EFFECT OF SELECTED MACROECONOMIC VARIABLES ON THE ECONOMIC GROWTH IN KENYA

BY

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS, FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.

DECLARATION

This research project is my own original work and has never been presented for a degree at any other university for examination.

Signature _____ Date _____*December 9, 2020*_____

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This research project has been presented for examination with my approval as the University Supervisor.

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ACKNOWLEDGEMENT

I thank the God Almighty for availing an opportunity and strength to pursue my education. It is through His abundant grace that has brought this research project to a success.

I'm indebted to my supervisor Dr. Winnie Nyamute , her constant guidance and feedback.

I wish to thank my moderator Dr. Duncan Elly, whose incisive readings and Constructive critique of the project in progression has been valuable. I also thank all my colleagues in the University for their Support.

DEDICATION

Dedicate this study to my family, for their support, encouragement, all through the academic period. God bless you .

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ABBREVIATIONS

CBK: Central Bank of Kenya

EAC: East Africa Community

FDI: Foreign Direct Investment

GDP: Gross Domestic Product

KNBS: Kenya National Bureau of Statistics

KRA: Kenya Revenue Authority

NPLs: Non- Performing Loans

NSE: Nairobi Securities Exchange

OLS: Ordinary Least Square

SPSS: Statistical Package for Social Science

UNECA: United Nations Economic Commission for Africa

USD: United State Dollars

ABSTRACT

Study to investigate influence of chosen macroeconomics variables on growth of the economy (Kenya). The research methodology adopted was descriptive. Inflation, foreign direct investments and exchange rate were used as independent variables,the variable that was dependent to measure the growth of the economy was GDP. The study used secondary data covering the period from 1970 to 2018 for analysis. Data was then edited and cleaned for completeness. Multicollinear, autocorrelation and normalcy tests were used. Regression analysis was applied in testing the connection between the variables under study in relation to the objective. ANOVA analysis was used in confirming the regression findings. Regression analysis findings established that a strong relationship (R= 0.919) between selected macroeconomics variables and economic growth in Kenya. The result further indicated that R-squared value is 0.845. This implies that independent variables investigated in the study (GDP growth rate, exchange rates and inflation rate) could account for or explain only 84.5% of the selected dependent variable. The study findings revealed that the co-exitance between inflation rate and growth in the economy is negative but insignificant. Study hence concludes that the more the inflation rate the lower the economic growth. The study revealed that foreign direct investment had a strong relationship on the economic growth in Kenya. The study hence concludes that when FDI increases, economic growth also increases. Finally, the study found that exchange rate is strongly related to economic growth in Kenya. Therefore, it can be concluded that economic growth increases as exchange rate increases. Therefore, a recommendation is made that policy makers in the government makers need to develop agendas in the domestic market so as to attract more investment by foreigners in the economy.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Country where economic growth high there is improved living standard among people, better infrastructural facilities and adoption of technology in operations. There are also more employment opportunities and the general welfare of people (Odhiambo, 2012). Good economic conditions means high trading activities which include the investment activities, poor economic conditions negatively affects the overall development as a result of macro-economic variables in an economy. The major macroeconomic variables include the inflation rates, exchange rates, inflation rates and the general economic growth (Waweru and Kalani, 2009).

Theoretically, economic growth is linked with macroeconomic variables. Ross (1977) presupposes that total risk is of the diversified risks and non-diversified risks. The non-diversified risks are as a result of variables (macroeconomic) which directly affects the economic growth. Macroeconomist theory attempts to analyze the low volatility of market returns as a result of the changes in the various changes in the macroeconomic variables (Walter, 1978).

Real GDP has grown estimably 4.9% in 2017, from 5.9% in 2018, backed up by weather that is favorable, political uncertainties that are eased, stronger private consumption and improved business confidence. Supply wise, agriculture accounted for 23.7% of the growth, service for 52.5%, and industry for 23.8%. Demand wise the key driver of growth was private consumption. Over the past five years by the end of June 2018 the public debt–to-GDP ratio increased by 57% this is half of the external public debt. Kenya issued a $2

billion Eurobond in February 2018 hence the share of loans from no concessional sources has partly increased. The International Monetary Fund debt sustainability analysis of October 2018 raised the country's risk of debt stress to moderate. (Muchimuti, 2018).

1.1.1 Macro Economic Variables

Variables are external which organizations can't influence (Akbar et al. 2012). Economic growth measures the aggregation of various economic activities in various sectors. Macroeconomic variables influence the overall prosperity capital markets. The variables can either have a contractionary effect or an expansionary effect on the economy. Fluctuations in macroeconomic variables affect businesses negatively positively depending on the nature of the trend. The economic growth,a strong variable that is macroeconomic has an influence of the growth of any given country and development of capital markets (Brandley, 2008).

The significant macroeconomic variables are depicted to be recurrent expenditure, interest rates, foreign exchange, inflation rates and the public debt. Recurrent expenditure is expenses incurred by the government in the daily operations including the wages and salaries paid to employees and costs including traveling. Interest rate is the cost attached to the borrowed capital for a given period of time (Dorotti, 2015). When exchange rates depreciate, the activities in the financial markets decreases, rate of exchange appreciation results to increase in the activities financial market and development in an economy. Inflation relates to the upward movement of prices (Kinyua, 2014).

Macroeconomic variables measure used is inflation rates, foreign trade exchange rates, economic growth and interest rates. Rate of exchange is calculated by rate at which one country currency exchanges for another.Annual percentage change in consumer price index (inflation), Foreign Direct Investments is measured as annual foreign direct investment into Kenya and Government Expenditure was measured by natural log of total annual government expenditure (Schumpeter, 1933).

1.1.2 Economic Growth

Growth of an economy is the overall productivity on the country measured over a given time frame, usually on an annual basis (Keynesian, 1936).Growth of the economy can be defined as the rise in the economy's ability to produce services and goods over a period of time (Bakang, 2015). Economic growth is a measure of overall productivity of the country over a time frame. (Easterly & Levine, 2016). Baskaran, Feld and Schnellenbach (2016) viewed economic growth as an increase in market value of the produced products on a given time horizon. Economic growth according to Lamsiraroj (2016) is one of the measures of how well and healthy an economy is doing in a given time horizon.

The health sector is well funded and equipped to cater for the health needs of its citizens. In country where the economic growth is high, there is improved living standard among people, better infrastructural facilities and adoption of technology in operations. There are also more employment opportunities and the general welfare of people (Carr & Sundaram, 2016).

To obtain the country's economic growth, market value of its net services and goods is considered. This includes: private inventories, personal consumption, purchases by the government, the foreign trade balance and the paid-in construction costs. "The two main measures used to measure economic growth are (GDP) and (GNP)." GDP is the maximum,additional it measures the total worth of goods/services manufactured within and outside the country by all its citizens over a given period. Economic growth shall obtained using GDP (Surbhi, 2015).

1.1.3 Macro Economic Variables and Economic Growth

Empirical evidence generally agrees on the direction of the association of macro- economic variables and economic growth. Macroeconomist theory argues that the low volatility of market returns is an outcome of changes in the macroeconomic environment hence macroeconomic variables directly influences the economic development. According to the arbitrage pricing theory, the non-diversifiable component of the total risk constitutes the macroeconomic variables which have the potential of influencing the economic growth like any other entity.

Scholars are yet to agree on the link between the interaction of macroeconomic variables and the growth in the economy. Such as, the findings of Augustor et al. (2015) showed an inverse link relationship public debt and the growth of the economy. Also, Panizza and Presbitero (2014) in a study revealed no cause effect link between debts and the growth of the economy. Putunoi and Mutuku (2013) and Maana, *et al. (*2008)

A research by Kinyua (2014) sought to assess the impact of various developments in Kenyan markets. From the research, it was evident that inflation rates and lending rates had significant effects on the development of capital markets in Kenya. Dorotti (2015) in his study on effect of macroeconomic development in Pakistan concluded that macroeconomic variables negatively affected the developments of capital market in Indonesia. Wekesa (2015) concluded that economic growth and exchange rates as the major components of macroeconomic environment significantly affected the capital market activities.

1.1.4 Economic Growth in Kenya

GDP growth rates have reached a high of 9.4% and 10.8% in 1977 and 1978. These rates plummeted to 3.7% in 1979 following the Middle East oil crisis which escalated the price of crude oil, but averaged 5% between 1980 and 1981, a fact attributed to an uptake in real investment and optimum performance in the agricultural sector. In the years that ran from 1982 and 1984 the growth rate slowed to below 2% due to 1982 *coup d'etat* which disrupted investment, and the droughts of 1983 and 1984, which crippled the agricultural sector (Kairanya, 2016).

Trends in the 1990s were that of consistent decline reaching 0.1% in 1993 and registering a negative 0.3% in the year 2000. The decline in real investment occasioned by the uncertainty over the first multiparty elections of 1992 and the freeze on donor funding, coupled with the collapse of the major agricultural sectors, all combined to ensure these pathetic growth in GDP. The line graph below is used to illustrate the Kenya's economic growth rate for the last fifteen years.

Kenya as any other country has had fairly fluctuating macroeconomic variables that might have impacted on the percentage of growth rate; the trend is shown by the following statistics. GDP stood at 5.7% in 2013 but it dropped to 5.3% in 2014 owing to decline in tourism, whereas the 2015 estimate and the 2016 and 2017 forecasts indicate economic growth of 5.5%, 6.0%, and 6.4% correspondingly. Decline in GDP in Kenya provoked a retreat to a drawing board whereby Kenya lower middle income status with a GDP of US 52.8 billion and per capital of 1190 (Africa Economics Outlook, 2016)

1.2 Research Problem

Theories suggested that, economic growth is believed to be influenced by variables that are macroeconomic, such as GDP, supply of money, inflation and foreign rate of exchange (Blinder, 2008). Theory of Fiscal policy proposes that advancement in government spending, leads, increase consumption income(Boyd et al, 2001). The monetary theory of inflation, depicts that money supply is positively correlated to inflation.

Kenya is among the most vibrant and largest economies in East Africa accounting for over 40% of the region's GDP according to the World Bank as evidenced by the trade exports of US $6,110.51 million and trade imports of US $18,406.74 million. The importance of economic growth in Kenya cannot be underestimated when the country is experiencing low growth rates. Economic growth is a fundamental requisite to economic development. Kenya experienced the worst performance economically since independence (1991 to 1993).GDP stagnated, and agricultural production shrank at an annual rate of 3.9%. Inflation reached a record 100% in August 1993 government budget deficit was above10% of GDP.

Globally,Wani (2016) identified that external debt to have a positive correlation with the growth of the Economy. Ntshakala (2016) found no considerable correlation exists between external debts and economic growth in the country of Swaziland for the studied period while domestic debt was seen to be considerable positive correlation with the growth of the economy.Dorroti (2015) established that macroeconomic variables negatively affected the development of the capital market. The study also indicated no running of causality from exchange rates to the stock market existed. Abid, Ouertani and Ghorbel (2014) established that GDP, foreign rate exchange have a statistically significant

positive relationship. Al-Zeaud (2014) found that public debt and population growth are positively associated with economic growth in Jordan.

Locally, Barasa (2018) established a strong relationship with interest rates and NPLs a positive relationship with the depreciation of the Kenya shilling against the dollar and NPLs. Muchimuti (2018) revealed that recurrent expenditure, savings, internal and external debts significantly influences the growth of the economy. Tola (2018) found out that agreed macroeconomic variables 53.7% of development of capital markets. Otieno (2017), zero significant as indicators of economic growth. Kairanya (2013) established the coefficient of indirect taxes was significant and negative in influencing growth of the economy in Kenya over the short run. Also, the coefficients net exports and FDI indicated effects to the growth of the economy in Kenya over the short run.

This existance of the relationship of economic growth and variables that are macroeconomic have been examined. Kenya was selected as the main study context because it is one of the most vibrant economies in East Africa evidence on the coexistence among the study variables. This research will investigate the effects of macro-economic variables on economic growth in Kenya.The study sought to answer the general question; what is the effect of macro-economic variables on economic growth in Kenya?

1.3 Research Objective

To establish the effect of selected macro-economic variables on economic growth in Kenya

1.4 Value of the Study

To government, policy makers and regulators of the Kenyan financial sector, e.g. CBK and CMA. To management of financial institutions and other participants in the financial

sector, this study enlightens them on the role that their institutions play in the growth of the economy thus encourage them to make wise decisions that add growth to the sector.

The findings of this study are vital source for researchers to reference, scholars and students who might be interested in undertaking research in this field. Significance of this study to the scholars stems from it being capable of helping ascertain research gap to guide them when carrying out further studies in this field. Identification of research gap is critical in ensuring the field is enriched with knowledge depth as opposed to quantity of research works with limited depth.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

section studies theoretical literature review ,the determinants of economic growth. Empirical literature from both foreign and local studies.

2.2 Theoretical Review

This research is anchored on two theories discussed below; Macroeconomist theory and APT.

2.2.1 Macroeconomist Theory

Proposed by Walter Robinson (1979) to deviate from the common applications of factor analysis in the determination of the various variables that are likely to affect the economic growth. The macroeconomic variables have been measured by some scholars and found evidence that the fair pricing of securities bring about the shift in macroeconomic variables which include lending rates and the exchange rates. This is supported by the research by Fama (1978) who concluded changes in inflation rates are reflected fully in the stock prices.

The macroeconomist theory attempts to analyze the low volatility of market returns as a result of the changes in the various changes in the macroeconomic variables. This approach posits that capital market activities are brought about by the changes in interest rates and other macroeconomic variables. This approach is based on equilibrium theory which assumes the interrelations which exists between the various sectors as critical to understanding of the macroeconomic movements which assets that everything does depend

on everything else. The relevancy of this theory cannot be underestimated since it determines how economic growth is affected by these macroeconomic variables (Fama, 1978).

2.2.2 Arbitrage Pricing Theory

The Arbitrage pricing theory was developed by Ross (1977). In this theory, there is a coexistence between returns expected and value of risk.These factors are inclusive of the macroeconomic variables. The arbitrage pricing theory assumes investors will always reach out to have more wealth than less. According to APT, various forces exists but if a portfolio is diversified this cancels.

The APT deploys various in the multi variable model .Each variable here is represented by a beta coefficient which measures risk. The risk are either diversified or non-diversified. These variables are likely to affect the economic growth with regard to the arbitrage pricing theory, capital market like any other entities are prone to the effects of these macroeconomic factors (Ross, 1977).

2.3 Determinants of Economic Growth

2.3.1 Inflation Rate

Price change of items in a time frame (Bakang, 2015). It increases cost of items not affecting the real value. Its decline in the purchasing power of .obtained as an change which is in a percentage nature. Note how inflation affects earning movement of a firm. Sinha & Agnihotri (2015), inflation changes price and structures, since consumption economy a shift in inflation will affect .

2.3.2 Recurrent Expenditure

Public expenditure is the dependent variable in this study and it is represented by recurrent and development expenditure. However, the general proposition is that economic growth and macroeconomic factors have an intervening influence the relation between economic growth and public expenditure. Recurrent expenditure is expenses incurred by the government in the daily operations including the wages and salaries paid to employees and costs including traveling. As the level of debt continues to build up in Kenya, so is recurrent expenditure hence slow economic growth. The country should not utilize the borrowed funds to meeting recurrent expenditure but rather, development expenditure (Mitchel, 2005).

2.3.3 Exchange Rates

Established as degree of which currency will be traded for another. This uncertainty in exchange rate is also caused by the liberalization of capital flows. For an exchange rate to be volatile, it must be floating. Before this, exchange rates were fixed until the introduction of the floating rate which was as a result of the many conferences that took place between 1944 and 1971 (Meese, 1990) held in regard to international payments balances.

Exchange rate is referenced as the measure the competitiveness of internationals. Hinchberger (2013) depicted, country index has a strong relationship with the opposite currency.

2.3.4 Foreign Direct Investment

Foreign direct investments are supposed to be long lasting and those that are outside the economic or physical boundaries of the investor according to Muema (2013). Several

studies that reference on the interrelationship between Economic Growth FDI depicts effects of FDI are complex. People say that FDI posseses a huge positive impact on the country. Looking at, these effects are regarded as deployments of employment.

2.4 Empirical Review

Studies that are empirical, international and local back relationship of the growth of an economy and macro-economic variables. However, these studies' findings are inconsistent because they have mixed results.

2.4.1 Global Studies

Wani (2016) took out a study to seek correlation with public debt and economic growth in Afghanistan. Several sources with 2008-2012 time periods were used to obtain secondary data. In Afghanistan, external debt is characterized with economic growth thus it was concluded external debt has a positive correlation with economic growth. The study only focused on external debt thus providing insufficient understanding on domestic debt and economic growth relationship. The research presented conceptual knowledge gap since the study only focused on one macroeconomic variable but this study focused on various macroeconomic variables.

Ntshakala (2016) assessed the effects of both public external and domestic debt on economic growth in Swaziland through use of OLS method on data time series spanning 1988-2013. The study discovered no considerable correlation that exists with external debts and economic growth in Swaziland in studied time frame while debt that was seen to be considerable positive correlation with the growth of the economy. The study used OLS method that is deficient in establishing time effect for stochastic data. The study established

a conceptual knowledge gap since the study only focused on one macroeconomic variable but this study focused on various macroeconomic variables.

Dorotti (2015) conducted a study to identify effect of macroeconomic factors on capital market development in Pakistan. Unlike (Palene & Mittalsine, 2011) who used quarterly time series data over 15 years, Dorotti (2015) used a time series data from January 1991 till December 2011 (20 years).Results established that macroeconomic variables negatively affected the development of the capital market. The study also indicated zero causality establishment from exchange rates to the equity market. The study presents both conceptual and contextual knowledge gap since the study only focused on capital market development in Pakistan which is a developed country hence the outcomes cannot be generalized in the Kenyan situation.

Abid, Ouertani and Ghorbel (2014) studied bank specific variables and macroeconomic events affecting the asset quality of bank assets. The lags in the macroeconomic data were catered for using the model GMM. A dynamic panel data from 16 Tunisian banks were used for ten years (2003-2012). This study concluded that GDP, inflation and interest rate have a statistically significant positive relationship. This is because most of the Tunisian banks adjusted their interest rate during inflationary moments thus making it more difficult for households to honor their maturing obligations. The study presents conceptual knowledge gap since the study focused on Macroeconomic variables and asset quality. This study links macro-economic variables and economic growth.

Al-Zeaud (2014) found effect of public debt on economic in Jordan utilizing the approach of income per capita, the outcome of research indicated growth and debt specifications on the basis of convergence by addition of various variables of growth. The findings

empirically show that public debt and population growth are positively associated with economic growth in Jordan. Thus the research recommended that positive effect of public debt should be sustained to enable Jordan achieve higher economic growth. The study presents a contextual knowledge gap since the study in Jordan may not be representative of the Kenyan situation.

2.4.2 Local Studies

With the population on target being 43 banks through a census survey and collection of data was from the CBK, KNBS and CRB reports detailing business loans issued over the years 2012 to 2017. The study adopted a research design which is descriptive. Conclusions showed that relationship that is positive between interest rates and NPLs as well as appositive relationship between the depreciation of the Kenya shilling against the dollar and NPLs. The study recommended that commercial banks should watch out for changes in inflation and take measures geared towards safeguarding increases in default and the CBK should expand its monitoring framework to include macroeconomic indicators such as inflation, change rate and interest rates when assessing the soundness and stability of the financial system.

This research sort a causal design descriptive and focused on a case study in Kenya on economic growth, recurrent expenditure, savings, internal dent and external debt for period 2010 till 2017. The findings revealed that recurrent expenditure, savings, internal and external debts significantly influences the growth of the economy. The recommendations of the study were, the government maintain an optimal level of recurrent expenditure in order to improve on economic growth. Further it recommended that government should encourage more savings in order to positively grow the economy. The government should

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consider using more external debts and less of the internal debts in financing budget deficits in order to grow the economy. The study presents a conceptual gap since focus was on a single macroeconomic variable.

Tola (2018) did a research on effects of selected macroeconomic variables on capital market development in Kenya. population target being the capital market in Kenya,December 2017. A descriptive research design was employed. The research concluded that selected macroeconomic variables significantly affect development of capital market in Kenya. The study recommended that policy makers consider macroeconomic environment as the leading determinant of development capital markets in Kenya in making policies which affect Capital Markets in Kenya. There exists a conceptual gap in the research due to its focus on the capital development as this study looked in the economic growth in Kenya.

Otieno (2017) conducted a research on the relationship that exists between domestic public debt and economic growth in Kenya. The research used descriptive research. Data collection was secondary obtained in the Kenya National Bureau of Statistics reports. The research employed a LRM analysis of data from the years 1993 to 2016, with the growth rate of GDP as a public debt function. Unemployment were control variables. The findings depicted that public, rate of inflation and unemployment were zero related to economic growth..The study has a conceptual gap as it links a single macroeconomic variable to economic growth.

Kairanya (2013) did a research on the impact of taxation on the economy.The study used time series data over a period of 1975-2014 to analyze the impact. Publications. study used

an endogenous growth model for analysis. The variables were indirect taxes, interest rate, foreign direct investment and net exports. The findings depicted the coefficient of indirect taxes negative significant and negative influencing growth of economy in Kenya over the short term . Also, the coefficients net exports and FDI indicated to be significant and positive in effects over a short term. Thus taxes that are indirect reduce savings in Kenya and increase consumption. Hence, the study recommended policy makers to then concentrate more on means to grow relations internationally so as to attract FDI and promote export also and raise the exports which benefit economic growth. The study presented a conceptual gap as its focus was taxation variable but study linked several variables to economic growth.

2.5 Conceptual Framework

The conceptual framework is the relationship between dependent and independent variables of the study. Abid, Ouertani ---and Ghorbel (2014) . Panizza and Presbitero (2014) in a study revealed no cause effect link between debts and ecnomy growth. Putunoi and Mutuku (2013) and Maana, *et al. (*2008) on the other hand revealed positive link.

Independent Variables   **Dependent Variables**

Macro-Economic Variables   **Economic Growth**
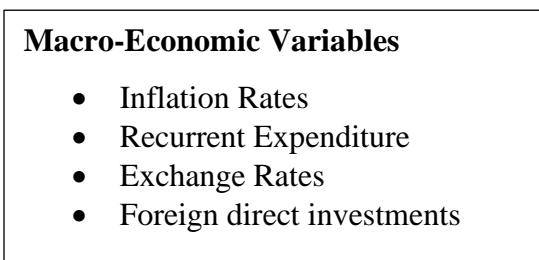
- Inflation Rates   • GDP
- Recurrent Expenditure
- Exchange Rates
- Foreign direct investments
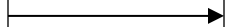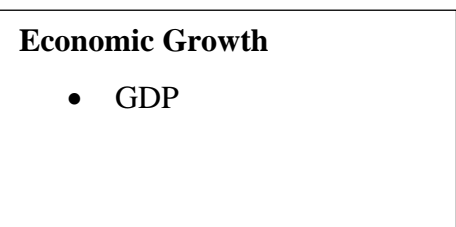
Figure 2. 1 Conceptual Model

 Researcher source**, 2019**

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2.6 Summary of Literature Review

Theoretical frameworks tried to give meaning the concept of macroeconomic variables. The study has used Keynesian economic theory and arbitrage pricing theory. key determinants of economic growth are together explained in this section includes; exchange rates, FDI, government expenditure and inflation rates. Empirical review on global and local perspective on macroeconomic variables and economic growth has also been done. However, most literature reviewed on the relationship between macroeconomic variables performance of financials is on international markets with very few carried out in the local market.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

 Methodology focuses processes involved in achieving study objectives . It begins with presenting the design research succeeded by a discussion of the population of the research. Then, a sample size is explained including the criteria for selection. The data collection procedure, which also includes the sources of data are then explained. Finally, the data analysis procedure is discussed where the model formulation is also explained.

3.2 Research Design

Creswell (2003) elaborates a design research as the structure outlines how the objectives of the study are to be attained. It goes along to determining the methods to use in collecting and analysis of the data. The study applied a causal descriptive design to determine the cause effect interaction between the study variables. This design helps the researcher to effectively determine the link and interaction of debts and the growth of the economy with references to the Kenyan context.

3.3 Population

This research population consists of a case study in Kenya on economic growth and various macro-economic variables. Population size was 49 observations covering the period 1970-2018. Being a case study of Kenya, there is zero sampling hence the study focused on the population not a sample size.

3.4 Data Collection

Time series data was secondary (1970-2018) was collected. Variables independent; rate of exchange , inflation, foreign direct and interest rate investment was collected from the World Development Index. Secondary data derived include; annual consumer price index, Natural logarithm of annual GDP, Kenya shilling per unit of the dollar on annual basis the records held by the Kenya Bureau of Statistics

3.5 Data Analysis

This section entails the diagnostics tests that were done during data analysis, analytical model that was employed, as well as the tests of significance.

3.5.1 Diagnostic Tests

This being a continuous secondary data, the diagnostic tests on the data was done to show the validity and reliability of the data. The diagnostic test included; Autocorrelation test, normality test and multicollinearity test. Durbin-Watson was used to test Autocorrelation. Normality test was conducted so accurate and reliable deductions on population.
Test for Multicollinearity was administerd to arrive that data was free little biasness with norelation of variable. Multicollinearity was tested using the variance (inflation). the values .Zero existance of multicollinearity between 1 and 10, then there is no multicollinearity while VIF is less than 1 or greater than 10.

3.5.2 Analytical Model

This is a systematic process that applies statistics techniques to evaluate data through inspecting, changing and modeling data to derive fundamental information for sound decision making. The study sort the SPSS version 23 for analysis.

The regression model response variable is:

$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + €$

Where;

α = constant

Y_i = Economic Growth; measured by percentage % growth in GDP in Kenya on annual basis

X_1= Inflation Rate; measured as a percentage annual change in CPI

X_2= Foreign Direct Investments; measured as the log of annual foreign direct investment into Kenya

X_3= Exchange Rates; measured by the average KES/USD exchange rate annually

$\beta_1, \beta_2, \beta_3$ =co-efficient

$€$ = error term stochastic

3.5.3 Test of Significance

 Joint significance coefficients was carried out with test F,individual coefficient T-test was administered. The regression model was at 5% confidence interval.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATIONS

4.1 Introduction

Analyzes as as research methodology and findings of the study. The study was sort out to investigate the effect of macroeconomic factors on economic growth in Kenya. After analysis, graphically tabulated results and presented below sections. Findings were discussed below giving focus coexistence of variable to the dependant.

4.2 Diagnostic Tests

Diagnostic tests were carried out so as to not violate regression assumption. The findings are shown in sections that follow.

4.2.1 Multicollinearity Test

Table 4.1: Multicollinearity Test

Model		Collinearity Statistics	
		VIF	Tolerance
	Inflation Rate	0.055	.948
	Foreign Direct Investment	1.737	.576
	Exchange Rate	1.762	.567
a. Dependent: Economic Growth			

Research Findings (2019)

Fromabove, all the VIF values the range of 1 to 10. This finding depict no existance of multicollinearity in the data set exists, hence choose regression analysis.

4.2.2 Normality Test

Table 4.2: Normality Test

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Economic Growth	49	.267	.340	-.640	.668
Inflation Rate	49	.363	.340	7.885	.668
Foreign Direct Investment	49	.111	.340	.532	.668
Exchange Rate	49	.110	.340	-1.625	.668
Valid N (listwise)	49				

Source: Research Findings (2019)

The test for normality was conducted using the skewness and kurtosis statistics. The data

in a series does exhibit a normal distribution because if it has skewness that is the range of

-0.8 to +0.8, and a kurtosis within the range of -3 to +3.

4.2.3 Autocorrelation

Autocorrelation was tested using Durbin Watson Statistics. The findings are shown in

Table 4.3.

Table 4.3: Test of Autocorrelation

Model	Durbin-Watson
1	1.682[a]
a. Predictors: (Constant), Exchange Rate, Inflation Rate, Foreign Direct Investment	
b. Variable- Dependant : Economic Growth	

Source: Research Findings (2019)

the value of Durbin Watson is 1.737, which is approximately 2. This shows that there was

no serial correlation in the data set and it was suitable for correlation and regression

analysis.

4.3 Descriptive Statistics

Table 4.4: Descriptive Statistics

	N	Maximum	Std .Devaition	Minimum	Mean
Economic Growth	49	9.21	10.94	10.0627	.45445
Inflation Rate	49	1.60	45.40	11.2978	7.67407
Foreign Direct Investment	49	5.60	9.21	7.7380	.74231
Exchange Rate	49	7.00	103.41	46.7977	34.14895

Source: Research Findings (2019)

Table 4.4 shows average, economic growth was at 10.06, inflation rate at 11.30, FDI at 7.738, and exchange rates at 103.41. However, there was no significant deviation in the variables of the study except for exchange rates as indicated by a high value of deviation 34.15.

4.4 Correlation Analysis

Correlation was used to depict how macro-economic variables and economic growth were correlated.

Table 4.5: Correlation Analysis

		Economic Growth	Inflation Rate	Foreign Direct Investment	Exchange Rate
Economic Growth	Pearson Correlation	1			
	Sig. (2-tailed)				
Inflation Rate	Pearson Correlation	-.265	1		
	Sig. (2-tailed)	.066			
Foreign Direct Investment	Pearson Correlation	.743**	-.188	1	
	Sig. (2-tailed)	.000	.197		
Foreign Rate Exchange	Pearson Correlation	.892**	-.222	.650**	1
	Sig. (2-tailed)	.000	.126	.000	

Source: Research Findings (2019)

epxlains the correlation of (economic growth) verses independent variable. The study out that there was a negatve and i statistical correlation (r = -.265, p = .066) with economic growth of Kenya and the inflation rate. The study made known that FDI was significantly and positively correlated to economic growth (r = .743, p = .000. The findings also found out that exchange rates are positively and significantly correlated to economic growth (r = .892, p = .000).

4.5 Regression Analysis

In order to determine how macro variables affected economic growth, the researcher employed regression analysis. Table 4.6 presents the findings on the model summary.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919[a]	.845	.834	.18497
a. Predictors: (Constant), Exchange Rate, Inflation Rate, Foreign Direct Investment				

Source: Research Findings (2019)

The findings in Table 4.6 indicate a 84.5% change in economic growth in Kenya explained by selected macro-economic variables. This therefore shows that other variables exited in justify for 15.5% of variations in the economic growth.

Analysis of Variance at 0.05 significance level was carried out to ascertain the model significance of regression below .

Table 4.7: Analysis of Variance

Model		df	Sum of squares	Mean Square	Sig	F
1	Residual	8.373	3	2.791	81.577	.000[b]
	Regression	1.540	45	.034		
	Total	9.913	48			
a. Dependent Variable: Economic Growth						

indicate that the model employed in the study is significant because the p value obtained is less the critical value of 0.05. study indicates a value p of 0.000, which is less the critical value. A critical value of 2.84 was obtained from the F-Test tables. The F statistic indicated in the study findings the than value critical.Model is optimum inrelation variable.

In order for the importance of each individual variables of the study, the researcher used p values. Table 4.8 gives the findings.

Table 4.8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.345	.345		24.206	.000
	Inflation Rate	-.003	.004	-.058	-.958	.343
	Foreign Direct Investment	.171	.047	.279	3.603	.001
	Exchange Rate	.009	.001	.698	8.945	.000
f.Dependent Variable: Economic Growth						

coefficient results depict the association among inflation rate and economic growth is negative but insignificant. Finally, the results show that the connection between rate of exchange and economic growth is positive and significant.

The resultant equation becomes;

Y = 8.345 - 0.003X$_1$+ 0.171X$_2$ + 0.009X$_3$

Where,

Y = Economic Growth

X$_1$= Inflation Rate

X$_2$= Foreign Direct Investment

X$_3$ = Exchange Rate

The regression model above shows that predictor variables equal to zero, economic growth would equal to 8.345. The study that an increase in inflation rate to drop on economic growth by 0.003 units. The results also showed a rise in FDI and exchange rates leads to an increase in economic growth by 0.171 and 0.009 units respectively.

4.6 Discussion of Research Findings

coefficient results depict that association among inflation rate and economic growth is negative but insignificant. The findings are consistent with those of Otieno (2017) who revealed that public debt, inflation rate and unemployment were not positively related to growth of the economy, zero significant as indicators of economic growth. However, these results suggest contrary finding to those of Al-Zeaud (2014) who found that public debt, inflation and population growth are positively associated with economic growth in Jordan. The results also show that the connection between foreign direct investment and economic growth is positive and significant.

Finally, the results show that connection between exchange rate and economic growth is positive and significant. Wekesa (2015) concluded that economic growth and exchange rates as the major components of macroeconomic environment significantly affected the capital market activities in Kenya.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

chapter presents study conclusion, discussions and conclusions. Major limitations presented and recommendations .

5.2 Summary of Findings

The study was seeking to determine the impact of chosen macro-economic variables on economic growth in Kenya.Selected macro-economic chosen variables were GDP, Foreign exchange rate and inflation rate. Regression analysis was applied in testing the correlation between the variables based the study objectives. The fit of goodness of the analytical model was tested using ANOVA. The findings were presented in tables and figures.

Diagnostic tests was administered on the data with a null hypothesis. Both kurtosis and skewness were carried out. The data in a series exhibited a normal distribution because it has skewness that is the range of -0.8 to +0.8, and a kurtosis within the range of -3 to +3. The data was therefore considered appropriate. The study revealed that economic growth rates of exchange as well as rates of inflation in Kenya had been fluctuating during the study period (2008-2017). The changes in macroeconomic variables were largely attributed to political instability, global financial crisis and international prices of fuel. The research revealed existance statistically and negative insignificant correlation (r = -.265, p = .066). The study also found out that FDI was positively correlated to economic growth (r = .743, p = .000. The findings also found out that exchange rates are positively and significantly correlated to economic growth (r = .892, p = .000). ANOVA analysis indicated that the model employed in the study is because the value p obtained is less the critical value 0.05.

Regression analysis findings established that there was a strong relationship (R= 0.919) between selected macroeconomics variables and economic growth in Kenya. The result further indicated that R-squared value is 0.845. This implies that independent variables investigated in the study (GDP growth rate, exchange rates and inflation rate) could account for or explain only 84.5% of the dependent variable. The remaining 15.5% can be explained by other variables which were not the subject of this study.

5.3 Conclusion

The research indicated that the association between inflation rate and economic growth is insignificant and negative. Conclusion,that the higher inflation rate the lower the economic growth in Kenya. The study also revealed that foreign direct investment had and positive relationship on the economic growth in Kenya. The study hence concludes that when FDI increases, economic growth also increases. Finally the study found that exchange rate is positively and significantly related to economic growth in Kenya. Therefore can be concluded that economic growth increases as exchange rate increases.

5.4 Policy Implications and Recommendations

The study seeks to established that FDI big positive influence on the growth economy of Kenya. Hence a recommendation is tabled to the policy markers that reforms have to increase so as to attract more investors gain interest in the domestic market. Engaging in increased multilateral and bilateral trade, roads development and development in the areas that are marginalized are some recommendations arrived at.

The government should ensure robust policies, monetary and fiscal are achieved .The findings of this study depict that a relationship that is highly positive exists when it comes to level of foreign rate exchange and the FDI. This is an indication that the strive to ensure

the sensitivity of openness of the economy so that external trade may be of benefit to the economy.

5.5 Limitations of the Study

Coductedstudy mainly benefited from the data sort by KNBS and CBK. The researcher didn't have any control over this accuracy. This is usually a general problem when dealing with secondary data. In order to handle this challenge, the researcher had to counter check the data from both KNBS and CBK for any differences.

This research scope was for 39 years 1970-2018. Data analysis sort a multiple linear regression model. Various hinderances develop when using regression model. Misleading and erroneous results are observed when the variables are changed, this brings about uncertainity of the findings..

5.6 Suggestion for Further Research

A majored on four independent variables (exchange rates and FDI). From the regression results, these variables explained 84.5% change in economic growth. Thus, various factors that explain economic growth which future studies should focus on. The current study was also limited to Kenya as an economy. Future studies should be done among countries in East Africa including Tanzania and Uganda. This would facilitate comparison and detailed decision making.

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APPENDICES

Appendix I: Data Collection Form

Year	Y	X1	X2	X3	X4
	% GDP	% Change in CPI	Total Annual Recurrent Expenditure	Annual Foreign Direct Investment	KES/USD
1970					
2018					

Appendix II: Data

Years	Y	X1	X2	X3
1970	9.21	7.60	7.14	7.14
1971	9.25	3.60	6.87	7
1972	9.32	5.40	6.80	7.2
1973	9.40	8.90	7.24	7.14
1974	9.47	16.50	7.37	7.13
1975	9.51	17.80	7.23	7.34
1976	9.54	10.10	7.67	8.37
1977	9.65	12.70	7.75	8.28
1978	9.72	12.70	7.54	7.73
1979	9.79	8.40	7.92	7.48
1980	9.86	12.80	7.90	7.42
1981	9.84	12.60	7.15	9.05
1982	9.81	22.30	7.11	10.92
1983	9.78	14.60	7.38	13.31
1984	9.79	11.40	7.03	14.41
1985	9.79	10.80	7.46	16.43
1986	9.86	10.60	7.51	16.23
1987	9.90	8.60	7.60	16.45
1988	9.92	10.20	5.60	17.75
1989	9.92	13.40	7.79	20.57
1990	9.93	15.60	7.76	22.91
1991	9.91	19.00	7.27	27.51
1992	9.91	27.10	6.80	32.22
1993	9.76	45.40	8.16	58
1994	9.85	31.20	6.87	56.05
1995	9.96	1.60	7.63	51.43
1996	10.08	8.80	8.04	57.11
1997	10.12	11.40	7.79	58.73
1998	10.15	5.50	7.42	60.38
1999	10.11	5.80	7.72	70.32
2000	10.10	9.90	8.04	76.175
2001	10.11	5.90	6.72	78.56
2002	10.12	2.00	7.44	78.72
2003	10.17	9.80	7.91	75.93

2004	10.21	11.80	7.66	79.17
2005	10.27	10.10	7.33	75.55
2006	10.41	6.10	7.70	72.1
2007	10.50	4.30	8.86	67.32
2008	10.56	15.10	7.98	69.18
2009	10.57	10.60	8.07	77.35
2010	10.60	4.10	8.25	79.22
2011	10.62	14.00	9.16	88.81
2012	10.70	9.60	9.14	84.53
2013	10.74	5.70	9.05	86.12
2014	10.79	6.90	8.91	87.92
2015	10.81	6.30	8.79	98.18
2016	10.84	6.20	8.59	101.53
2017	10.90	8.10	8.83	103.41
2018	10.94	4.69	9.21	101.3