However, the results of Ammer, Claessens, Tabova and Wroblewski (2019) study provided contradicting results with an inverse relationship being established which was backed by the conditions in China (Xu, 2017).

In the regional and local arena, similar contradictory findings have been evidenced with the study results of Xaba (2018) and Kiplagat (2016) establishing a positive relationship between the two variables of interest and investment growth. On the other hand, Nelson and Emase (2018) established some negative relationship between interest rates and growth of investment while the study of Adenuga (2020) provided mixed results of both positive and negative relationship. It is on the basis of the contradicting findings of the relationship between interest rates and growth of investments from different studies that the current study shall be conducted to establish the relationship between the variables within Africa.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this section, the preferred research design, target population, data collection and analysis methods are discussed. Various tests for confirming data validity are also discussed in the chapter. According to Wrench (2017), a research methodology guides a researcher throughout the research work.

3.2 Research Design

Bordens and Abbott (2002) observed that a research design is a guide in research activities. Such activities involve, among others, data collection, analysis and interpretations. Morgan (1998) noted that an appropriate choice of research design ensures a match between the objectives motivating the study and the procedures adopted to meet the goals. This study adopted a quantitative research design. This design involved collection of quantitative data, which was then analysed through regression to unearth the underlying relationship. This design was observed to be advantageous by Matveev (2002) because it is time saving and non-subjective in judgement, which improves acceptability of the results.

3.3 Population

Lavrakas (2008) denoted that a population is the total of all elements with a common characteristic. In this study, the population was composed of all African countries. According to Worldometer (n.d), Africa has 54 countries and they are the ones, which form the population of the study. The data used was readily available from secondary sources and since the population size is also small, no sampling was done and the study was based on all the 54 countries.

3.4 Data Collection

This study used secondary data. Data was collected for the years 2016, 2017 and 2018 for all variables and for all countries. Collection of data for three years ensured adequate recent data is used in the analysis to facilitate drawing of relevant conclusions. Data for interest rates was collected from the country central banks while data for investments was collected from World Bank open data source. Data for levels of unemployment, credit availability to private sector, and political stability scores was also obtained from World Bank data source. Exchange rates data was collected from central banks for the countries. The data sources are all credible institutions and their data is also openly accessible for scrutiny increasing the credibility of the data.

3.5 Diagnostic Tests

Although Murphy and Dingwall (2003) observed that validity tests on data do not guarantee production of trustworthy results, Roberts and Priest (2006) cautioned against ignoring the tests. It was purported by Riege (2003) that validity tests help in determining both the quality and stability of the data obtained. In light of these observations, tests for linearity, stationarity, heteroscedasticity, omitted variables, multicollinearity, and autocorrelation were done on the data. These tests ensured that data was fit for regression by correcting any observed defects.

3.5.1 Test for Linearity

Linearity is the characteristic where proportional inputs bring about proportional outputs. This characteristic means that the variables in question change proportionately. This feature was tested by plotting graphs of observed verses predicted values. If the linearity was not observed, natural logarithms and ratios of the values would have been used instead of the absolute values. Further literature review would also have been done to identify the relationship between the variables.

3.5.2 Test for Stationarity

Stationarity is the property exhibited in variables when their mean and variance remain constant over time. It was purported by Isliker and Kurths (1993) that it is a very important test to undertake in any data analysis. This test was done using Augmented Dickey Fuller. In case stationarity was not observed in the data, it would have been cured through differencing to ensure adherence to the assumptions of regression.

3.5.3 Test for Heteroscedasticity

It was observed by Breusch and Pagan (1979) that heteroscedasticity in data can substantially reduce the efficiency of Ordinary Least Squares use. In light of this, heteroscedasticity was tested using Breusch-pagan test and evaluated at 5% significance level. Data suffering from heteroscedasticity would have been corrected through use of robust standard errors in the regression.

3.5.4 Test for Omitted Variables

Omitted variables is a condition where a relevant factor has been omitted in the regression equation. Wald Test was used to test for occurrence of omitted variables. If their occurrence was observed, correction would have been done by identifying some other possible variables affecting investments through more review of the literature and considering them in the study.

3.5.5 Test for Multicollinearity

Multicollinearity, which is the existence of a linear relationship among the independent variables, complicates estimation in the equation (Neelam, 2012). According to Kennedy (2003), multicollinearity inflates the coefficients of the affected variables. To prevent it from affecting the study results, it was tested using Variance Inflation factor and interpreted by

comparing with a score of 5. Affected variables would be omitted from the regression equation.

3.5.6 Test for Autocorrelation

Autocorrelation is as a situation where error terms of subsequent years are related (Berg and Coke, 2004). It was tested using Durbin-Watson and Breusch-Godfrey for first order and higher order autocorrelations respectively. Interpretation were done at 5% significance levels. Robust Standard Errors were used in the regression to correct the occurrence of autocorrelation.

3.6 Data Analysis

Data analysis involves acting on data to understand the underlying relationship between the predictor and the depended variables (Ramsay & Silverman, 2007). Both excel and Stata software was used in data analysis. Excel software was used to summarise the collected data while the Stata software was used to do the actual analysis. Interpretation of the results were done at 95% confidence interval

3.6.1 Analytical Research Model

The analytical equation below was used in the study;

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \varepsilon$$

Where,

Y , Investments in African countries as measured by the natural log of new business registered in country i in year t

β_0 , Regression equation constant

X_{1it} , Interest rate levels as measured by the natural logarithm of the real interest rates for country i at time t

X_{2it} , Foreign investment levels as measured by real exchange rates against the US dollar for country i at time t

X_{3it} , Political stability as measured by the political stability no violence score for country i at time t

X_{4it} , Unemployment levels as measured by the unemployed workforce for country i at time t

X_{5it} , Availability of credit to private sector as measured by the domestic credit to private sector for country i at time t

ε , Probable residual error

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, the coefficients of interest rate levels, foreign investment levels, political stability, unemployment levels and availability of credit to private sector respectively.

3.6.2 Test for Significance

Significance was tested using the P-value and interpretation was done at 95% confidence interval. Both R and R² were also used in the analysis to indicate the direction of influence and also the percentage of explanation of the dependent variable by the predictor variables respectively.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter elaborates how the research objectives have been met. Analysis of data collected together with its characteristics is discussed and how data collected is relevant through validity tests. The chapter also establishes regression results and interpretation is done based on the study questions. Significance of study results together with the correlation between different variables is also discussed in this chapter.

4.2 Descriptive Statistics

Data collected was available at varying levels. It was, however, adequate to facilitate proper analysis and drawing of conclusions. The highest data available was for foreign exchange rates against the dollar where data collection stood at 96% followed by data on domestic credit followed with a 91% availability, then unemployment rate with a collection of 88% while political stability, real interest rates and new business registered had a collection of 74%, 60% and 59% respectively.

Table 4.1 Response Rate Table

Variable	New Business Registered	Real Interest Rate	Exchange Rate Against USD	Domestic Credit	Unemployment Rate	Political Stability
Data collected	96	98	155	147	143	120
Unavailable data	66	64	7	15	19	42
Total	162	162	162	162	162	162
Response rate (%)	59%	60%	96%	91%	88%	74%

Source: Author

Summary statistics of data collected indicate that there is a lot of variation in new business registration as indicated by the standard deviation of 41, 371.45 compared to a mean of

14,764. The range is also very wide with a minimum of 31 and a maximum of 376,727 businesses. This summary shows that investment incentives and drivers vary between African countries. The mean of real interest rate within the study period in Africa was 8.42% with a standard deviation of 9.98%. The minimum and maximum real interest rates were -15.69% and 52.44%. Data for exchange rate against the dollar shows that the value of African currencies is weak and also very volatile. The minimum exchange rate was 1.36 while the maximum for the weakest currency was 23,097 and the mean exchange rate was 1,043.91. The exchange rate standard deviation was 3,028.6 which adds to the fact of conditions variability in African countries.

Average unemployment rates are high with a mean of 10.6% and a standard deviation of 7.6%. This standard deviation shows that there is no much variation in unemployment situation in the continent. The minimum unemployment rate was 1.4% and the maximum was 28.7%. Credit availability to the domestic market had minimum of 610 million while the maximum was 285 trillion. Political stability as indicated by a no violence score show that there is a relatively unstable political climate in Africa as indicated by a mean score of -0.39 and a standard deviation of 1.12. The worst score was -2.99 and the highest was 1.62. Overall, the investigated conditions in African countries are very diverse and this forms the basis of investigation to see how their diversity affects the level of investments with a view to understanding the stimulants for investment and thus economic growth in Africa.

Table 4.2 Table for Data Summary Statistics

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
New businesses	96	14,764	41,371.45	31	376,727
Real Int. Rates	98	8.424709	9.988992	-15.69025	52.43682
FX rate	155	1,043.911	3,028.594	1.364967	23,097.99
Unemployment rate	143	10.62637	7.598315	1.1349	28.6665
Domestic credit	147	3,450,000,000,000	5,990,000,000,000	610,000,000	285,000,000,000,000
Political stability	120	-0.3963753	1.120,403	-2.993311	1.615338

Source: Test results

4.3 Diagnostic Tests

Before regression, the study carried out various tests to ensure that the data did not violate the assumptions of regression and where such was found to exist, take corrective measures. The assumptions tested were for linearity, heteroscedasticity, multicollinearity, stationarity, and autocorrelation and Hausmann test. Below are the results of the tests

4.3.1 Tests for Linearity

Linearity was tested by plotting graphs of independent variables against the data for the dependent variable. The results indicate that the variables have a linear relationship with political stability score showing the least linear relationship. The figures below show the graphical tests for linearity for the various independent variables.

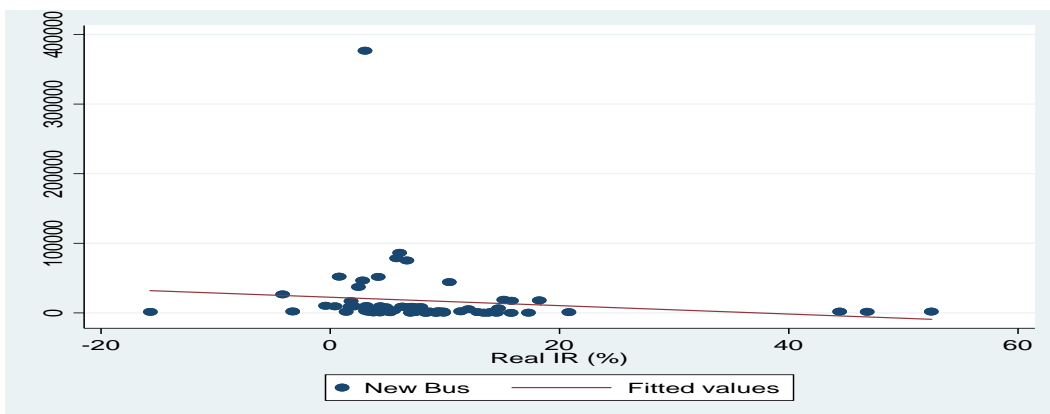


Fig 4.1 Linearity Test for Real Interest Rates

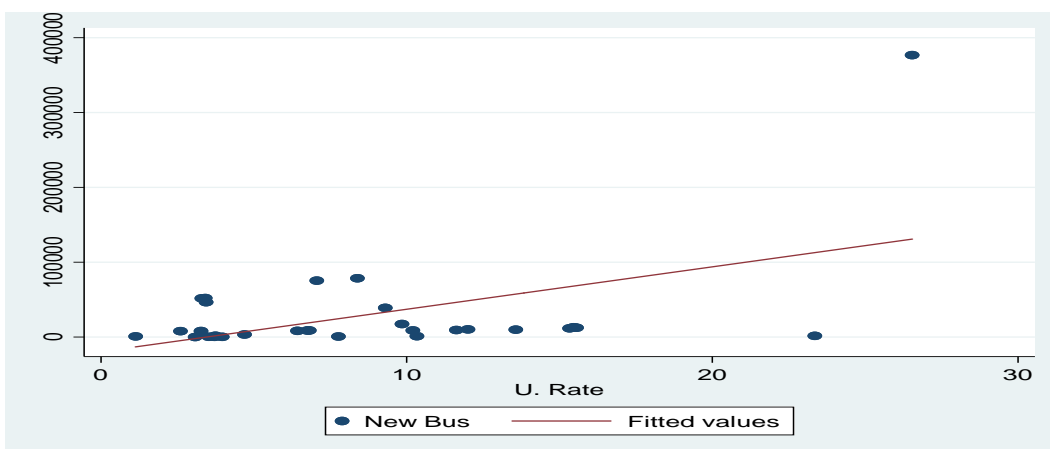


Fig 4.2 Linearity Test for Unemployment Rate

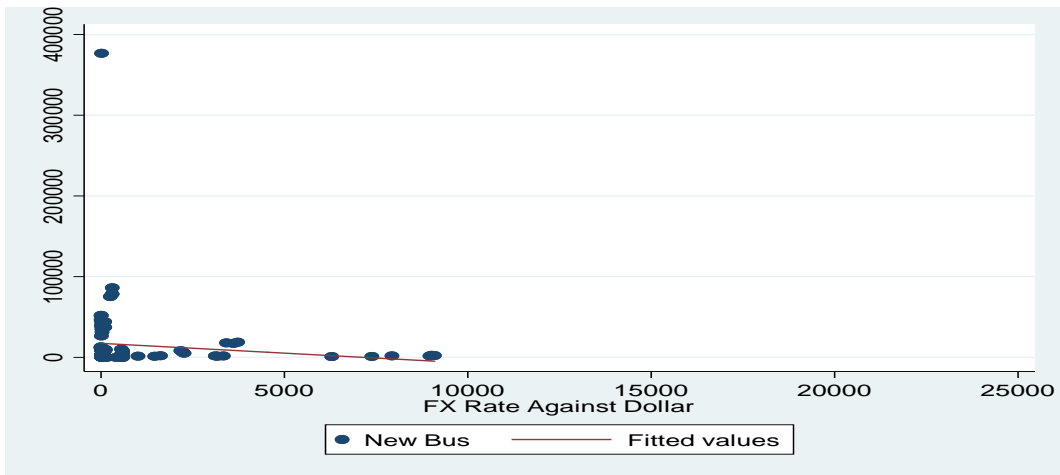


Fig 4.3 Linearity Test for Exchange Rates

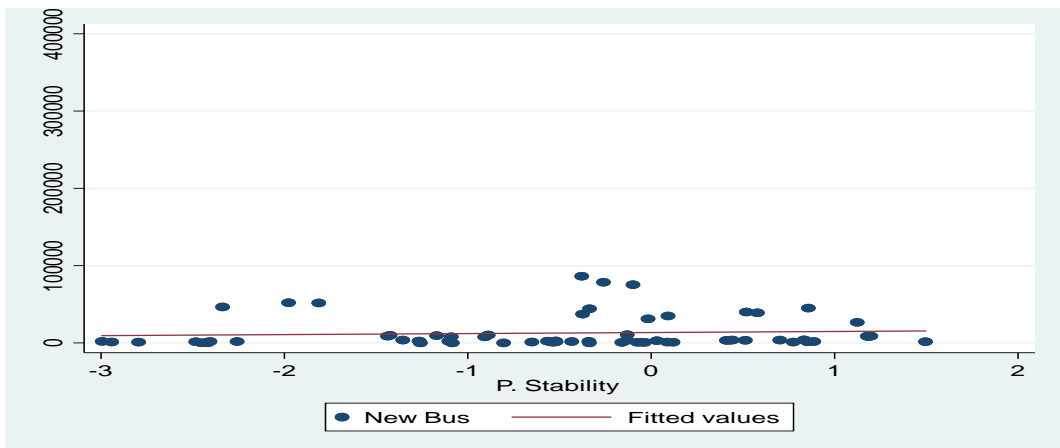


Fig 4.4 Linearity Test for Political Stability

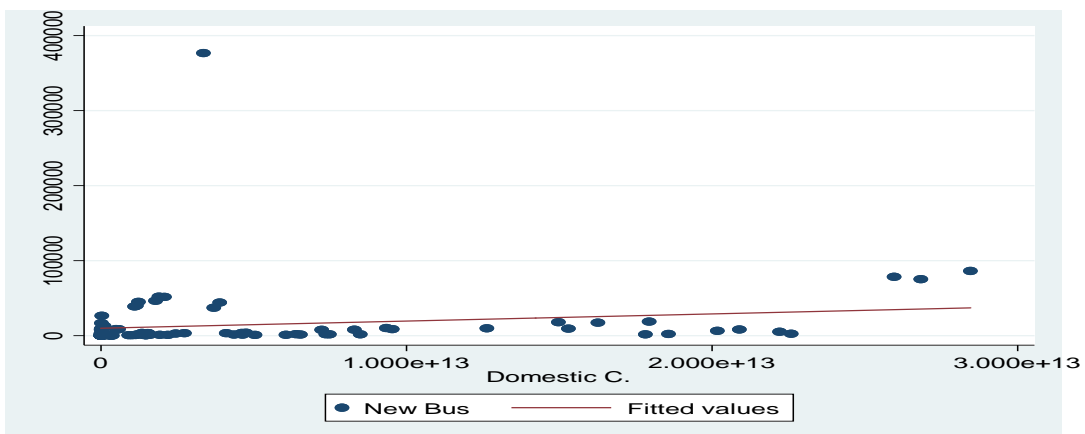


Fig 4.5 Linearity Test for Domestic Credit

4.3.2 Test for Omitted Variables

Ramsey reset test was used to test for occurrence of omitted variables in the study. The null hypothesis tested in the study was that the data was free from omitted variables. The study results indicated a p-value of 0.02. At a 5% significance level, the results were significant prompting the rejection of the null hypothesis and a conclusion that the study had some missing variables. The occurrence could however not affect the study results as a focus was on the interest rates.

Table 4.3 Ramsey RESET Test Table

Ramsey RESET test
Ho: model has no omitted variables
$F(3, 7) = 5.86$
Prob> F = 0.0253

Source: Ramsey RESET test results

4.3.3 Test for Heteroscedasticity

The Breusch-Pagan test was used to test for existence of heteroscedasticity in the model and the null hypothesis tested was that the model did not suffer from heteroscedasticity. The interpretation of the p-value was done at a 5% significance level. The test had an insignificant p-value of 0.9847 which meant that the null hypothesis could not be rejected. The model was then established not to be suffering from heteroscedasticity.

Table 4.4 Breusch-Pagan Test Results Table

Breusch-Pagan test
Ho: Constant variance
$\chi^2(1) = 0.00$
Prob> $\chi^2 = 0.9847$

Source: Breusch-Pagan test results

4.3.4 Test for Multicollinearity

Multicollinearity was tested using the Variance Inflation Factor. The interpretation was done by comparing the resulting VIF values with 5. High values would have indicated existence of multicollinearity but the model returned very low values. The highest VIF score was for

unemployment rate at 1.68 which was way low below the threshold of 5. The mean VIF was 1.42. The variables were therefore found not to suffer from multicollinearity

Table 4.5 Multicollinearity Test Results

Variable	VIF	1/VIF
Unemployment rate	1.68	0.594179
Political stability	1.66	0.604065
Real interest rates	1.32	0.760010
Foreign exchange rates	1.23	0.816162
Domestic credit to private sector	1.20	0.833714
Mean VIF	1.42	

Source: VIF test results

4.3.5 Hausman Test

Hausman test was done by running both fixed and random effects models and running the Hausman test on the results of the two regressions. The null hypothesis tested was that random effects model was efficient. The test however returned a chi2 less than 0 and this prompted a rejection of the null hypothesis and therefore a conclusion that effects model was efficient in the study.

Table 4.6 Fixed Effects Model Results

Fixed-effects (within) regression			Number of obs = 46			
Group variable: Country			Number of groups = 19			
R-sq:			Obs per group:			
within = 0.8227			min = 1			
between = 0.0377			avg = 1.8			
overall = 0.0129			max = 3			
			F(5,2) = 1.86			
corr(u_i, Xb) = -0.7410			Prob> F = 0.3860			
Investment Potential	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Real Interest rates	-566.9825	690.203	-0.82	0.498	-3,536.686	2,402.721
Exchange rate	120.8792	233.9404	0.52	0.657	-885.6851	1,127.443
Unemployment rate	-1,289.727	5,803.592	-0.22	0.845	-26,260.57	23,681.11
Domestic credit	1.30e-09	5.85e-09	0.22	0.845	-2.39e-08	2.65e-08
Political Stability	8,597.318	5,094.814	1.69	0.234	-13,323.9	30,518.54
_cons	10,519.31	34,659.42	0.30	0.790	-138,608.1	159,646.8
sigma_u 39,959.804						
sigma_e 1,484.6976						
rho .99862143 (fraction of variance due to u_i)						
F test that all u_i=0: F(8,2) = 127.75 Prob> F = 0.0078						

Source: Fixed effects regression results.

Table 4.7 Random Effects Results Table

Random-effects GLS regression		Number of obs = 46				
Group variable: Country		Number of groups = 19				
R-sq:		Obs per group:				
within = 0.3416		min = 1				
between = 0.3119		avg = 1.8				
overall = 0.2062		max = 3				
		Wald chi2(5) = 4.76				
corr(u_i, X) = 0 (Assumed)		Prob> chi2 = 0.4464				
Investment Potential	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Real Interest rates	-616.3969	764.9261	-0.81	0.420	-2,115.62	882.8308
Exchange rate	23.53328	32.53328	0.73	0.465	-39.6237	86.69027
Unemployment rate	-960.004	961.9089	-1.00	0.318	-2,845.31	925.3029
Domestic credit	1.20e-09	7.76e-10	1.55	0.122	-3.19e-10	2.72e-09
Political Stability	5,036.405	4,257.758	1.18	0.237	-3,308.65	13,381.46
_cons	19,787.19	15,959.62	1.24	0.215	-11,493.1	51,067.47
sigma_u19,664.278						
sigma_e 1,484.6976						
rho .99433172 (fraction of variance due to u_i)						

Source: Random effects regression results

Table 4.8 Hausman Test Results Table

	Fixed effects	Random effects	Difference	S.E.
Real Int. rate	-566.9825	-616.3969	49.41438	.
Exchange rate	120.8792	23.53328	97.34589	231.7105
Unemployment rate	-1,289.727	-960.004	-329.7235	5,723.321
Domestic credit	1.30e-09	1.20e-09	1.00e-10	5.80e-09
Political stability	8,597.318	5,036.405	3,560.914	2,797.968
Test: Ho: difference in coefficients not systematic				
chi2(4) = -353.97				
Chi2<0				

Source: Hausman test results

4.3.6 Test for Stationarity

Fisher-type test for stationarity was used to determine if the variables were stationary or not.

The test adopted a 5% significance level and lags were zero (0). It was established that all panels contained unit roots as was established through the significant p-values at the required significance level.

Table 4.9 ADF Test Results

Variable		Statistic	P-value	Number of panels	Average number of periods
Real Int. rate	Inverse Chi2(52) P	0.0000	1.0000	36	2.72
	Inverse Normal Z	.	.		
	Inverse Logit t(4) L*	.	.		
	Modified Inverse chi2 Pm	-5.0990	1.0000		
Exchange rates	Inverse Chi2 (102) P	0.0000	1.0000	52	2.98
	Inverse Normal Z	.	.		
	Inverse Logit t(4) L*	.	.		
	Modified Inverse chi2 Pm	-7.1414	1.0000		
Domestic credit	Inverse Chi2 (96)P	0.0000	1.0000	50	2.94
	Inverse Normal Z	.	.		
	Inverse Logit t(4) L*	.	.		
	Modified Inverse chi2 Pm	-6.9280	1.0000		
New Businesses	Inverse Chi2 (58) P	0.0000	1.0000	36	2.67
	Inverse Normal Z	.	.		
	Inverse Logitt(4)L*	.	.		
	Modified Inverse chi2 Pm	-5.3852	1.0000		
Political stability	Inverse Chi2 (80) P	0.0000	1.0000	40	3
	Inverse Normal Z	.	.		
	Inverse Logit t(4) L*	.	.		
	Modified Inverse chi2 Pm	-6.3246	1.0000		

Source: ADF test results

4.3.6 Normality test

Skewness and kurtosis were tested to understand the distribution of data collected to see if there was even distribution. Apart from unemployment rate and political stability, the variables were found to be normally distributed.

Table 4.10 Normality Test Results Table

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
New Businesses	96	0.0000	0.0000	.	0.0000
Real Int. rate	98	0.0000	0.0000	38.72	0.0000
Exchange rate	155	0.0000	0.0000	.	0.0000
Unemployment rate	143	0.0087	0.6336	6.50	0.0387
Domestic credit	147	0.0000	0.0000	64.61	0.0000
Political stability	120	0.0112	0.5244	6.44	0.0400

Source: Normality test results

4.4 Correlation Analysis

Pearson correlation coefficient was used to determine the correlation between different variables in the study. Level of investments as determined by new businesses registration was found to be negatively correlated with real interest rates and exchange rates but positively correlated with unemployment rate, domestic credit and political stability. The highest absolute correlation was with unemployment rate meaning that unemployment may be a stimulus for self-employment which can lead to increase in new businesses registration. Real interest rates were found to be positively correlated with all other variables except with political stability, while exchange rates were negatively correlated with all variables except real interest rates and domestic credit availability to private sector.

Unemployment rate was negatively correlated with exchange rates and availability of domestic credit to the private sector while domestic credit was only positively correlated with new business registration and unemployment rate with correlation coefficients of 0.07 and 0.35 respectively. The highest absolute for all variables was that of unemployment rates and new businesses registration while the least was that between real interest rates and unemployment rate. The highest and the lowest had absolute correlation coefficients of 0.5009 and 0.0085 respectively.

Table 4.11 Correlation Analysis Results Table

	New businesses	Real int. rate	Exchange rate	Unemployment rate	Domestic credit	Political instability
New business	1.0000					
Real Int. rate	-0.1287	1.0000				
Exchange rate	-0.1201	0.3526	1.0000			
Unemployment rate	0.5009	0.0085	-0.0466	1.0000		
Domestic credit	0.1626	0.0982	0.5190	-0.0614	1.0000	
Political stability	0.0737	-0.2090	-0.3772	0.3510	-0.2408	1.0000

Source: Pearson correlation coefficient test results

4.5 Regression Analysis and Hypotheses Testing

Regression of the results has indicated that the independent variables have an effect on registration of new businesses and therefore on the level of investments. Combined, the variables have an overall R-squared of 0.8030 indicating that the five variables under study are responsible for 80.3% of the variations in the level of investments of a country. Consequently, there are variables outside this model which account for the remaining 19.7%.

In terms of significance, real interest rate, exchange rate and unemployment rates were found to have a negative effect on investments while domestic credit and political stability have a positive impact. These results indicate that to boost the level of investments, a country needs to ensure that it maintains its interest rates at the low and take measures to protect its currency from an adverse movement against the dollar. An economy needs also to keep employment rates low and improve on political stability. A country also needs to increase domestic credit provision to the private sector to improve on level of investments. Real interest rates, exchange rates, unemployment rates, and domestic credit have a significant influence with p-values of 0.041, 0.021, 0.021, and 0.00 respectively. Political stability has an insignificant effect at a p-value of 0.736.

Table 4.12 ANOVA

Source	SS	df	MS	Number of obs = 46
				F(5,40) = 8.15
Model	9.1996e+9	5	1.8399e+9	Prob> F = 0.0027
Residual	2.2572e+9	40	225,717,918	R-squared = 0.8030
				Adj R-squared = 0.7045
Total	1.1457e+10	45	763,781,971	Root MSE = 15,024

Source: Panel regression results**Table 4.13 Regression Analysis**

New Businesses	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Real int. rate	-3,520.99	1,497.409	-2.35	0.041	-6,857.431	-184.5594
Exchange rate	-53.00699	19.41907	-2.73	0.021	-96.27537	-9.73862
Unemployment rate	-2,613.19	952.2021	-2.74	0.021	-4,734.83	-491.5527
Domestic credit	2.62e-09	4.82e-10	5.44	0.000	1.55e-09	3.70e-09
Political stability	1,399.37	4,043.069	0.35	0.736	-7,609.15	10,407.89
_cons	56,259.51	14,959.13	3.76	0.004	22,928.51	89,590.52

Source: Panel regression results

4.6 Discussion of Research Findings

The results of the study confirm that interest rates have an impact on the level of investments in a country. Although Abstinence Theory of Interest Rates advocate for charging of interest to compensate those who forgo consumption, current interest rates seem exploitative and thus they have resulted in a negative influence on investments. It is therefore important to look for lower but optimal interest rates to cause a positive effect on businesses. This study tends to agree to some extent with the recommendations by Chapra (2000) that interest charged is harmful but do not suggest complete prohibition as suggested. The results also establish that the accelerator effect of capital as suggested by Accelerator Theory of Investment does not apply in Africa because interest charged on capital has had a negative effect on investments. Study results agree with the findings of Jovančević and Kennedy (2007) that interest with stronger currencies attract investors from those with weak currencies and this has been responsible for the negative influence experienced in African countries. The findings of this

study affirm the observations by Shahzad, Mithani, Al-Swidi and Fadzil (2012) that instability reduces confidence of investors and reduces investments. This has been confirmed by the positive relationship between political stability – no violence score and investments in Africa.

Unemployment has been found to affect investments negatively confirming the findings by Stamatiou and Dritsakis (2014) who advocated for measures to be taken by policy makers to reduce unemployment and boost investments. This will lead to reduction of unemployment levels within the nation. Ademola and Badiru (2016) indicated that there is a positive relationship between unemployment and inflation and economic growth which contributes to investment. The study also agrees with the findings of Mauro and Carmesi (2003) that high employment is detrimental as it reduces output and thus investments in a country.

As far as domestic credit to private sector is concerned, this research has established that indeed it affects investments. Lower credit availability was found to affect investments negatively by Obeng-Amponsah, Sun, Havidz and Dey (2019) and thus higher credit availability should be encouraged. In this matter, the study also agrees with the findings by Bui (2020) who established that credit availability affects investments growth in a positive way.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter provides summary of the research findings, conclusions arrived at based on the findings and the related recommendations. In addition, the chapter also highlights limitations of the study and concludes with recommendations for further studies in the area of study.

5.2 Summary of Findings

The main objective for the research was to establish the relationship between interest rates and the level of investments in African countries. In order to realize the research objective, the researcher also identified control variables which included foreign investment activities as measured by the foreign exchange rates which attract or scares foreign investors, political stability as indicated by the no violence index for the different countries within the continent, the level of unemployment in each country as measured by the proportion on unemployed working force in each state and availability of domestic credit to the private sector. The target population for the study was all the states located in the continent of Africa which comprise of 54 member states and whose secondary data was available from the World Bank database. Data was collected for three years which gave a total possible 162 data points. The average data points in the data collected was established to be 129 which represented 79.63% and which can be deemed sufficient for forming basis for the research conclusions based on the 60% requirement.

From the research findings, it was established that all the variables under consideration were normally distributed apart from unemployment and political stability which were peaked with kurtosis values of 0.6336 and 0.5244 respectively. In regard to the multicollinearity test, the study established that the variables were not highly correlated as indicated by the VIF which were all bellow the recommended value of 5. From the summary of statistics, real interest

rates were found to have a mean rate of 8.42%, with new businesses registered recording a mean score of 14,764 businesses per country per year. Unemployment rate had a mean of 10.63% while political stability had a mean score of -0.40%. Foreign exchange rates and domestic credit availability on the other hand had a mean of 1043.91 and 3.45 trillion respectively.

From the regression analysis results, the study established that the main variables of the study which were new business registration and the interest rates were found to have an inverse relationship which was also found to be statistically significant. The regression results on the other variables indicated that, foreign exchange rates had a negative influence on the number of new businesses registered in each country and the results were also significant at the 95% confidence level. On the influence of political stability on businesses start-ups, the regression results indicated a positive relationship which was statistically insignificant. Results on domestic credit availability to the private sector indicated that credit availability to the private sector had a positive significant influence on the level of investments within the different nations in the continent. Lastly, the level of unemployment among the member states was found to influence the level of investments in a negative way which was statistically significant at the 95% confidence level. The regression results indicated a R^2 value of 80.30%.

5.3 Conclusion

From the research results and discussion above, it is possible to draw a number of conclusions as discussed below. The negative influence of interest rates on the level investments leads to a conclusion that the current levels of interest rates are undesirable to investments growth and each country should maintain the lowest interest rates possible to attract and favor new business. On the exchange rates, a negative influence on investment activities can lead to the conclusion that exchange rate decline against the dollar motivates outflow of investors to countries with stronger currencies. Political stability also indicated a

positive influence on investment. This is based on the fact that peace provides a favorable environment for businesses to thrive. As a nation experiences more political stability, the confidence of the community to invest in the nation develops and this has a mutual benefit to both the businesses and the citizens of the country who benefit in a number of ways from such investments.

A positive relationship was also established between the availability of domestic credit to the private sector in the countries and the level of investment in the country. Based on the fact that every business requires capital for survival, many people and especially the youths have been found to have viable business ideas but in most cases lacking capital for business start-up. When such credit is availed to them, most of these business ideas are put into action increasing the number of businesses established.

Unemployment on the other hand has been found to have a negative relationship with the levels of the investments among African countries. This may be attributed to the fact that the level of businesses establishments creates more employment opportunities and in the case were such businesses lack, it is automatic that the level of unemployment will be high. On the other hand, employment income has been considered one of the major sources of both business management skills and the capital required for new investments and when such employment lacks, then entrepreneur-ship will be dampened. The adjusted value for R^2 of 80.30% from the regression results indicated that the dependent and control variables were fairly selected as they could explain a greater percentage of the change in the level of investments within the countries considered. It can therefore, be concluded that interest rates, foreign exchange activities, unemployment level, political stability and availability of domestic credit are the major determinants of investment levels within any nation. However, the results on the statistical significance at the 95% confidence level indicated that apart from

political stability, there are other variables which have not been identified in the study that affect the level of investments.

5.4 Recommendations

The study established that current interest rate levels were unhealthy for investments and the study therefore recommends that nations should make an attempt to control interest rates so as to boost the level of investments in their countries. On the exchange rates which had a negative influence, it is recommended the countries focus on the national practices that strengthen their economy and international relations so as to boost their currency against the US dollar. This in return shall encourage foreigners to invest in the nations and hence grow the level of investments in the countries.

In regard to unemployment levels that were found to be influencing the level of investments in a negative way, it is recommended that governments should adopt fiscal and monetary policies that are known to lower the levels of unemployment and which mostly relate to expanding or increasing the levels of spending. These practices should involve increasing the availability of domestic credit to the locals which has been established to have a positive influence on the growth of investments. This in return is expected to trigger activity within the economy and hence create more employment for the citizens. Political stability should be guarded at all costs for a good number of reasons let alone to promote levels of investments within nations. The international communities should initiate a campaign that advocates for the rule of the law and democracy for promoting peace.

5.5 Limitations of the Study

The study which was conducted within in the context of African nations encountered some basic limitations. There was wide variation, from one nation to another-in terms of policies, governance and resource levels that may be perceived to have an effect on the level of investments. The study limited itself to observations for three years only which may not be long enough to provide a basis for generalization of the findings. Some of the countries also had limited information over the different years of some of the variables which translated to lack of 100% response rate and which could have provided more robust results.

Fiscal policies adopted by different nations and which may differ from one country to another may have smothered the relationships of the tested dependent and control variables on the levels of investments in those countries. The scope of the study being the entire continent could also be a limiting factor as countries have different sizes in geographical coverage and populations which makes it hard to make a comparison especially when it comes to matters of GDP which was used as a determinant of some of the indices used in measurement of the variables as well as the level of unemployment for the different nations.

5.6 Suggestions for Further Research

Based on the study limitations, and in an attempt to fill the gap of knowledge existing in the context of the study, the following suggestions for future studies are provided below. A study needs to be conducted on a cluster basis where countries sharing similar political structure or economic terrain are analyzed independently so as to avoid the neutralizing effects of contradicting policies from one country to another. Also similar research should consider the existence of intervening variables to interest and levels of investments and establish if there are variables that intervene in the relationship between interest rate and the levels of investments of a country.

A similar study should also be conducted for countries in other continents other than in Africa to determine if the factors affecting the levels of investments in countries in Africa also affect the other countries in a similar way. This may help in the development of global policies or policies specific to continents that will aid in the growth of investments in countries. It is also recommended that a similar study be conducted that shall expand the years covered as a greater period of time will allow for a deeper understanding of the results and observation of the trends in the variables studied over time.

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APPENDICES

Appendix I: List of African Countries

1. Algeria
2. Angola
3. Benin
4. Botswana
5. Burkina Faso
6. Burundi
7. Cabo Verde
8. Cameroon
9. Central African Republic
10. Chad
11. Comoros
12. Congo
13. Côte d'Ivoire
14. Djibouti
15. DR Congo
16. Egypt
17. Equatorial Guinea
18. Eritrea
19. Eswatini
20. Ethiopia
21. Gabon
22. Gambia
23. Ghana

24. Guinea
25. Guinea-Bissau
26. Kenya
27. Lesotho
28. Liberia
29. Libya
30. Madagascar
31. Malawi
32. Mali
33. Mauritania
34. Mauritius
35. Morocco
36. Mozambique
37. Namibia
38. Niger
39. Nigeria
40. Rwanda
41. Sao Tome & Principe
42. Senegal
43. Seychelles
44. Sierra Leone
45. Somalia
46. South Africa
47. South Sudan
48. Sudan

49. Tanzania
50. Togo
51. Tunisia
52. Uganda
53. Zambia
54. Zimbabwe

Appendix II: Data Collection Instrument

Name of Country						
Year	Growth of Investments	Real interest rates	Political stability	Exchange rates	Unemployment levels	Credit availability
2016						
2017						
2018						