THE RELATIONSHIP BETWEEN INVESTMENT RATE AND ECONOMIC GROWTH RATE IN KENYA

BY

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DECLARATION

I, Onsare Jedidah Kwamboka, hereby declare that this project is my own work and effort and that it has not been submitted anywhere for any award.

Signature: ……………………………… Date: ………………………………

ONSARE JEDIDAH KWAMBOKA
D61/63302/2010

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

Signature: ……………………………… Date: ………………………………

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DEDICATION

I dedicate this work to
My dad Mr. Onsare Ondari and my mum Mrs. Hellen Onsare,
My loving husband, Andrew K’Owuoche, and
Our son, Kyle Juma K’Owuoche.
ACKNOWLEDGEMENT

I am heavily indebted to various people and organizations for the success of this research project. The material and non material support they gave to me during research are highly appreciated. I take this opportunity to express my sincere thanks to each of these people and organizations. First, the staff of the Jomo Kenyatta Library of the University of Nairobi provided to me the opportunity to use the library facilities especially in the MBA and the Electronic Library section.

Secondly, I wish to recognize that I could not have started and completed this research successfully without the direction of my supervisor, Mr. Ondigo Herick. The advice on what to do at each stage of this research right from the generation of the research idea, to its conceptualization, to the drafting of the research proposal, to the analysis of samples and preparation of the final report is highly valued.

Thirdly, the data of analysis was got from respondents in Kenya National Bureau of Statistics and from the World Bank websites. It would not have been possible to conduct an analysis and extract out the relevant finding if the data was not provided in the first place.

Finally, I appreciate the people who worked on the materials cited in this study: those in the wider scholarly world and those in the business school. I also wish to thank my family that provided me with encouragement throughout the period I was conducting this research.
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<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>CEMAC</td>
<td>Economic and Monetary Community of Central Africa</td>
</tr>
<tr>
<td>ECOWAS</td>
<td>Economic Community of West African States</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GNP</td>
<td>Gross National Product</td>
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<tr>
<td>NI</td>
<td>National Income</td>
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<td>US</td>
<td>United States (of America)</td>
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ABSTRACT

The importance of investment is a prime factor in maintaining and expanding the capital stock and production capacity of any economy cannot be overstated. Kenya being a country endeavoring to be a middle income country by 2030, investment is believed to be a channel though which this can be realized. This study was done to establish the relationship between investment and economic growth in Kenya. Data that was used was that of GDP values and investment for the period 1993-2012 collected from the Kenya National Bureau of Statistics. The relationship between GDP and investment was analyzed using regression of the annual growth rate in GDP as the dependent variable and Investment rate as the independent variable. The significance of the constant term and the coefficient from the regression was tested using the t-test; the significance of the regression model was done using the F-test; correlation was tested using the Pearson’s correlation coefficient, while the coefficient of determination was used to determine how much variation in GDP rate was explained by variation in investment rate. The level of accuracy for this study was 95%. The results show low correlation between GDP rate and Investment rate. Both the constant term and the coefficient of investment in the regression were positive, but statistically insignificant. The regression model was found to be statistically insignificant and the variation in GDP rate was poorly explained by the variation in investment rate. The study, therefore concluded a weak positive relationship between investment and economic growth indicating that the current structure of investment did not strongly drive economic growth. The study, therefore, recommends that policy makers establish the investment behaviour of investors in Kenya concerning which investments the put their money in and encouragement done to make Kenyans focus their investment efforts towards those assets.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The importance of investment is a prime factor in maintaining and expanding the capital stock and production capacity of any economy cannot be overstated. Schools of thought like neoclassical growth framework and endogenous growth theory put capital growth right in the centre of economic growth. The neoclassical growth school of thought argues that higher capital accumulation leads to higher output and higher growth in an economy. Endogenous growth theory posits that investment affects economic growth directly through accumulation of input and indirectly through improved productivity of factors of production (Bouton and Sumlinski, 2000).

Over the years, investment has been a very powerful variable in the macroeconomic analysis of development in developing countries. Investment has been an issue attracting a lot concern and interest to policy makers within these countries. This concern is based on the Ricardian notion that raising the investment rate within an economy is the key to long run economic growth. Most countries that experience sustained growth in the long run tend to stress the link between capital accumulation and this growth (Salahuddin, Islam and Salim, 2009).

Mobilization of investment is essential for development. While public expenditure is required, the United Nations (2002) Report of the International Conference on Financing for Development posited that it had become clear that the demand for finance outweighs what the public sector can provide. The report recognized that a substantial increase in investment was required if developing countries were to achieve the internationally set
and agreed upon development goals and objectives. Mobilization of investment in developing countries can contribute directly to economic growth. White (2005) states that the challenge that faces developing countries and their development partners is to identify the best ways to influence the conditions that will lead to increased levels of investment.

According to Kenya Vision 2030, Kenya’s economic development program aims at achieving a sustainable average Gross Domestic Product (GDP) growth rate of 10% per annum for the next 25 years. To achieve this sustained growth rate, one of the areas to be effectively managed is the mobilization of investment from both internal and foreign sources. This study intends to find out the key determinants of investment in Kenya that can help in this investment mobilization.

1.1.1 Investment Rate

The concept of investment has variation in meaning depending upon the context in which the concept is used. Levine and Renelt (1992) provide the following variations of the meaning of investment: first, investment means the act of committing money or capital to an undertaking with the expectation of obtaining further income or profit; secondly, it refers to an asset or item that is purchased with the hope that it will generate income or realize higher value in some future; thirdly, in an economic sense, investment refers to the purchase of goods that are not consumed today but are useful for creation of wealth in future; lastly, in the financial sense, an investment is a monetary asset purchased based on the assumption that the asset will provide future income or will appreciate in value and be sold at a higher price.
On a macroeconomic scale, Keynes (1936) defined investment in terms of the current investment in an economy. According to him current investment was the current addition to the value of capital equipment which had resulted from the productive activity within the period. Keynes viewed investment in this sense as that part of the period’s income which has not passed into consumption. Investment, therefore, is a measure of the additions to, and replacements of, the stocks of fixed assets. It consists of investment in structures, equipment and in software, and it includes account of investment. Investment rate simply expresses investment as a percentage of the GDP in a specified period.

1.1.2 Economic Growth

The concept of economic growth is made up of two terms that have various definition when put together. The term growth generally carries a connotation of quantitative increase. Haller (2012) agrees that though no unanimously accepted definition has been given by now, most scholars think of the economic growth as an increase of the national income per capita of a country. This involves the analysis of the growth process, especially in quantitative terms, with a focus on the functional relationships among the endogenous variables. In a wider empirical sense, economic growth involves the increase of the GDP, GNP and NI, therefore of the national wealth, including the production capacity. These can be expressed in both absolute and relative size, per capita and encompassing the structural modifications of an economy.

It is can be estimated that economic growth is the process of increasing the sizes of national economies through the macro-economic indicators especially GDP per capita. The increase in the GDP per capita is in an ascendant manner but not necessarily linearly. Economic growth can be: positive, zero or negative. Positive economic growth is
recorded when the annual average rates of the macro-indicators are higher than the average rates of growth of the population. Zero economic growth is achieved when the annual average rates of growth of the macro-economic indicators, particularly GDP per capita, are equal to those of the population growth. Negative economic growth is realized when the paces of population growth are higher than those of the macro-economic indicators (Pasinetti, 1960).

Ray (1998) contends that economic Growth refers to an increase in a country's real level of national output. This increase results from an increase in the quality of resources, an increase in the quantity of resources and improvements in technology. In other terms, economic growth refers to an increase in the value of goods and services produced by every sector of the economy. Conventionally, economic growth can be estimated by an increase in a country's GDP per capita.

1.1.3 Relationship between Investment and Economic Growth

Hoover and Perez (2004) posited that there is a close link between investment and economic growth. They attributed this closeness to the fact that investment spending makes a direct contribution to economic activity since investment is one of the components that make up total expenditure in an economy. These expenditures on investment reflect the total level of investment demand in the economy. However, unlike other expenditures, such as personal expenditure, capital expenditures are doubly important because capital, as a factor of production also directly bears on the economy’s productive capacity. Though fluctuations in demand determine the level of GDP in the short run, it is the growth in the economy’s ability to supply output that determines the
speed at which an economy can grow. This long term economic ability to supply is driven by investment

Empirical studies such as that by Levine and Renelt (1992) revealed that investment, as a share of gross domestic product, is the most robust explanatory variable of a country's growth. This view supports the study by Delong and Summers (1991) which also emphasized the strong correlation between investment and growth. New growth theories also support the importance of investment as a factor that sustains economic growth. For instance, Rebelo (1991) argued that differences in growth rates across countries may be explained by differences in government investment policy in an endogenous growth model. However, the relationship between investment and growth depends on what is contained in the basket of investment in a country.

1.1.4 Investment Rate and Economic Growth in Kenya

In Kenya the performance of the economy has been erratic in the recent past coupled with evidence of worsening poverty and inequality. Investment levels were high during the 1990s despite macroeconomic instability present then. Much of the capital period during that was increasingly underutilized in the manufacturing sector. This was attributed to the sequencing of reforms since macroeconomic stabilization was implemented paired with privatization and liberalization (Thurlow, Kiringai, and Gautam, 2007).

The situation has been changing since the lows of the 1990s due to deliberate steps taken to improve the investment environment in Kenya. According to the Bureau of Economic and Business Affairs (2012) Kenya has become more open to foreign investment with a higher rating by the Standard & Poors index as an investment destination. However, there
is encouragement of locals to invest as the ownership of the publicly listed on the Nairobi Securities Exchange was raised to 75% in favour of the local ownership. Stricter laws on corruption have been put in place with reforms in law to encourage investment put in place.

Kenya National Bureau of Statistics (2010) reported that the economy maintained a rapid growth of 5.9% in 2005 and accelerated to 7.0% in 2007. This growth decelerated to 1.6% in 2008. The government responded to the dipping growth rate by restoring investor confidence, putting in place an expansionary fiscal policy, revising the monetary policy with focus on maintaining a single digit inflation rate of 5.0%. The economy responded with a growth rate of 2.6 per cent in 2009. The economy expanded by 4.4 per cent in 2011 compared to a revised growth of 5.8 per cent in 2010. However, a study needs to be done to establish the specific relationship between investment rates and economic growth. The study should also explain the factors that determine investment in Kenya

1.2 Research Problem
Economic schools of thought like neoclassical growth framework and endogenous growth framework posit that capital creation is a robust variable in driving economic growth of a country. Studies by Hoover and Perez (2004) and Dang (2009) agree with the schools of thought and show that investment is a key cause of economic growth though the exact relationship between investment and economic growth varies from country to country. Rebelo (1991) posited that the relationship between investment and economic growth was unique to a given economy and depended on the set of items funds are invested in and the factors that determined what investments were undertaken. It was unlikely that two countries could have similar investment structures determined by
similar factors. Despite these variations, the convergence point is that investment causes economic growth.

In Kenya, economic growth is a major economic issue and a major objective of policy makers. However, the desired two-figure growth levels have been elusive. To be able to realize the required economic growth level, policy makers have to make precise decisions bearing in mind the factors that control investment behaviour in Kenya (Kenya National Bureau of Statistics, 2010). The Kenya National Bureau of Statistics (2010) reported that the economic growth had decelerated to 1.6% in 2008. The government therefore responded by restoring investor confidence and coupled the policy with an expansionary fiscal policy, and maintaining a single digit inflation rate of 5.0%. A study by Menjo and Kotut (2012) revealed that there was a strong relationship between investment and economic growth. To achieve higher levels of economic growth, therefore, there is need to find out which factors drive investment in Kenya and establish how investment affects economic growth in Kenya.

Anoruo and Ahmad (2001) were limited to investigating the causality between investment and economic growth in seven African countries, namely, Congo, Côte d’Ivoire, Ghana, Kenya, South Africa, and Zambia, but the study stopped at stating that economic growth affected domestic investment but did not state whether the cause was positive or negative. No study had been done to identify the factors that determine the level of investment in Kenya and how they affect economic growth. This research filled up this research gap by establishing the factors that determine investment in Kenya. This was done by answering the question: What is the relationship between investment rate and economic growth in Kenya?
1.3 Objective of the Study

To establish the relationship between investment rate and economic growth in Kenya

1.4 Value of the Study

This study is significant to scholars and other researchers; to government policy makers and to investors. In the scholarly field much research has focused on how investment affects economic growth. The few studies that have gone further to investigate factors that determine investment have been done in other countries other than Kenya. The findings of this study will provide research findings of the financial factors that determine investment levels in Kenya. The findings will therefore provide input for further research or discussions that will find the study relevant.

Government economic policy designers will also find this study useful. It is the objective of the Kenyan government to stimulate double digit economic growth rate as a means to development. The policy designers need to have precise information that can help them come up with policies that can stimulate economic growth through investment. The policies can produce the greatest results if it is known which factors to tackle in order to stimulate economic growth and, therefore, development. This study will be significant for it will not only find out the financial determinants of investment in Kenya, but it will also establish how each of the financial factors relates to investment levels.

This study is of significance to both local and foreign investors. Investors are interested in knowing that they will get returns for their investments and that their investments are safe at the least. Due to the uncertain nature of investment, the findings of this study will
provide a mechanism to be used to help them make investment decisions by looking at the behaviour of the financial factors that will have been found to affect investment levels in the country.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter discusses the literature related to the study of the determinants of investment in an economy. The main theories that provide the theoretical framework for this study are: the Solow Model by Robert Solow which shows the relationship between investment and GDP growth; the General Theory of Investment which focuses on the national behaviour of citizens; and the Modigliani-Miller Theorem which shows how the cost of capital affects investors’ behaviour toward financing. The Capital Theory by Jorgenson relates investment decision to the maximization of the present net worth of expected revenues. The Accelerator Theory connects investment decision to the variations in the demand for products in a country.

2.2 Theoretical Review

Five theories are used as the base of this study to explain the determinants of investment and economic growth. The earliest considered theory is the general theory of investment presented by Keynes (1936) while the latest is the Solow model. Other models are: the accelerator theory, the Modigliani-Miller theory and the capital theory of Investment. The theories are discussed below.

2.2.1 General Theory of Investment Behaviour

This theory was put forth by Keynes (1936). The theory defined investment as the excess of income over consumption in an economy. Investment for a current period of time was defined as the current income that has not passed into consumption. The amount of
investment was seen as a result of the collective behaviour of individual entrepreneurs. Logically, savings and investment were seen as necessarily equal, since each of them is equal to the excess of income over consumption.

This theory is relevant to this study since it provides a simple theoretical mechanism that can be used to calculate the values of investment in an economy. Secondly, the theory appreciates that investment is affected by the saving behaviour of savers and the behaviour of investors. This behaviour is determined by a spectrum of factors within the economy in context.

2.2.2 Accelerator Theory of Investment

The accelerator approach to investment was discussed by Samuelson (1939), Kaldor (1940) and Hicks (1950). The investment acceleration principle is a model for modeling investment decision-making. It asserts that investments depend on variations of demand. The model suggests that firms invest proportionally to variations of demand. It also suggests that firms only observe the demand for their own products or, if necessary, the demand for products of their industry. The implication is that firms do not make long-term strategic plans but are controlled by the myopia that manifests in their lack of observation of long term market trends and the financial implications. This theory is relevant to this study since it argues that the value of the investments in a country is influenced by the demand for products in the country. This shows that the higher the consumption, the higher the investment level. It, therefore, can be deduced that consumption drives investment.
2.2.3 Capital Theory of Investment Behaviour

This is a theory by Jorgenson (1963). The theory argues that demand for capital stock is determined so as to maximize net worth. In this theory, net worth is the integral of discounted net expected revenues. In the theory, prices, including the interest rate, are constant. Net revenue is the current revenue less expenditure on current and capital account, including taxes. The theory suggests that the decision to invest will depend on the present value of the expected future returns given the costs of the investment. This theory is relevant to this study since it identifies that expected net returns are, by theory, a determinant of investment. As a result, a country in which the expected net returns are high will have higher investment levels as opposed to those with low net returns.

2.2.4 Solow Model

The Solow model is named after an economist Robert Solow who came up with the model based on the observation of US data between 1950’s and 1970’s. In the study Solow found that investment rates and input factor shares were almost constant. The study also observed that per capita GDP growth rates were steady. The Solow model posited that economic growth depended on capital stock and labour. The Solow model was a supply side model that implicitly assumed that, as long as supply of goods increased, economic growth can be attained. The role of investment was to enable the increase in the supply of goods (Uwasu, 2006).
2.3 Determinants of Investment

The drivers of investment are varied and divided into quantitative and qualitative factors. The quantitative factors include rate of interest, capital, profit, and size of the market (Suresh, 1997). Keynes (1936) posits that a rise in the rate of interest discourages the investment activity while a reduction in interest rates stimulates investment. The importance of profit as a determinant of investment is widely accepted and confirmed in several studies like Suresh (1997). The studies found a positive relationship between profitability and investment.

Investment is also driven by institutional factors. Institutions facilitate economic exchanges, efficient resource allocation and enhance efficiency in economic activities. Institutions put in place constraints that enhance the level of freedom. When people are free from fear of expropriation and troubles inherent in market, investment tends to grow faster (North, 1991).

Transitional factors also enhance investment growth. Transition involves liberalizing markets and prices, privatizing state-owned firms, restructuring firms towards market incentives and building economic and social institutions and infrastructures that promote growth. Liberalization of markets and prices makes investors have more incentives to invest and do business due to the freedom to set prices, sell and buy. Privatization of state assets is a signal of commitment to private ownership and offers profitable investment opportunities (Holland and Pain, 1998).

There are macroeconomic and financial factors that also drive investment. These macroeconomic policies include domestic saving (Feldstein and Horioka, 1980); growth
(Loayza et al, 2000); trade policy (Rodriguez and Rodrik, 1999); macroeconomic stability or inflation (Fisher, 1993) and government consumption expenditure (Barro, 1990). The financial system of an economy channels funds from savers to investor and the depth of financial development is a strong determinant of investment in an economy (Levine, 1997).

2.4 Determinants of Economic Growth

A study by Barro (2003) found that economic growth was affected by both qualitative and quantitative factors. The quantitative factors that affected economic growth included per capita GDP, male upper-level schooling, life expectancy, total fertility rate, government consumption ratio, economic openness ratio, change in terms of trade, and investment ratio. The qualitative actors were the rule of law, democracy.

According to Podrecca and Carmeci (2001) investment is the fundamental determinant of economic growth. The importance attached to investment by theory and empirical research is demonstrated by the enormous amount of empirical studies examining the relationship between investment and economic growth in different contexts. However, findings are not conclusive.

Other studies like Hanushek and Kimko (2000) put human capital at the centre of economic growth. The term human capital simply refers to workers' acquisition of skills and knowledge through education and training. Using measurement proxies related to education a large number of studies has found evidence suggesting that educated population is key driver of economic growth. However, studies like Pritchett (2001) have questioned the importance of the human capital in driving economic growth.
Innovation and R&D activities have also been found to play a key role in driving economic progress and growth. This has been attributed to the increasing use of technology that introduces new and superior products and processes in markets. This role of innovation and R&D has been stressed by various endogenous growth models. Furthermore, the strong relation between innovation and R&D and economic growth has been empirically deduced (Ulku, 2004).

Other drivers of economic growth include: demographic trends and aspects like population growth, population density, migration and age distribution (Kelley and Schimdt, 1995); geographical factors like latitude, distances from the equator, proportion of land within 100km of the coast, average temperatures and average rainfall, soil quality and disease ecology (Easterly and Levine, 2003). Armstrong and Read (2004) affirmed that natural resources, climate, topography and access to sea water have a direct impact on economic growth through affecting productivity, economic structure, transport costs and competitiveness. Other studies like Easterly and Levine (2003), however, found no effect of geography on growth. Some studies like Barro and McCleary (2003) found strong relationships between social factors like trust, ethnic diversity, language, religion, beliefs, attitudes and social-ethnic conflicts and economic growth, but their relation seems to be indirect and unclear.

2.5 Empirical Review

Nuccia and Pozzolo (2000) conducted a study to investigate the relationship between exchange rate fluctuations and the investment decisions of a sample of Italian manufacturing firms. The study surveyed 30 000 firms across 44 sectors in Italy. Using
regression analysis with investment as the dependent variable and exchange rates as one of the independent variables, the study found that though exchange rates affected investment, the effect was not straightforward as this depended on how the exchange rate would be viewed to affect the profitability of the firm. According to this study, it is not possible to have a universal rule on the nature of the relationship between investment and exchange rates beyond simply asserting that they have a close relationship.

In another study, Asante (2000) sought to find out the factors that determine private investment in Ghana. The study was a time series analysis which used both primary and secondary data. The secondary data were obtained from publications like Quarterly Digest of Statistics, World Tables and International Financial Statistics. The data on public and private investment in Ghana were obtained from the Ghana Statistical Service. The cross-sectional analysis was based on primary data collected using a questionnaire sent to 116 manufacturing firms. The study found that a depreciation of the exchange rate has a positive influence on private investment and vice versa.

Anoruo and Ahmad (2001) investigated the causality of investment and economic growth in seven African countries, namely, Congo, Côte d’Ivoire, Ghana, Kenya, South Africa, and Zambia. The study used the vector error-correction model to explore the causal relationship between economic growth and growth rate of domestic investment. The authors found that in four out of seven countries, economic growth causes the growth rate of domestic investment. They obtained a bi-directional causality in Cote d’Ivoire and South Africa. In the Congo, it was found that growth rate of domestic savings caused economic growth.
Baharumshah, Thanoon, and Rashid (2003) investigated the determinants of savings and investment behavior in five Asian countries, namely, Singapore, South Korea, Malaysia, Thailand, and the Philippines. The study was a time series analysis using data from 1960-1997 for the five countries. They used Granger model to assess the causality between economic growth and investment. The study found that there was no causality economic growth and investment, but for Singapore.

Mbanga (2003) did a study to empirically investigate the relationship between the foreign debt and the investment ratios in the CEMAC zone made up of Cameroon, Central African Republic, Chad, Congo, Gabon, Equatorial Guinea. The study used regression of time series data in which the ratio of total investment to GDP was the dependent variable while the ratio of total debt to GDP was one of the independent variables. The data used covered the period 1970 to 2001. The study established a causal relationship between the foreign debt burden and the investment ratio indicating that foreign debt burden affected investment and therefore capital accumulation.

Schclarek (2004) empirically explored the relationship between debt and growth for a number of developing and industrial economies. The data set consisted of a panel of 59 developing countries and 24 industrial countries. The data was averaged over each of seven 5-year periods between 1970 and 2002. The study investigated both the linear and nonlinear relationship between debt and economic growth for the developing and the industrial countries. The study shows that higher total debt negatively affected economic growth through its negative effect on capital accumulation.
Harchaoui, Tarkhani and Yuen (2005) also did an investigation to find out the relationship between exchange rates and investment during the period 1981–97 in 22 manufacturing industries in Canada. Their empirical results showed that the overall effect of exchange rates on total investment was statistically insignificant. Further investigation revealed a non-uniform investment response to exchange rate among the studied firms.

Habimana (2005) sought to find out the relationship between high levels of external debt and capital accumulation with focus on Rwanda. The study was a quantitative analysis using the Engle-Granger Two-step Approach. The study used secondary data from World Bank and Ministry of Finance and Economic Planning of Rwanda. The study found out that unsustainable levels of debt led to the decline of physical capital accumulation that lead ultimately to lower output and income.

Suma (2007) conducted a study that examined the impact of external debt on economic growth and investment in ECOWAS Sub-Saharan Africa for the period 1980-1999. The study employed spatial autoregressive growth and investment models to determine the effects of spatial interaction and spatial dependence among ECOWAS countries. The study found that the external debt service ratio had no impact on public investment in ECOWAS countries. However, the total debt stock to GDP ratio had a negative relationship with public investment which suggested that relying on foreign capital to boost growth and investment could be counterproductive in Sub-Saharan Africa.

A study Haroon and Nasr (2009) intended to investigate the impact of different factors, namely, interest rates, GDP, inflation rate, public investment in infrastructure, domestic savings, subsidies, taxes and ratio of yearly pay-back debt to the GDP on private
investment in Pakistan. In the study, a regression analysis was used in which private investment was the dependant variable while the mentioned factors were the independent variables. The study found that there was a negative relationship between inflation rate and private investment, but the relationship was not statistically significant.

Bader and Malawi (2010) did a study to investigate the impact of real interest rate on investment level in Jordan over the period (1990-2005). The study employed cointegration analysis with three variables. The three variables were investment level, real interest rate, and income level. The study agreed with the economic theory and in the sense that real interest rate had a negative impact on investment. According to the study, increasing the real interest rate by 1% led to 44% reduction in investment level.

Eregha (2010) examined variations in interest rate and how they affect investment in Nigeria. The study calculated the annual variance of interest rates from monthly interest rate data from 1970 to 2002 and used them to assess their impact on investment. It was revealed by the research that variation in interest rate had strong negative effect on investment in an economy.

Espinoza (2012) conducted a study to assess the relationship between economic growth and capital accumulation among the Gulf Cooperation Council countries. The countries are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. This study was a correlation study between economic growth and capital stock accumulation among the six countries. It was found that the capital stocks of the countries were rising as a result of the economic growth. The study, therefore, showed a positive relationship between GDP growth and investment.
Buscemi and Yallwe (2012) analyzed the effects of fiscal deficit on sustainability of economic growth three emerging countries, namely, China, India and South Africa. The study covered the period 1990 to 2008. The study was a time series study in which domestic investment was the dependent variable while national debt was one of the independent variables. The study found that fiscal deficit affected economic growth and investment through financing the deficit.

2.6 Summary of the Literature Review

As shown by both theory and empirical studies, there is a close relationship between investment and economic growth. In some cases, economic growth determines investment levels; in others investment causes economic growth, while in other contexts the causality is bidirectional. The empirical study has shown that the determinants of investment itself are context-dependent and not universal. This provides motivation for this research since there is lacking a researched explanation as to which factors determine levels of investment in Kenya despite investment being a key driver of economic growth.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used to conduct the study. It specifies the research design, what the target population was, how data was collected and the method of analysis.

3.2 Research design

This investigation was descriptive time series correlation study with annual GDP growth rates as the dependent variable while the independent variables are: annual interest rates; investment level; exchange rates; consumption; and foreign debt. According to (Webb, Campbell, Schwartz, and Sechrest, 1966) a time series study is descriptive in nature. This descriptive nature is particularly important when an intervention being studied extends over a considerable time period. It is the only research design that furnishes a continuous record of fluctuations in study variables over an entire period in which the variables are being studied. This, therefore, justified the use of the time series analysis for this study since the aim of the study is to establish the relationship between variables by analyzing their behaviour across time.

3.3 Data Collection

The following annual data were required for this study: annual values of investment and the values of GDP in Kenya at current US Dollar rates. These data made up the target population of this study. The annual values of data used for the study were for the period
of twenty years starting 1993 to 2012. Only the annual values for the 20 years were used for the analysis. This is because 20 years is enough time that can provide plausible insights and conclusions concerning the relationship between effect of investment and economic growth. Furthermore, the data was available to enable carrying out the study.

The data for this research was collected from the Kenya National Bureau of Statistics focusing on the twenty years from 1993 to 2012. The data required was: GDP values in US Dollars; annual economic growth rates of Kenya; annual investment values. The sourcing of data was complemented by getting the data from the World Bank data bank and from the United Nations Statistics Department. The data was collected electronically by downloading from the websites.

3.4 Data Analysis

The data collected was processed for use in the regression model as follows:

The annual rate of investment in a year was found by the model

\[ \text{Investment Rate} = \left( \frac{\text{Total Annual Investment}}{\text{Gross Domestic Product}} \times 100 \right) \]

GDP growth rate in year \( i \) was calculated using the model

\[ \text{GDP Rate}_i = \left( \frac{GDP_i}{GDP_{i-1}} \times 100 \right) - 100 \]

The relationship between growth rate and investment rate was then analyzed using the simple linear regression model below:

\[ Y = \alpha + \beta X + \epsilon \]
Where,

\[ Y = \text{GDP growth Rate} \]
\[ X = \text{Investment Rate} \]
\[ \alpha = \text{The constant of regression} \]
\[ \beta = \text{The sensitivity of growth rate to the investment rate} \]
\[ \epsilon = \text{The error term}. \]

The \( t - tests \) at 95% confidence level was used to determine the statistical significance of the constant terms, \( \alpha \) and the coefficient terms, \( \beta \). The \( F - tests \) was used to determine whether each of the regressions is of statistical importance at 95% confidence level. The coefficient of determination, \( R^2 \), and the Adjusted \( R^2 \) was used to determine how much variation in the dependent variables is explained by variation in the independent variables. The analysis was done using SPSS 17.
CHAPTER FOUR  
DATA ANALYSIS AND FINDINGS

4.1 Introduction
In this chapter, the focus is on the presentation of data and interpretation of the findings. It presents the analysis of the data ending with the regression analysis results. The data is presented and the analyzed in comparison with other similar studies done on the subject matter of this study.

4.2 Analysis of Data and Presentation of Findings

4.2.1 Investment
The independent variable was captured by aggregate national investment data was obtained from the International Monetary Fund (IMF). At the IMF the data are accessible as a percentage of GDP of Kenya in a given year compared at current dollar rates. The data did not require any further processing as they were already in the usable form by this study.

4.2.2 Gross Domestic Product
Kenya’s Gross Domestic Product was the dependent variable. The data was obtained from the Kenya National Bureau of Statistics. The GDP values were in the current dollar rates which made it reasonable to compare with the investment rates for they were in uniform units. The annual GDP values were processed into growth rates by calculating the annual percentage changes from one year to the next. It is the rates that were used in the analysis.
4.2.3 Descriptive Analysis

Descriptive statistics of the two GDP rates and investment rates were calculated to provide an insight into their nature. Specifically the Mean, Median, Standard Deviation, Sample Variance, Range, Minimum and Maximum for GDP rate and investment rate were calculated and the findings tabulated in Table 1 below.

<table>
<thead>
<tr>
<th>Statistic</th>
<th>GDP (%)</th>
<th>Investment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.15</td>
<td>17.73</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.47</td>
<td>0.71</td>
</tr>
<tr>
<td>Median</td>
<td>3.13</td>
<td>18.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2.21</td>
<td>3.33</td>
</tr>
<tr>
<td>Sample Variance</td>
<td>4.90</td>
<td>11.06</td>
</tr>
<tr>
<td>Range</td>
<td>7.79</td>
<td>16.00</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.79</td>
<td>6.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>6.99</td>
<td>22.00</td>
</tr>
</tbody>
</table>

(Source: Research Findings)

As shown in Tables 4.1 above, the highest level of economic growth achieved after 1991 was 6.99% which was in 2007 while the lowest rate of economic growth was -0.79% achieved in 1992. The arithmetic average rate of growth was 3.15% during the period 1991 to 2012 while the standard deviation in the economic growth rate was 2.21%. On the other hand, the highest level of investment rate (as percentage to GDP) was 22.00% achieved in 1995 while the lowest was 6.00% in 2003. The arithmetic average of the investment rate was 17.73%. The standard deviation in investment rate was 3.33%.
4.2.4 Correlation Analysis

Correlation analysis was done to determine the strength of co-variation between GDP growth rate and investment rate. The Pearson Correlation coefficient was 0.24 (or 24 \%) which was weak though positive. This indicates that when investment rate rises or falls by 100 \%, GDP growth rate rises or falls by 24 \%. The positive correlation is in agreement with the postulation by the Solow theory of the relationship between capital accumulation and GDP. In the Solow model capital accumulation and GDP positively co-vary. This is also in agreement with Tawiri (2010) who studied the relationship between investment and economic growth in the Libyan economy during the period (1962-2008). In this study the results showed positive co-variation between investment and GDP.

This findings, however, do not agree with the suggestions and findings of Podrecca and Carmeci (2001) who found that investment is the fundamental determinant of economic growth and that when investment grew, so did the rate of growth of GDP resulting in strong positive correlation. The study does agree with the findings by Katerina, Panastasiou and Athanasios (2004) who studied the effects of investment especially FDI on economic growth on the US and the Western European countries. Their results indicated that investment does not exhibit any significant relationship with economic growth for the transition countries.

4.2.5 Regression Analysis

To establish the relationship between GDP growth rate and investment rate regression analysis was done in which GDP rate was the dependent variable while investment rate was the independent variable. The results of the regression analysis are presented in
Table 4.2 Linear Regression Results

<table>
<thead>
<tr>
<th></th>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t -Stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.31</td>
<td>2.60</td>
<td>0.12</td>
<td>0.91</td>
</tr>
<tr>
<td>Investment</td>
<td>16.01</td>
<td>14.44</td>
<td>1.11</td>
<td>0.28</td>
</tr>
</tbody>
</table>

(Source: Research Findings)

As shown in Table 4.2 above, the intercept term was 0.31 which was not significant, $t_{(20)} = 0.12, p>0.05$. This means without extra investment, economic growth will be at 0.31%. The coefficient of investment was 16.01 which means that a one percent increase in investment rate will lead to a 16.01% rise in GDP growth rate. However, the coefficient was also not significant, $t_{(20)} = 1.11, p > 0.05$.

The regression model was found to be:

$$GDP\ Rate = 0.31 + 16.01(Investment\ Rate)$$

Table 4.3 Regression Statistics

<table>
<thead>
<tr>
<th></th>
<th>d.f</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>5.96</td>
<td>5.96</td>
<td>1.23</td>
<td>0.28</td>
</tr>
<tr>
<td>Residual</td>
<td>20</td>
<td>96.92</td>
<td>4.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>102.88</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: Research Findings)

Table 4.3 provides the F-test results of the regression model while Table 4.3b shows the results of the coefficient of variation. The results show that the relationship was not significant and that the variation in GDP rate was not strongly explained by the variation in investment rate $F_{(1,20)} = 1.23, p > 0.05$. This indicates that the variation in GDP growth cannot be explained by variation in investment alone.
In Table 4.4 the coefficient of determination was $R^2 = 0.06$ meaning only 6.00 % variation in GDP growth is explained by variation in investment rate while 94.00 % is not explained.

### 4.3 Interpretation of the Findings

The findings of the regression analysis suggest a weak positive relationship between GDP growth rate and investment rate. The indication is that the nature of investment in Kenya does not have the expected strong positive effect on economic growth. The finding seem not to agree with those of Kinuthia (2012) did a study to analyze the relationship between local capital flows and Foreign Direct Investment (FDI) in Kenya. The study established that more investment would act as stimulant to foster higher economic growth. The findings of this study also disagree with those of Campos and Kinoshita (2002) who conducted a study examining the effects of investment on growth for 25 Central and Eastern Europe and former Soviet Union transition economies covering the period 1990-1998. Their results indicated that investment had a significant and positive effect on the economic growth of each of the studied countries.

The findings of this study, however, seem to agree with those of Alfaro (2003) found that the benefits of investment vary greatly across sectors by examining the effect of foreign direct investment on growth in the primary, manufacturing, and services sectors. An empirical analysis using cross-country data for the period 1981-1999 suggested that total
investment exerts an ambiguous effect on growth. The investment affected economic growth depending on the predominance of a sector. Investments in the primary sector tended to have a negative effect on growth, while investment in manufacturing sector had a positive one. Evidence from the service sector is ambiguous. The total effect of investment was found to vary.
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The neoclassical growth framework and endogenous growth frameworks of thought emphatically demonstrate that capital creation is a robust driver of economic growth in any country. Some studies like Hoover and Perez (2004) and Dang (2009) indeed went ahead to concur with the neoclassical and endogenous growth schools of thought. On the other hand studies like that of Rebelo (1991) posited that the relationship between investment and economic growth was as unique as the economy and depending on types of assets make up the investment basket.

This study set out to establish the nature of the relationship between investment and economic growth and to provide an answer as to whether investment in Kenya was a spur of economic growth. The study covered a period of 20 years from 1993 to 2012. In this study, GDP growth rate, also called economic growth rate, was the dependent variable while investment rate was the independent variable. Ordinary least squares model was used to conduct the analysis and establish the relationship.

It was established that both investment rate and GDP growth rate were on a general upward trend since 1993 with higher variability realized in GDP growth rate. Correlation analysis indicated a weak correlation between investment rate and GDP growth rate. The regression analysis also confirmed the weak relationship indicated by the statistical insignificance of the constant term and the coefficient of investment rate. This was reaffirmed by the insignificance of the regression as shown by the F-test and $R^2$. 
5.2 Conclusion

From this study it is concluded that in Kenya investment as defined by this study is not the core driver of economic growth. This is drawn from the fact that the F-statistic in regression analysis indicated that the regression was insignificant. GDP growth rate and investment rate are, therefore, insignificantly connected.

The rate of GDP growth was also insensitive to the investment rate. This conclusion is derived from the fact that the coefficient of investment in the regression model was statistically insignificant though positive. This also means that during the period 1993-2012, increasing investment rate had an insignificant effect on variation in economic growth rate.

The study also indicates that variation in GDP growth rate is explained by a factor or factors other than investment rate. The coefficient of variation was weak indicating that variation investment rate was not a strong explaining factor of the variation in GDP growth rate. It can only be concluded that there are other factors that can provide a stronger explanation of the variation in GDP growth rate in Kenya.

5.3 Policy Recommendations

From the findings of this study it is evident that investment as defined by this study is not the core driver of economic growth due to the weak relation it has with economic growth. A possible reason for this is that the assets Kenyans invest in are not the key drivers of economic growth. After establishing the investment behaviour of investors in Kenya, advice encouragement should be done to encourage Kenyans to focus their investment towards those assets.
5.4 Limitations of the Study

This study has the following limitations: first, the study assumed that the relationship between economic growth rate and investment rate in Kenya is linear. This assumption led to the use of the single factor linear regression model. There is a possibility that the relationship is not linear like used in the analysis and that is why the variables were weakly connected. This study is unable to categorically state whether the relationship between economic growth and investment rate is linear or otherwise. The findings are therefore limited to the linearity assumption.

A second limitation of this study is that the findings are applicable to Kenya and within the period of study. The study has not established whether the results are applicable outside Kenya or not. Further, since investment is a behavioural issue, the study has only given findings applicable within the period of study. As to whether the findings are applicable after 2012, the study has not expressly given that indication.

The findings are as accurate as the data used and the analysis model used. The limitations concerning the accuracy of the secondary data used also contribute to the limitation of this study. The study has not been able to establish the accuracy of the data used other than assuming accuracy. Further, the weaknesses of the analysis model limit the robustness of the model. The model does not show whether there is a causality relationship between investment and economic growth in Kenya. The study ends at showing the correlation between them.
5.5 Suggestion for Further Research

The findings of this study can be improved based on the following recommendations for further study. This study has not established the causality relationship between investment and economic growth in Kenya. A study should be done to establish whether there is a causality relationship between investment and economic growth and, further, establish the nature of the causality.

A study can be done in more than one country to make enrich the findings and provide more room for generalizablity. This is because the findings of this study are focused on Kenya alone and for the period of study. A study with a wider population will be more informing and will give more generalizable results.

A study can be done to include behavioural issues other than investment in order to come up with the set of factors that drive economic growth in Kenya. Such factors will strongly provide an explanation for the variation in economic growth rate. Further, a study can be done to establish the nature of investment in Kenya and why it does not seem to be a strong driver of economic growth.
REFERENCES


APPENDICES

Appendix I: GDP Rates in Kenya for the period 1991 to 2012

<table>
<thead>
<tr>
<th>YEAR</th>
<th>GDP RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1.41</td>
</tr>
<tr>
<td>1992</td>
<td>-0.79</td>
</tr>
<tr>
<td>1993</td>
<td>0.36</td>
</tr>
<tr>
<td>1994</td>
<td>2.63</td>
</tr>
<tr>
<td>1995</td>
<td>4.41</td>
</tr>
<tr>
<td>1996</td>
<td>4.14</td>
</tr>
<tr>
<td>1997</td>
<td>0.27</td>
</tr>
<tr>
<td>1998</td>
<td>3.36</td>
</tr>
<tr>
<td>1999</td>
<td>2.10</td>
</tr>
<tr>
<td>2000</td>
<td>0.50</td>
</tr>
<tr>
<td>2001</td>
<td>4.47</td>
</tr>
<tr>
<td>2002</td>
<td>0.57</td>
</tr>
<tr>
<td>2003</td>
<td>2.91</td>
</tr>
<tr>
<td>2004</td>
<td>5.10</td>
</tr>
<tr>
<td>2005</td>
<td>5.91</td>
</tr>
<tr>
<td>2006</td>
<td>6.33</td>
</tr>
<tr>
<td>2007</td>
<td>6.99</td>
</tr>
<tr>
<td>2008</td>
<td>1.53</td>
</tr>
<tr>
<td>2009</td>
<td>2.74</td>
</tr>
<tr>
<td>2010</td>
<td>5.76</td>
</tr>
<tr>
<td>2011</td>
<td>4.38</td>
</tr>
<tr>
<td>2012</td>
<td>4.30</td>
</tr>
</tbody>
</table>

Appendix II: Investment Rates in Kenya for the period 1991 to 2012

<table>
<thead>
<tr>
<th>YEAR</th>
<th>INVESTMENT RATE (Percentage of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>21.00</td>
</tr>
<tr>
<td>1992</td>
<td>17.00</td>
</tr>
<tr>
<td>1993</td>
<td>18.00</td>
</tr>
<tr>
<td>1994</td>
<td>19.00</td>
</tr>
<tr>
<td>1995</td>
<td>22.00</td>
</tr>
<tr>
<td>1996</td>
<td>15.00</td>
</tr>
<tr>
<td>1997</td>
<td>15.00</td>
</tr>
<tr>
<td>1998</td>
<td>17.00</td>
</tr>
<tr>
<td>1999</td>
<td>16.00</td>
</tr>
<tr>
<td>2000</td>
<td>17.00</td>
</tr>
<tr>
<td>2001</td>
<td>19.00</td>
</tr>
<tr>
<td>2002</td>
<td>15.00</td>
</tr>
<tr>
<td>2003</td>
<td>6.00</td>
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<td>2004</td>
<td>17.00</td>
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<td>18.00</td>
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<tr>
<td>2006</td>
<td>18.00</td>
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<tr>
<td>2007</td>
<td>19.00</td>
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<tr>
<td>2008</td>
<td>19.00</td>
</tr>
<tr>
<td>2009</td>
<td>20.00</td>
</tr>
<tr>
<td>2010</td>
<td>20.00</td>
</tr>
<tr>
<td>2011</td>
<td>21.00</td>
</tr>
<tr>
<td>2012</td>
<td>21.00</td>
</tr>
</tbody>
</table>

Appendix III: GDP in Kenya for the period 1991 to 2012 at Current Dollar Rates

<table>
<thead>
<tr>
<th>YEAR</th>
<th>GDP (Current US Dollar Rates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>10,402,057,553</td>
</tr>
<tr>
<td>1992</td>
<td>10,282,697,693</td>
</tr>
<tr>
<td>1993</td>
<td>7,139,069,455</td>
</tr>
<tr>
<td>1994</td>
<td>9,084,433,617</td>
</tr>
<tr>
<td>1995</td>
<td>11,700,698,293</td>
</tr>
<tr>
<td>1996</td>
<td>11,973,069,750</td>
</tr>
<tr>
<td>1997</td>
<td>13,034,332,160</td>
</tr>
<tr>
<td>1998</td>
<td>14,016,439,320</td>
</tr>
<tr>
<td>1999</td>
<td>12,798,811,537</td>
</tr>
<tr>
<td>2000</td>
<td>12,604,122,897</td>
</tr>
<tr>
<td>2001</td>
<td>12,983,455,858</td>
</tr>
<tr>
<td>2002</td>
<td>13,150,894,438</td>
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<tr>
<td>2003</td>
<td>14,904,452,944</td>
</tr>
<tr>
<td>2004</td>
<td>16,095,233,283</td>
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<tr>
<td>2005</td>
<td>18,739,190,171</td>
</tr>
<tr>
<td>2006</td>
<td>22,504,109,496</td>
</tr>
<tr>
<td>2007</td>
<td>27,236,709,574</td>
</tr>
<tr>
<td>2008</td>
<td>30,467,360,179</td>
</tr>
<tr>
<td>2009</td>
<td>30,600,162,776</td>
</tr>
<tr>
<td>2010</td>
<td>32,181,290,592</td>
</tr>
<tr>
<td>2011</td>
<td>34,058,731,737</td>
</tr>
</tbody>
</table>