CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Background of the study

The attainment of sustainable economic growth and development of an economy are the most important objectives of macroeconomic policies especially to the Less Developed Countries (LDCs) like Sierra Leone which is characterized by low capital formation due to low levels of domestic savings and investment.

Since 1980's debt crisis comes as a major macroeconomic problem for Sierra Leone. Following this, different studies are carried out to find out the cause, consequence and as a possible solution to the way out from the crisis.

For Krumm (1985) the likely cause of the crisis rooted back to the economical and political conditions of Sierra Leone in 1970's.During that period, Sierra Leone got an expanded access to private financial and other trade credits and spend more on public expenditure. Beside this, the country was not also in a good position to hold out the second global oil shock which happened in the late 1970's.During the early 1980's (1980 - 1983) the overall world recession following the oil shock and a response from lender countries (high interest rate, a decline in official lending and a delayed adjustment program…) makes the situation very difficult for many developing countries. As a result, the economic condition of

Sierra Leone declines adversely.

As per Iyoha,M.A.(1999) empirical analysis: during 1980's, the average annual growth rate of real GDP in Sierra Leone was 1.6% (World Bank Group economic data, 2018). The annual per capita income declined at an average rate of 2.2% and terms of trade knock down by 9.1% (Ministry of Finance, 2017). In line with the above fact a high population growth rate resulted with -0.9 % annual average growth rate of real GDP per

capita. Due to this the decade of 1980's is considered as "lost decade" for Sierra Leone in terms of development opportunities.

The World Bank report in 1994 generalized the possible factors for the poor economic performance in to domestic factors and external factors. As per the report: high population growth rate (which leads to a decline in per capita welfare), insignificant human capital development, poor infrastructure; which in turn affects private sector development and improper policies were categorized as domestic factors along with ethnic conflicts and political instability. In the other side, the successive oil price shock (1973 -1974 and 1978-1979), an alarming decrease in terms of trade and a recession in the industrialized countries which increased the interest rate categorized as external factors by the report (World bank report 1994).

For Agenor and Montel (1996), the original cause for the debt crisis was the excessive borrowing by the Sierra Leone public sector to service their existing debt. This happened due to the reverse relationship between the safe real interest rate in the international market and the overall real

GDP growth rate in Sierra Leone as a heavily indebted poor Country (HIPC). During most of the years in the decade of 1970's, the real long-term rate of interest in the developed world fell well short of the real growth rate of GDP by HIPCs (like Sierra Leone). This opened a viable option for the government of Sierra Leone to service her existing debt through new borrowing, rather than generating her own resource for the same action (servicing debt).As a result, Sierra Leone experienced a large fiscal deficit. Additionally, the public and publicly guaranteed external debt of Sierra Leone amounted to Le11.48 trillion (US$1.51 billion) as at end of 2017 compared to Le9.8 trillion ((US$1.35 billion) at end of 2016; representing an increase of 11.7 percent in dollar terms (but an increase 17.1 percent in domestic currency terms) over the period 2016 to 2017. When compared to end of June 2017 position of US$1.47 billion, the increase was 2.6 percent. The increase of 11.7 percent was as a result of improved net inflows from multilateral creditors particularly the International Monetary Fund (IMF) and the World Bank.

Disbursements from the IMF amounted to US$54.44 million under the Extended Credit Facility Programme, International Development Association disbursed US$33.24 million and EIB disbursed about US$43.27 million which mainly explained the increase in the debt stock.

Sierra Leone total external debts have consistently been growing from Le 2.717 Billion in 2007 to the peak level of Le 22.620 billion in 2018 and start a slitter dropping. The trend continues to grow but in 2007 there was a further decline of country external debt stock this was due to the cancellation of debt under the Multilateral Debt Relief Initiative. However external debt stock has continuously on the rise since 2008 reaching an all-time record of Le 22.620 billion in 2018 (MOF, 2018), representing 46 percent of the national debt stock. In which domestic debt stock comprising of marketable and non-marketable securities reached Le4.52 trillion (US$594.37 million) at end of 2017. These increases are alarming and needs attention. The evidence above shows that despite the government conscious effort in managing the nation's debt, the issue of debt has still been a burden to the Sierra Leone economy. Large debt service payment obligations and debt burden has depressed investment and hence economic growth through its illiquidity and disincentive effects due to these increasing trends of external debts.

Krumma, (1985) argued that, if the available external loan improves the productive capacity of the borrowing country. It is unnecessary to take extra external loan to service the original debt.

According to (Cline, 1985): if marginal productivity of each available external debt is greater than or equal with the principal and the interest payment , external debt will have a positive impact on the economy of the borrowing country.

This in turn will require the foreign debt to be used in productive sectors and in basic infrastructures which can enhance the productivity of other sectors. Under this condition external debt servicing doesn't affect economic growth. But, if the borrowing country failed to service its debt, it will lose its' credit worthiness; and this in turn might affect

the economic performance of the borrowing country by reducing the availability of foreign debt (Mjema and Musonda, 1994).

In general, external debt have affected the economic growth of Sierra Leone in two ways:

a) **Through the debt overhang effect:** a situation when the accumulated debt has discouraged and overhang investment, mainly private investment; as private investors expect an increase in tax by government to pay the accumulated debt.
b) **Through debt crowding out effect:** which is a situation where the income from export has been largely used to pay the accumulated debt. This in turn has affected investment.

In general this study will try to empirically investigate the relationship between external debt and economic growth of Sierra Leone.

1.2 Statement of the problem

Many developing countries depend on debts to finance budget deficit, these may be domestic or external debts. The first option for countries that face deficit is to borrow domestically from financial institutions, however due to lack of well established banking systems the internal debts are usually insufficient to finance the entire budget deficit (Agenor & Montel, 1996). So countries have to borrow from external sources that include developed countries and international organizations such as IMF and World Bank. External debts can have either positive or negative effects on the economic growth of country's economy. If external debts are used for development expenditure then the country may benefit because development expenditure like infrastructure may have a multiplier effect on boosting economic growth. However if external debt can have adverse effects on the economy, firstly, in some instances the amount of the external debt might be large compared with the economy size of the borrower which can lead to a possible capital flight which may most likely discourage private investment (Ajayi,

1991). Secondly, servicing the external debt by export earnings may affect economic growth by depleting available income from social service activities.

Being a developing country, Sierra Leone also is no exception when it comes to the use of external borrowings due to budget deficit. For instance as the result of budget deficits public debt and external debts have consistently been growing from Le 2.717 Billion in 2007 to the peak level of Le 22.620 billion in 2018 and start a slitter dropping. The external debt stock has continuously on the rise since 2008 reaching an all-time record of Le 22.620 billion in 2018 (MOF, 2018), representing 46 percent of the national debt stock. In which domestic debt stock comprising of marketable and non-marketable securities reached Le4.52 trillion (US$594.37 million) at end of 2017.

Due to the increasing trend of external debts, this study will evaluate if these debts have effect on economic growth of Sierra Leone.

1.3 Aim and Objectives of the study

The main aim of this study is to undertake an empirical investigation about the effect of external debt on economic growth in Sierra Leone.

Specifically, the study will aim at the following objectives:

- To investigate the impact of debt service payment on the Sierra Leone economic growth.
- To determine the relationship between external debt and economic growth.
- To determine the long term association between external debt and economic growth.

1.4 Research Hypothesis

It is hard to pre-determine the effect of external debt on economic growth, i.e. it may have a positive or a negative effect. It may have a positive impact if it is used to improve the welfare of the society; or may affect economic growth negatively through the debt overhang and debt crowding out effect by discouraging investment and encouraging capital flight.

This study hypothesizes that a large sum of accumulated debt will negatively affect economic growth through the debt overhang and debt crowding out effect.

1.5 Significance of Study

External debt is acquired to finance budget deficit in many developing countries including Sierra Leone. Due to lack of strong private sectors and well established banking system made external debt as the main part of public debt structure. The study will investigate the effect of external debt on economic growth in Sierra Leone, the findings indicate whether external debts have helped to boost economic growth or not. The government will be able to understand how to use external debts to boost economic growth otherwise if the debts are not utilized efficiently the country will remain in poverty because the repayment of the loans plus the interest may adversely affect the country.

The study will also help to add more knowledge to the existing literature related to external debts and economic growth. The conclusions from the study will be reached through the use of various econometric models which will make them justifiable, and most of them will be covered in the methodology chapter.

1.6 Research Methodology

The study will adopt the co-integration analysis using the Augmented Dickey Fuller (ADF) unit root test, Johansen Co-integration and Vector Error Correction techniques of

estimation which provides coefficient estimates of the time-series data used in analysis. It also carries out a causality test using Granger Causality test to check for a causal relationship between external debt and economic growth in Sierra Leone.

Model Specification

The main aim of the study will be to examine the Impact of External Debt on Economic Growth in Sierra Leone. The model will be adopted from a simple open macroeconomic debt growth model employed by (Boboye and Ojo, 2012). The model is specified of the functional form:

RGDPG=f(AGREXP, DSERGDP, GCAP, DEBGDP, INF, INTR)

The study will use an explicit form of the model that will estimate and explain the linear relationship between output (RGDPG) and External debt management and other macro-economic variables as stated below:

RGDPG=bo+b1AGREXP+b2DSERGDP+b3GCAP+b4DEBGDP+b5INF + b6INTR + Ut

Where:

RGDP = annual growth rate of the RGDPEDS

AGREXP = annual growth rate of exports

DSERGDP = ratio of debt service to RGDP

GCAP = Growth in fixed capital

DEBGDP = Size of external debt stock relative to RGDP

INF= Inflation rate

INTR= Interest rate

Ut = random or stochastic error term

Techniques of Estimation

Time series data covering a period from 1980-2017 will be estimated using Co-integration technique of analysis which is an improvement on the classical ordinary least square technique (OLS). This technique will be chosen as it depicts long-run economic growth. The following techniques of estimation will be employed in carrying out the co-integration analysis:

- **Unit Root Test**

This is the pre Co-integration test. It will be used to determine the order of integration of a variable that is how many times it has to be differenced or not to become stationary. It is to check for the presence of a unit root in the variable i.e whether the variable is stationary or not. The null hypothesis will be that there is no unit root. This test is carried out using the Augmented Dickey Fuller (ADF) technique of estimation. The rule is that if the ADF test statistic is greater than the 5 percent critical value, the null hypothesis will be accepted i.e the variable is stationary but if the ADF test statistic is less than the 5 percent critical value i.e the variable is non-stationary and the null hypothesis will be rejected and go ahead to difference once. If the variable does not become stationary at first difference we difference twice. However it is expected that the variable becomes stationary at first difference.

- **Co-integration**

After the test for the order of integration, the next step will be to test for co-integration. This test will be used to check if long run relationship exists among the variables in the model (Ogundipe and Alege, 2013). This will be carried out using the Johansen technique.

- **Vector Error Correction Model**

The Vector Error Correction Model (VECM) shows the speed of adjustment from short-run to long run equilibrium. The a priori expectation is that the VECM coefficient must

be negative and significant for errors to be corrected in the long run. The higher the VECM, the more the speed of adjustment.

- **Causality Test**

This will also be used to check for causality between two variables. In this case the aim of the researcher will be to test for a causal relationship between external debt and economic growth. The rule states that if the probability value is between 0 and 0.05 there is a causal relationship.

1.7 Summary of the Study

The study will be divided into five chapters.

Chapter 1 will contain the general introduction which provides the background to the study, statement of problem, scope of the study, significance of study, objectives of the study, research questions, research hypotheses, research methodology as well as the data sources.

Chapter two will examine the works of other economists on the subject matter of external debt and it consists of conceptual and definitional issues, theoretical, empirical and methodological review and a summary of literature.

Chapter 3 will also provide the theoretical framework of the study and the methodology employed. It will also contain the specification and estimation of the model.

Chapter 4 will carry out a descriptive, trend and empirical analysis of the model estimated in chapter three.

Chapter 5 will contain the summary, conclusion and recommendations.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter covers the review of literature relating to the origin of external debts, theoretical literature review, empirical literature review and the conceptual framework.

2.2 Empirical Review

2.2.1 The Origin of Debt Crisis

Debt crisis is highly related with inability of many developing countries to service their debt. The origin of debt crises can be grouped into two periods:

First period of 1973 to 1978

Due to the Egypt to Israel war in 1973 cause the price of crude oil to rise, this caused the producer of industrial market increase the price of the product they produce thus cause low developed countries to be on serious balance of payment deficit due to fact that they were unable to stand the increase in price of oil and the imported goods.
This cause the country affected to borrow money from banks and international capital market (Ejigayehu, 2013).

Second period of 1979 to 1982

Second oil shock happen due to the decision made by the Organization of Petroleum Exporting Countries (OPEC) to increase the price of crude oil, this again leaves the low developed countries (like Sierra Leone) in more intense borrowing from developed countries with high interest. The recession cause the industrial countries to adopt protection approach on imported good thus cause the decrease in earnings from export in low developed countries, also due to the high increase in interest rate (lending and borrowing) cause the debt servicing payment to increase (Ejigayehu, 2013).

2.3 Scope of Sierra Leone External Debt

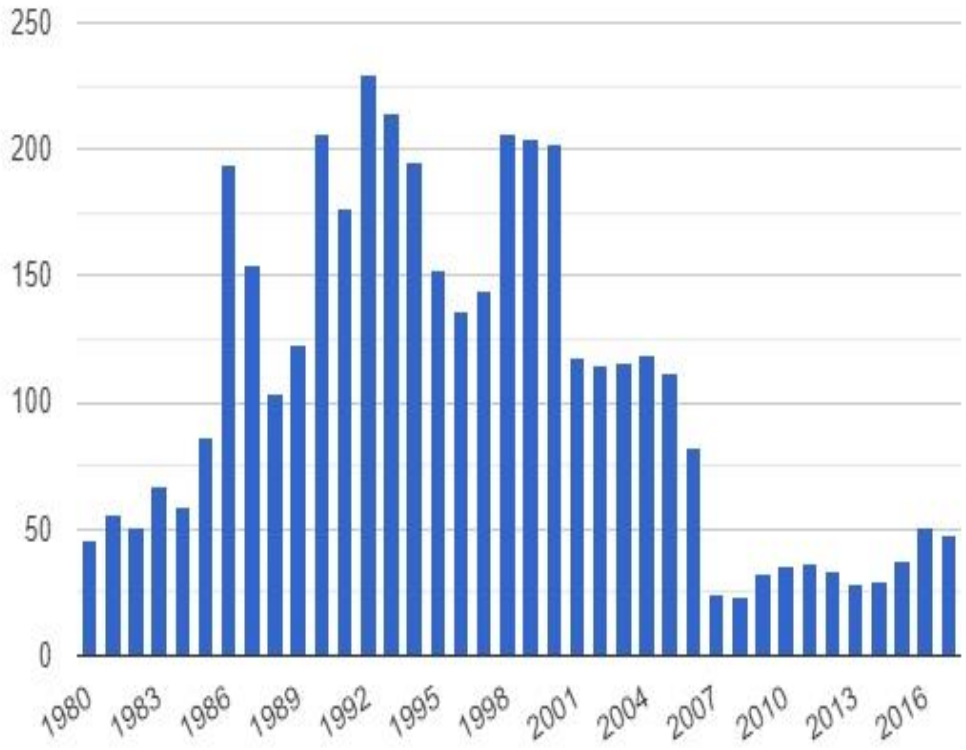
The Sierra Leone Ministry of Finance define external debt as the outstanding amount of current and not of contingent liabilities that require payments of interest and/or principal by the borrower at some points in the future and which are owned to nonresidents by resident of an economy. The definition excludes equity, shares and financial derivatives because these do not require payment of interest and principal.

Public debt in Sierra Leone comprises public and publicly guaranteed disbursed and outstanding debts owed to residents and non-residents. Debts owed t residents of Sierra Leone (whether denominated in local or foreign currency) is classified as domestic debt and include government treasury bills and bonds, registered stocks and promissory notes, domestic supplier's arrears, outstanding obligation owed to state owned enterprises and ways and means advances owed the central bank of Sierra Leone. Thus external debt is regarded as disbursed and outstanding debts owed to non-residents in the form of multilateral, bilateral and commercial creditors.

During the year 1970s and mid 1980s Sierra Leone experiences succession of economic crisis which cause setbacks in the economy and accumulation of debt burden. According to Central Bank of Sierra Leone (BSL) some of the specific factors that accounted for the acceleration of debt burden are both external and domestic in nature. They included inappropriate socio economic policies, oil price shock of the first period 1973-1978 and that of second period 1978-1982, extensive drought of the late 1970s to early 1980s which decreases traditional export crops, political maladministration which took a financial and social toll estimated to cost about USD 500 million and unfavorable terms of trade. All of this factors and many more cause sharp increase of government spending fore-stance in 1975 and 1985 government spending average above 30% of GDP, increase government spending contributed to fiscal deficits which also triggered increase of external debt (BSL, 2015).

The total public debt stock of Sierra Leeone as aat end of December 2017 amounted to Le16 trillion of which external and domestic debt accounted for Le11.48 billion and Le4.52 billion respectively. The stock of external debt stood at Le11.48 trillion as at December 2017 (an increase of 17 percent from previous year), while domestic debt reached Le4.52 trillion as at end of 2017 (an increase of 27 percent).

Figure 2.1: Sierra Leone external debt trends



Source: Ministry of Finance

2.4 Structure and Composition of Sierra Leone External Debt

According to Klein (1987), Africa depend more on official borrowing than on commercial borrowing from the international banks. The composition of external debt is the reflection of historical and ongoing economic reform together with debt management

strategies, traditionally Sierra Leone depends on official bilateral and multilateral donor for financing its development projects and balance of payment requirements.

Public and publicly guaranteed debt amounted to Le11.48 trillion (US$1.51 billion) as at end of 2017 compared to Le9.8 trillion (US$1.35 billion) at end of 2016, representing an increase of 17.1 percent in dollar terms (but an increase of 17.1 percent in domestic currency terms over the period 201-2017. When compared to end of June 2017, a position of US$1.47 billion, an increase of 2.6 percent. The increase of 11.7 percent was as a result of improved net inflows from multilateral creditors particularly the International Monetary Fund (IMF) and the World Bank. The analysis is shown in Table 2.1 below

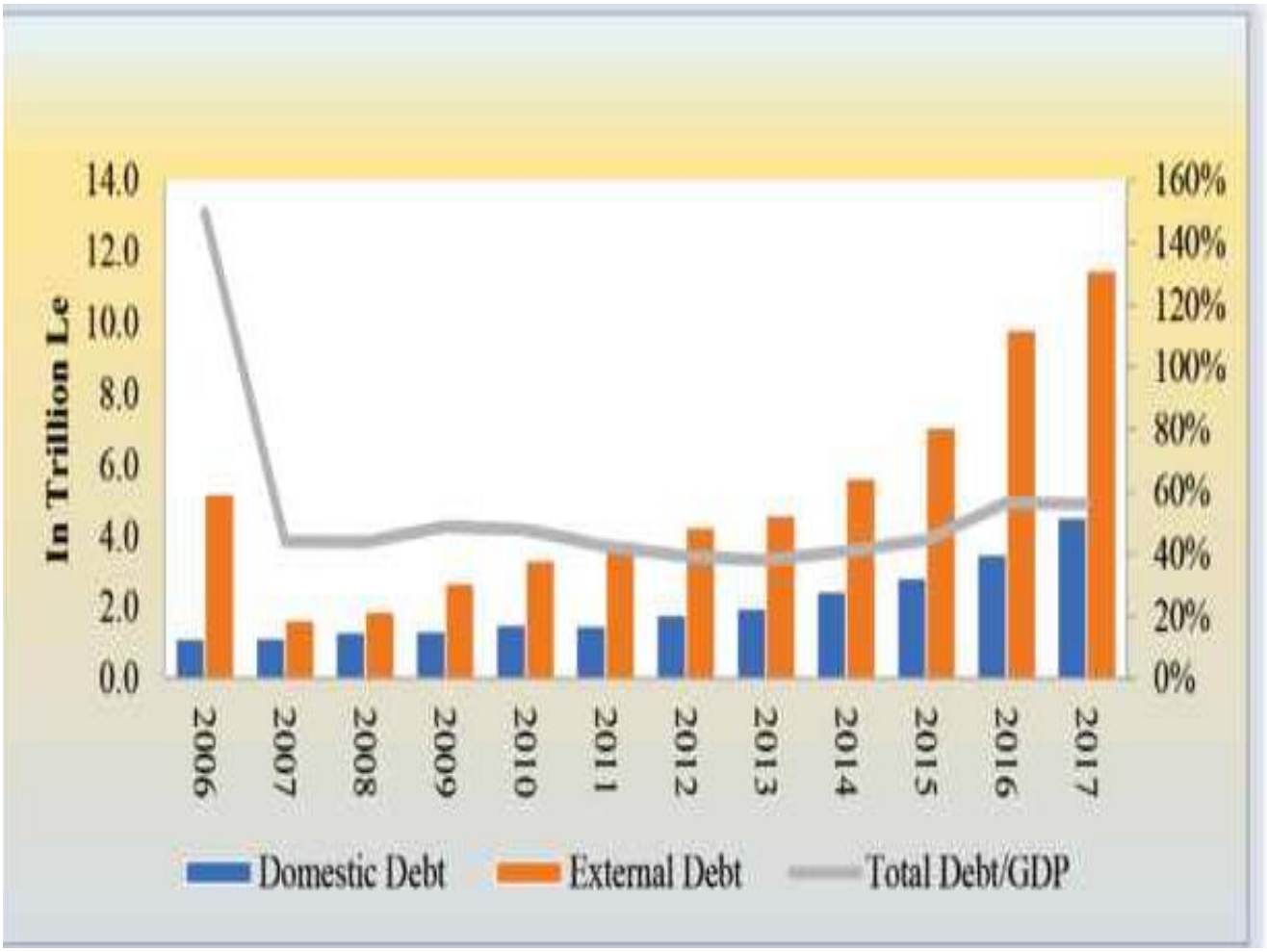
Table 2.1: External debt stock at end of 2017

Creditor	2014	2015	2016	June 2017	December 2017		% Change (2016-2017)
Total External Debt	**1127.76**	**1237.48**	**1349.00**	**1469.46**	**1507.48**	**100%**	**11.7%**
Of which:							
Multilateral	**766.80**	**879.67**	**974.31**	**1095.76**	**1134.83**	**75.3%**	**16.55**
World Bank	236.72	225.69	224.77	244.52	275.68	18.3%	22.6%
IMF	157.95	253.10	309.39	367.10	367.75	24.4%	18.9%
ADB	111.97	120.17	130.16	131.22	134.46	8.9%	3.3%
Other Multilateral creditors	260.16	280.72	309.98	352.92	356.94	23.7%	15.1%
Bilateral	**152.27**	**153.96**	**173.74**	**174.85**	**177.61**	**11.8%**	**2.2%**
Non-Paris Club	152.27	153.96	173.74	174.85	177.61	11.8%	2.2%

Commercial	**208.70**	**203.85**	**200.95**	**198.85**	**195.05**	**12.9%**	**-2.9%**

Source: Ministry of Finance, Republic of Sierra Leone

Figure 2.2: public Debt Stock and Key Ratios



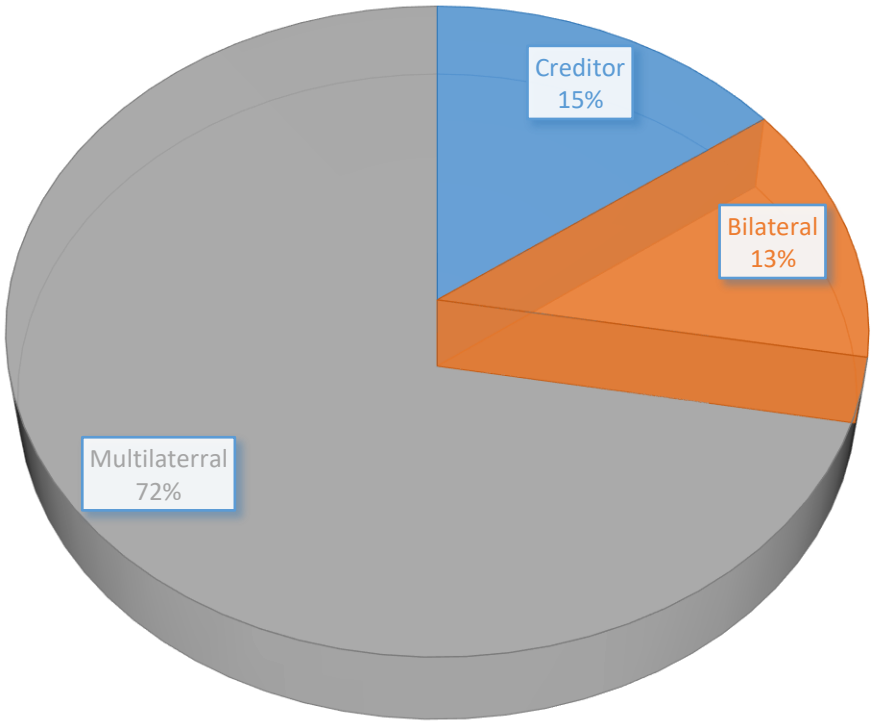
Source: Ministry of Finance, Republic of Sierra Leone

2.4.1 Debt Stock by Creditor Category

The share of multilateral debt continued to increase in the external debt portfolio accounting for 75.3% as at end of 2017; denoting a 3.1 percentage point increase from its share end of 2016. Debt owed to commercial creditors as of 2017 was 12.9 percent (US$ 195.05 million), indicting a decline of 2% from 14.9% as at end of 2016 to 12.9% as at

end of 2017. Bilateral creditors share of total external debt decreased by 1.1 percentage point (from 12.9 percent to 11.8 percent) by end of 2017 when compared to 2016. The figure below give a clear outlook of the situation.

Figure 2.3: External Debt Stock By Creditor Category



Source: Ministry of Finance

2.4.2 Overview of Sierra Leone Economic Growth and Debt Service

Sierra Leone GDP growth rate has been in a downward trend since the 1980s due to poor fiscal discipline at state level. The situation became exacerbated in the early 1990s when the decade civil war broke out in 1991, the trend continued to drop until 2005 when the GDP growth rate started experiencing an upward spiral growth which was largely due to

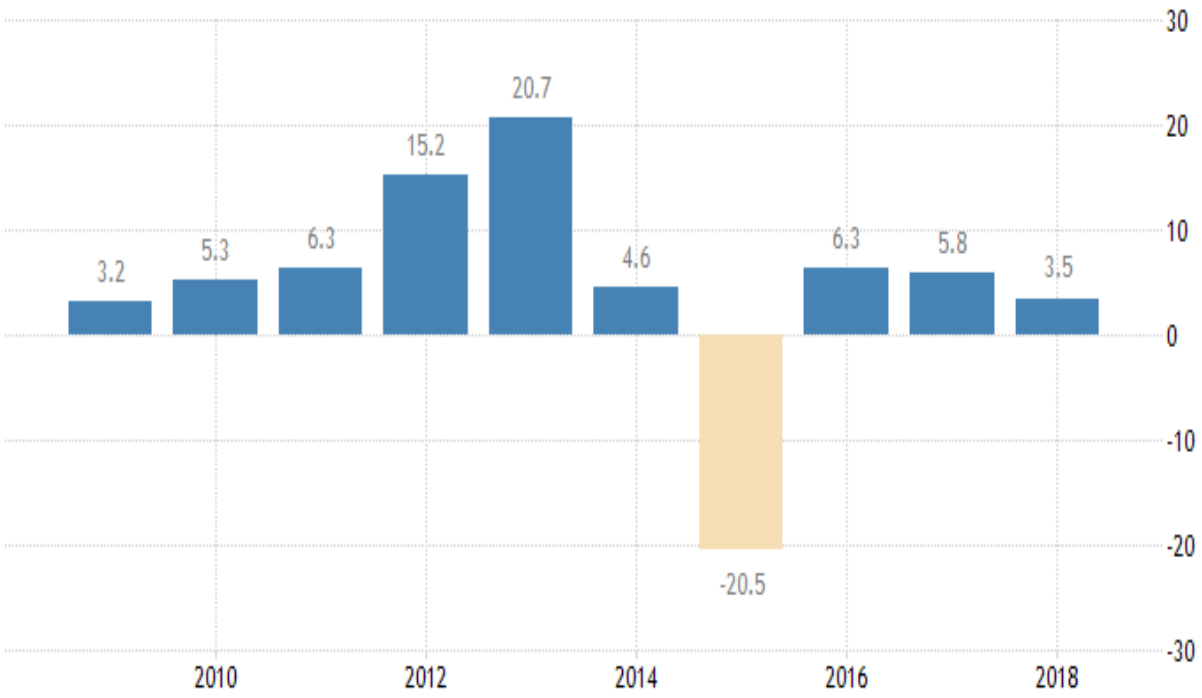
donor inflows as supports to rebuild the country's battered economy. Systems and infrastructure.

According to Muganda, (2004) one of the reason for the decline of GDP rate was due to the temporarily collapse of economic reforms in early 1980 which cause the reduction of donor support. Since 2002 which marked the end of the civil war, the economy of Sierra Leone was steadily growing until 2009 when it h=was again hit by the global recession. But it again bounced as a result of increase in World Market prices for iron ore, which became a key center of attraction with the mining concession given to London Mining and African Minerals companies. Meanwhile, it dropped again sharply in 2012 when there was a fall in the world market price for Iron Ore.

The economy picked up again in 2013 until the gains were again reversed by the outbreak of Ebola epidemic outbreak in 2014 that claimed more than 4,000 lives. Since then, there has been great challenges with the economy as inflation has past double digits for more than 15 months consecutively, and so the exchange rate is hiking.

After slowing to 3.5% in 2018 from 3.8% in the previous year, economic growth in Sierra Leone is projected to rebound to 4.8% in 2019 driven by increased activities in agriculture and construction as well as the resumption of iron ore production and exports. Growth in these labor-intensive sectors could make a dent on poverty which remains widespread in the country (more than half of the population lives in poverty, according to the latest Sierra Leone Integrated Household Survey (SLIHS)). The SLIHS 2018 will inform in the next few months the evolution of poverty in the country since 2011. Agriculture will continue to drive the non-iron ore gross domestic product (GDP) growth, with the sector expected to grow by 4.2% in 2019, spurred by increased investments and expansion in the crops, livestock and fisheries sub-sectors. The growth in services is expected to slow due to weaker performance in tourism, transportation and communication.

Figure 2.4: GDP growth rate trend



Source: World Bank source, 2014

There has been a fluctuating trend of Sierra Leone debt service, since 1990 the trend of debt service has been on increase up to the year 2002 where the trend started to decrease but there has been a slighter increase in 2012 and then the trends continued to increase in to date.

The decline of debt service payment can be explained by the existence of debt relief under Highly Indebted Poverty Countries initiatives whereby according to Nord et al., (2009) external debt service payments were cut off significantly by an average of nearly 50 percent over time.

2.5 Debt Sustainability

Sustainable debt is the level of debt which allows debtor countries to meet in full its current and future debt service obligation without recourse to further rescheduling or debt relief also avoiding accumulation of arrears at the same time allowing an acceptable level of economic growth.

Generally external debt sustainability analysis is conducted in the context of medium term scenarios. The scenarios involves numerical evaluation that takes into account the expectation of the behaviors of economic variables and other factors so as to determine the condition under which debt and other indicators would stabilize under reasonable levels, to determine the major risks of the economy and also to determine the need and scope of policy adjustments.(Arnone et al., 2005)

That why according to Financial Services Act 2012, the government of Sierra Leone is required to conduct annual Debt Sustainability Analysis (DSA) which will indicates the trend of various debt sustainability indicators including narration of economic situation in different scenarios for debt sustainability and recommended measure for maintaining sustainable level of debt.

2.5.1 Indicators of External debt Sustainability

The external Debt Sustainability Analysis (DSA) indicates that Sierra Leone's debt sustainability remains at moderate risk of debt distress in the baseline scenario. The dynamics of external debt accumulation are similar to the July 2016 update. The resumption of iron ore production in 2016 and associated export revenues have improved the PV of debt-to-exports and debt service-to-exports ratios. Both indicators remain well below their respective policy-dependent indicative thresholds throughout the projection period (2016–2036). Indicators related to fiscal revenue have moved closer to the thresholds. A combination of factors, including additional external borrowing in late 2016, and a more depreciated exchange rate, have all contributed to an increase of the Present Value of debt-to-revenue and debt service-to-revenue ratios. This breach, which is marginal, is temporary and largely attributable to the subdued revenue to GDP ratio

caused by the twin external shocks. The debt and debt service indicators are projected to decline steadily and stabilize in the medium term. However, there remains a substantial downside risk, particularly related to revenue and GDP growth projections.

There are various indicators which are primary in the nature of ratio where each of them has its own advantage and peculiarity to deal with the particular situation; they help to facilitates policy makers in their external debt management exercise. Some of those indicators are:

- Debt to GDP ratio
- Foreign debt to export ratio
- Government debt to current fiscal revenue ratio

There are also some of the indicators which focus on short term liquidity requirement of respective country with respect to its debt service obligation. Some of those indicators are:

- Debt service to GDP ratio
- Foreign debt service to export ratio
- Government debt service to current fiscal revenue ratio

These indicators acts as early warning signs of debt service problems and also are the highlight to the impact of inter temporal tradeoff arising from past borrowing (Roubini, 2001).

According to debt sustainability analysis of 2017, international standards was used to analyse the sustainability of debt which includes: the ratio of present value of public debt to Growth Domestic Product (GDP), the ratio of present value of external debt to exports and the ratio of total external debt services to revenue from exports. The results of this analysis show that national debt is sustainable because all indicators are below set international threshold. Even though now there is various debate and argument among some of politician, economist and news reporter concerning the truth behind national debt

sustainability, some of the report that shoved this issue into the spotlight like the one written by Awoko Newspaper in May 2018:'Debt Crisis Looms Large'.

According to world bank and IMF a country is said to achieve debt sustainability if can meets its current and future external debt service obligation in full, without recourse to debt rescheduling or the accumulation of arrears and without compromising growth. Most of sub Saharan Africans fail to reach sustainable level of manageable debt within reasonable time horizons, this influence IMF and World Bank together to form Heavily Indebted poor country (HIPC) debt initiatives in 1996. The aim of this initiative was to reduce the debt burden of HIP countries with the condition that they should adopt in a consistence, sensible and carefully way programmes of adjustments and reforms.

2.6 Theoretical Framework

In attempt to explain the subject of external debt various theories have been propounded by scholars, these theories are of relevance to the study because they serve as building block of the work.

2.6.1 The dual gap analysis

This model explains that development is the function of investment, such investment which requires domestic savings is not sufficient to ensure development to take place. There must be the possibility of obtaining from abroad the amount that can be invested to fill the gap. In national income accounting, an excess of investment over domestic saving is equivalent to excess surplus of import over export.

Income = consumption + import + savings
Output = consumption + export + investment
Income = output
Then Investment – Saving = Import – Export

This analysis assures that there is a country in need of savings and investment good import to achieve a particular rate of growth. If the available domestic saving fall short of the level necessary for the targeted rate of growth leads to the existence of savings investment gap similarly, if the maximum possible level of import requirement needed to achieve the growth target are greater than the maximum possible level of export then an export-import of origin exchange gap exist (Balago, 2014).

2.6.2 The Debt Overhang Theory

This theory refers to a situation where the debt stocks exceed the country repayment ability. Some of the returns from domestic economy are effectively taxed away by existing foreign creditors and investment by domestic and foreign investors will be discouraged and further deteriorate the level of economic growth (Claessens at al 1996).Therefore according to Were, (2001) the debtor country shares only partially in any increase in output and exports because a fraction of that increase will be used to service the external debt.

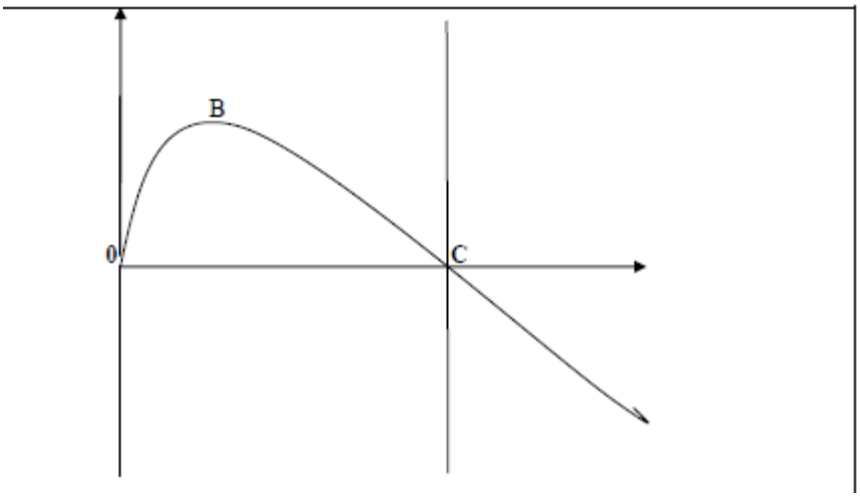
Accumulated debt stock reduces economic performance through debt overhang effect that means tax disincentive and macroeconomic instability. Tax disincentive means that a large debt stock discourages investment because potential investors assume that there would be taxes on future income in order to make debt repayment. While the macro economic instability relates to increase in fiscal deficit, possible monetary expansion and anticipated inflation (Claessens et al 1996).

2.6.3 The Debt Laffer curve theory

This theory was first introduced by Sachs (1989), he introduced the concept of debt Laffer curve through the theory of debt overhang and the logic behind it was perfected by Krugman (1989), according to these theory external debt could have positive impact on investment and growth (upward sloping) but if a country borrow too much and surpass a certain endogenous threshold of the level of debt then it may result to negative impact on economic growth (downward sloping).

According to Elbadawi et al., (1996) debt Laffer curve also implies that there is a limit at which debt accumulation stimulates growth.

Pattillo et al., (2002) in their study also confirm with the help of diagram below that when a country open up to foreign capital and start borrowing the impact of that debt on growth will likely be positive that means moving from zero indebtedness to point B as shown in the chart. But as debt increase beyond point B any additional debt will eventually slow down growth even though overall debt level continue to make positive contribution to growth and when the debt reaches point C the whole contribution of debt turns negative.



Source: Ministry of Finance (2018)

2.6.4 The Liquidity Constraint Hypothesis

This also refers to the situation where by an increase in external debt servicing reduce funds available for investment and growth, as the fact that will low the possibility of a country to service their debt and that will affect their ability to borrow further from external sources, putting pressure on domestic borrowing and lead to crowding out. Crowding out effect refers to a situation where by a nation's revenue which is obtained from foreign exchange earnings is used to pay up debt service payments.

This limits the resources available for use for the domestic economy as most of it is soaked up by external debt service burden which reduces the level of investment (Utomi,

2014). Also Were, (1996) comment that if greater portion of export revenue is used to service external debt, very little is available for investment and growth.
According to Cohen, 1993 a reduction in the current debt service should lead to an increase in current investment for any given level of future indebtedness.

2.7 Empirical Literature Review

Ajayi and Okei (2012) investigate the effect of external debt burden on economic growth and development of Nigeria they adopted the regression analysis of OLS, their finding indicates that external debt burden has an adverse effect on national income and per capital income of the nation Nigeria. They argue that high level of external debt led to the devaluation of national currency, increase in retrenchment of workers, continuous industrial strike and poor education system.
They further went on suggest that it all led to the depression of Nigeria economic growth, besides their finding they also suggest that debt service obligation should not be allowed to rise than foreign exchange earnings and also the debt contracted should be invested in profitable venture which will generate the reasonable amount of money for debt repayment. Also a study by (Ndungʻu, 1998) concluded that the external debt problem in Africa has led to an investment pause and has reduced growth performance.
Obademi (2013) empirically examines the impact of external debt on economic growth of Nigeria by using ordinary least square method. The empirical result shows that external debt has a negative effect on Nigeria economic growth while debt service has a positive significant influence on economic growth. Balago (2014) conduct a study to examine whether or not relationships exist between external debt and economic growth in Nigeria. The result of ordinary least square model showed that external debt has fairly significant positive relationship with economic growth.

A study by (Deshpande, 1997) assessing the impact of external debt on economic growth of 13 severely indebted countries for the period (1971 – 1991), showed a strong negative impact of external debt on investment although during the first half of the period (1975 –

1983), there were some favorable time factors that showed a strong positive effect of external debt on investment during the period in question.

Clements, Bhattacharya and Nguyen (2003) examine the channel through which external debt affect growth in low income countries. Their results suggest that the substantial reduction in the stock of external debt projected for highly indebted poor countries (HIPCs) would directly increase per capita income growth by about one percentage point per annum. They also suggest that reduction in external debt service could provide an indirect boost to growth through their effect on public investment, they further comment that if half of all debt service relief were channeled for that purpose without increasing the budget deficit will led to the acceleration of some HIPC growth by and addition of 0.5 percentage point per annum. Savvides et al. (1996) also studied the impact of external debt on economic growth had a negative but insignificant coefficient, indicating that the hypothesis of debt overhang effects could not be rejected.

A study conducted in Jordan for the period 1990-2011 by Abdelhadi (2013) found that there is positive and significant effect between external debt and economic growth. Debt servicing has negative and significant effect on economic growth of Jordan. The same result has also been found in Sierra Leone in the study conducted by Kasidi and Said (2013) for the period of 1990-2010 but there was no long run relationship between external debt and economic growth.

Nawaz, Qureshi and Awan (2012) conduct a study which attempts to examine the long run and short run dynamics of external debt and economic growth in Pakistan, they employed Johansen Cointegration and granger causality test. The results revel that there is a long run relationship between external debt and economic growth.

Ajao and Ogiemudia (2012) also conduct a research specific for Nigeria over the period of 1979-2009 to review the effect of foreign debt management on sustainable economic development. During their conduct the data analysis shows that access to external finances is strongly influence the economic development process of Nigeria and other nations as well. They use ordinary least squire multiple method and error correction model (ECM) to examine the relationship between external debt management and

economic development, determine the long run and short run dynamics among the relevant variables respectively. Their empirical results shows that there is significant relationship between external debt and economic development in Nigeria also external debt stock contributes significantly to Nigeria GDP while debt servicing has a negative significant impact on Nigeria GDP.

Their result also went further to reveal that external debt and debt servicing had a mix delay effect on Nigeria economy. They comment that debt can only be productive only if is well managed in an environment with sound macroeconomic policies which is an important prerequisite for development of an economy. Also in a study by (Audu, 2004), it was discovered that debt servicing has had significant adverse effect on the growth process in Nigeria.

Gana (2002) used empirical models to evaluate the impact of external debt and debt servicing on the country‟s economic growth. The study found out that economic growth is negatively affected by the accumulation and servicing of external debt. This is centered on the fact that the accumulation of foreign debt puts pressure on economic growth through withdrawal of foreign exchange earnings required for investment. The empirical study by (Green & Villaneva, 1991) covering twenty (20) developing countries in the period between 1975 and 1987 also found out that the ratio of debt to GDP and debt service ratio significantly and negatively affects private investment.

Were (2001) using time series data the empirical results shows that Kenya external debt accumulation has negative impact on economic growth and private investment, this confirm the existence of debt overhang problem in Kenya. The result also indicate that current debt inflow stimulate private investment and the study did not find any adverse impact of debt serving on economic growth but have some crowding out effect on private investment. Also Shabbir (2009) taking data set from 24 developing countries from the period of 1976-2003 focusing on whether external debt stock and debt serving lead to crowding out effect. The result was consistent with both debt overhang theory and liquidity constraint hypothesis, suggesting that external debt stock adversely affect economic growth and higher level external debt stock leads to crowding out. However

Ejigayehu (2013) found that external debt affect economic growth of selected heavily indebted poor African countries by debt crowding out effect rather than debt overhang. Theoretical and empirical literature shows that external debt has effect on economic growth, but the findings are not definite because of mixed results. For instance a country like Nigeria there are many studies conducted in this area but every study comes with different results, other study found positive effect other found negative effect, significant and not significant effect. Therefore it is difficult to conclude whether external debt has positive, negative or any significant effect on economic growth. This gap forms a basis for this study.

2.8 The Conceptual Framework

2.8.1 External Debt

External refers to the portion of country debt that was borrowed from foreign lender including commercial banks, governments or international financial institution. Concerning stocks there is a major distinction made between disbursed and undisbursed debt, where by undisbursed consist of mere commitment made by lenders not accumulating interest while disbursed consist of commitment made by lenders that have been drawn on and have accumulated unpaid interest (Eaton, 1993).

External debt is acquired in order to finance budget deficit and speed up economic activities. A country can have high external debt but as long as it is supported with higher level of export can sustain their level of external debt, but if external debt is not sustainable may affect the economic prosperity (Shabbir, 2009). Theoretical external debt is expected to be either positively or negative related with economic growth depending on the usage of such external debt and it is also used as a proxy for capturing external debt burden .This study intends to find the effect of external debt on economic growth in Sierra Leone.

2.8.2 Total Debt Service Payment

Debt service refers to the total cash that is required for a particular time period to cover the repayment of interest and principal on debt. Borrower future savings must cover the interest and principal payment, therefore debt finance investment must be productive and well managed in order to earn a rate of return higher than cost of debt servicing less than that foreign earning will be appended on debt servicing and thus cause some setbacks in the economy. This report is also intended to look on the impact of debt service payment on economic growth in Sierra Leone. Theoretical debt service is expected to be negatively related to economic growth and it is used as a proxy for capturing external debt burden.

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology that was used in order to meet the objectives of this study; it consists of research design, type of the study, area of study, population, sample size and sample technique, source of data, data analysis and model specification.

3.1 Research Design

The study assessed the effect of external debt on economic growth of Sierra Leone. This phenomenon requires quantitative research design in order to be correctly examined. This is due to the fact that the relationship between external debt and economic growth of Sierra Leone needs to be tested using various econometric tools as explained in the data analysis part. These tools are used with quantitative research that is why this study used the quantitative research design.

3.2 Type of the study

Building on the existing theoretical and empirical literature, this study perceived a causal effect relationship between external debt and economic growth in Sierra Leone. Therefore, exploratory causal study was adopted to investigate the effects of external debt on economic growth in Sierra Leone. Econometric approach was adopted in analysing data, estimation of the model consisted of the ordinary least square (OLS) and Johansen test for cointegration.

3.3 Area of the Study

The study was conducted in Freetown, Western Area Urban, the Republic of Sierra Leone; this is because Sierra Leone is also one of the sub Saharan Africa countries which experiences increase in the level of external debt.

3.4 Population

All elements that were recorded in this study form the population, the time period of the study cover a period of 27 years from 1990 to 2017.

3.5 Sample size and sampling technique

For the purpose of this study, the sample will be taken from yearly range data of 1990-2017, this period has been chosen because of its availability. The number of observations for single variable was 20 observation while the total sample was 70 observation.

3.6 Types and Source of Data

According to Krinshnaswanm (1993) data are facts, figures and other element materials past and present serving as bases for the study and analysis. The main source of the data collected was secondary data. Secondary data refer to information gathered by someone other than the researcher conducting the current study. Such data can be internal or external to the organization and accessed through the internet or perusal of recorded or published information. There are several sources of secondary data, including books and periodicals, government publications of economic indicators, census data, data bases etc., (Sekaran, 2003).

Data was collected from World Bank Indicators, IMF, BSL and Ministry of Finance economic reports, publications and websites.

3.7 Data Analysis

The data was analysed using SPSS computer software because of its ability to help researchers to analyse research easily and efficiently (Baum, 2006). The method of analysis of the study will be Ordinary Least Squares method (OLS) in order to capture the effect of external debt on economic growth, where by multiple regressions includes GDP growth rate as the dependent variable, external debt and debt service as the independent variables.

In order to determine the long run relationship of variables the study employed Johansen Co-integration test. The main aim of cointegration was to examine the existence of a long run relationship between or among variables (Johansen, 1988, and Johansen and Juselius, 1990).

3.8 Model Specification

The main aim of this study is to examine the Impact of External Debt on Economic Growth in Sierra Leone. The model is adopted from a simple open macroeconomic debt growth model employed by (Boboye and Ojo, 2012). The model is specified of the functional form:

RGDP = f (EDS, DSP, EXR)

Where:
RGDP = Real Gross Domestic Product
EDS = External Debt Stock
DSP = External Debt Service Payments
EXR = Official Exchange Rate

The model is specified of its stochastic form:
$RGDP = \alpha 0 + \alpha 1\ EDS + \alpha 2\ DSP + \alpha 3\ EXR + \mu$…….. (1)

Where:
μ = Error term
The model is specified of its log-linear form:
$Log\ RGDP = \alpha 0 + \alpha 1\ Log\ EDS + \alpha 2\ Log\ DSP + EXR + \mu$
$\alpha 1, \alpha 2 < 0, \alpha 3 > 0$

Real Gross Domestic Product is a measure that reflects the value of goods and services produced in a given year. It is used to capture economic growth in this study because it is adjusted for inflation and as such provides a more accurate figure.

External Debt Stock is the amount at which the debt was contracted and it is used as a proxy for capturing external debt burden. The a priori expectation is a negative relationship between Real Gross Domestic Product and External Debt Stock i.e. the higher the external debt stock, the lower the economic growth.

External Debt Service Payments is the amount used in repaying the external debt. It is also used as a proxy for capturing external debt burden. The a priori expectation is a negative relationship between Real Gross Domestic Product and External Debt Service Payments i.e. the higher the debt service payments, the lower the economic growth.

Exchange rate is the price of a nation's currency in terms of another currency. It is included in the model because it is a macroeconomic indicator and it is also a monetary aggregate in the open economy. The a priori expectation is a positive relationship between Real Gross Domestic Product and Exchange Rate i.e. the higher the exchange rate, the higher the economic growth.

Real Gross Domestic Product (RGDP), External Debt Stock (EDS) and External Debt Service Payment (DSP) were logged due to the large nature of their values. Exchange Rate (EXR) was not logged because it is a rate.

3.8.1 Techniques of Estimation

Time series data covering a period of 35 years will be estimated using Co-integration technique of analysis which is an improvement on the classical ordinary least square technique (OLS). This technique was chosen as it depicts long-run economic growth. The following techniques of estimation are employed in carrying out the co-integration analysis:

❖ **Unit Root Test**

This is the pre Co-integration test. It is used to determine the order of integration of a variable that is how many times it has to be differenced or not to become stationary. It is to check for the presence of a unit root in the variable i.e whether the variable is stationary or not. The null hypothesis is that there is no unit root. This test is carried out using the Augmented Dickey Fuller (ADF) technique of estimation. The rule is that if the ADF test statistic is greater than the 5 percent critical value we accept the null hypothesis i.e the variable is stationary but if the ADF test statistic is less than the 5 percent critical value i.e the variable is non-stationary we reject the null hypothesis and go ahead to difference once. If the variable does not become stationary at first difference we difference twice. However it is expected that the variable becomes stationary at first difference.

❖ **Co-integration**

After the test for the order of integration, the next step is to test for co-integration. This test is used to check if long run relationship exists among the variables in the model (Ogundipe and Alege, 2013). This will be carried out using the Johansen technique.

❖ **Vector Error Correction Model**

The Vector Error Correction Model (VECM) shows the speed of adjustment from short-run to long run equilibrium. The a priori expectation is that the VECM coefficient must be negative and significant for errors to be corrected in the long run. The higher the VECM, the more the speed of adjustment.

❖ **Causality Test**

This is used to check for causality between two variables. In this case our aim is to test for a causal relationship between external debt and economic growth. The rule states that if the probability value is between 0 and 0.05 there is a causal relationship.

CHAPTER FOUR
DATA ANALYSIS & INTERPRETATION

4.1 Introduction

This research seeks to examine the impact of external debt on economic growth in Sierra Leone. This chapter therefore comprises of the data presentation, estimation and results of the empirical investigation carried out. It also addresses the relationship between external debt and economic growth in Sierra Leone in the long run. This chapter is further divided into trend analysis which shows the trend of the time series data used from 1980-2012, descriptive analysis which contains the measures of central tendency which include mean, mode, median as well as measures of variation and other statistical characteristics of the variables and econometric analysis which focuses on test for unit root, Johansen test for Co-integration and the Vector Error Correction Model.

4.2 Descriptive Analysis

Table 4.1 Summary Statistics

	LOGRGDP	LOGEDS	LOGDSP	EXR
Mean	25.01779	23.64674	21.20781	60.35574
Median	24.84953	24.09121	21.32917	21.89526
Maximum	25.92126	24.32575	22.89883	156.8097
Minimum	24.50055	22.07466	19.52813	0.546781
Std. Dev.	0.426032	0.702388	0.801066	61.32168
Skewness	0.89271	-1.021253	-0.423066	0.386206
Kurtosis	2.356233	2.726036	3.181802	1.343738
Jarque-Bera	4.95297	5.839469	1.029861	4.592259
Probability	0.084038	0.053948	0.597542	0.100648
Sum	825.587	780.3424	699.8578	1991.739

Sum Sq. Dev.	5.808109	15.78718	20.5346	120331.2
Observations	33	33	33	33

Source: World Economic Indicators

Mean is the average value of the series which is gotten by dividing the total value of the series by the number of observations. From the above table, the mean for LOGRGDP (Real Gross Domestic Product), LOGEDS (External Debt Stock), LOGDSP (Debt Service Payments) and EXR (Exchange Rate) are 25.01779, 23.64674, 2120781 and 60.35574 respectively.

Median is the middle value of the series when the values are arranged in an ascending order. From the table the median for LOGRGDP, LOGEDS, LOGDSP and EXR are 24.84953, 24.09121, 21.32917 and 21.89526 respectively.

Maximum and minimum are the maximum and minimum values of the series the series in the current sample. The maximum and minimum values for LOGRGDP, LOGEDS, LOGDSP and EXR are 25.92126 & 24.50055, 24.32575 & 22.07466, 22.89883 & 19.52813 and 156.8097 & 0.546781 respectively.

Standard Deviation is a measure of spread or dispersion in the series. From table above the standard deviation for LOGRGDP, LOGEDS, LOGDSP and EXR is 0.426032, 0.702388, 0.801066 and 61.32168 respectively.

Skewness is a measure of asymmetry of the distribution of the series around its mean. The skewness of a normal distribution is zero. Positive skewness implies that the distribution has a long right tail and negative skewness implies that the distribution has a long left tail. From the above table we observe that LOGRGDP and EXR both have positive skewness and as such they have long right tails whereas LOGEDS and LOGDSP have negative skewness therefore they have long left tails.

Kurtosis measures the peakedness or flatness of the distribution of the series. If the kurtosis is above three, the distribution is peaked or leptokurtic relative to the normal and if the kurtosis is less than three, the distribution is flat or platykurtic relative to normal. From table 4.1 above only LDSP exceeds three therefore it is peaked or leptokurtic while LOGRGDP, LOGEDS and EXR are below three therefore they are flat or platykurtic. Jarque-bera is a test statistic to test for normal distribution of the series. It measures the difference of the skewness and kurtosis of the series with those with normal distribution. From the table above the Jarque-bera for LOGRGDP, LOGEDS, LOGDSP and EXR are 4.95297, 5.839469, 1.029861 and 4.592259.

4.3 Econometric Analysis

4.3.1 Unit Root Test

This test tries to examine the property of the variables. It is used to check for the presence of a unit root i.e. no stationarity of the variables. This test is carried out using the Augmented Dickey Fuller (ADF) test. This is the first test carried out in the Co-integration analysis and is known as the pre Co-integration test.

Table 4.2 Test for Stationarity

	AT LEVELS				At 1st Difference				
Variables	**ADF Test statistic**	**Critical Value at 5%**	**Lag**	**Remarks**	**ADF Test Statistic**	**Critical Value at 5%**	**Lag**	**Remarks**	**Order of Integration**
LRGDP	1.972910	-2.957110	0	NS	-4.544087	-2.960411	0	S	I(1)
LEDS	-1.950507	-2.960411	1	NS	-3.890507	-2.960411	0	S	I(1)
LDSP	-1.642663	-2.957110	0	NS	-4.851131	-2.963972	1	S	I(1)
EXR	-5304134	-2960411	0						I(0)

The a priori expectation when using the ADF test is that a variable is stationary when the value of the ADF test statistic is greater than the critical value at 5%. None of the variables used met this a priori expectation at levels except exchange rate (EXR) as they were non-stationary (NS) and as such were differenced once to become stationary (S). Thus LRGDP, LEDS and LDSP integrated of order one while EXR is integrated of order zero.

4.3.2 Johansen Co-integration test

The co-integration test is used to check for long run relationship between the dependent and independent variables (Ogundipe and Amaghionyeodiwe, 2013). The co-integration test was carried out using the Johansen technique and it produced the following results:

Table 4.3 Test for Johansen Co-integration Using Trace Statistic

Hypothesized No. of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.808381	86.82273	63.87610	0.0002
At most 1	0.466610	35.60317	42.91525	0.2211
At most 2	0.306475	16.11962	25.87211	0.4830
At most 3	0.142745	4.774616	12.51798	0.6290

From the above table the trace indicates one co-integrating equation at 5 percent level.

Table 4.4 Test for Johansen Co-integration Using Max-Eigen Value

Hypothesized No. of CE(s)	**Eigen Value**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.808381	51.21956	32.11832	0.001
At most 1	0.466610	19.48355	25.82321	0.2740

At most 2	0.306475	11.34501	19.38704	0.4784
At most 3	0.142745	4.774616	12.51798	0.6290

From the above table the Max-Eigen value indicates one co-integrating equation at 5 percent level. Based on the above tables we reject the null hypothesis of no co-integrating equations.

Table 4.5 Long run Normalized Co-integration Estimates

LRGDP	**LEDS**	**LDSP**	**EXR**
1.000000	0.060263	0.723011	-0.006284
	(0.05932)	(0.08449)	(0.00146)
	[1.01589]	[8.55736]	[4.30411]

The above table shows the normalized co-integration co-efficients with the standard error and t-statistic in parentheses ( ) and [ ].

There is an inelastic relationship between LRGDP and LEDS. A unit change in LEDS will bring about a less than proportionate change in LRGDP. The t-statistic shows the significance of the independent variable with respect to the dependent variable in the long run. The rule of thumb for t-statistics states that $t \geq 2$ is significant. Therefore LEDS is statistically insignificant at 1.01589.

There is an inelastic relationship between LRGDP and LDSP. A unit change in LDSP will bring about a less than proportionate change in LRGDP. The rule of thumb states that $t \geq 2$ is significant. Therefore LDS is statistically significant at 8.55736.

There is positive relationship between LRGDP and EXR. A unit increase in EXR will bring about a 0.006284 increase in LRGDP. This meets a priori expectation of a positive relationship between exchange rate and economic growth. The rule of thumb states that t $\geq$ i2. Therefore EXR is statistically significant at 4.30411.

4.3.3 Error Correction Estimates Using Vector Error Correction Model

Table 4.6 Table Showing Vector Error Correction Estimates

Error Correction	**D(RGDP)**	**D(LEDS)**	**D(LDSP)**	**D(EXR)**
CointEq1	0.292245	-0.221313	0.999894	-16.97928
	(0.10918)	(0.37499)	(0.80216)	(25.6926)
	[-2.67664]	[-0.59018]	[1.24649]	[-0.66086]

The above table contains the vector error coefficient estimates and standard and t-statistic are in parentheses. The a priori for the vector error correction coefficient (alpha) is that it must be negative. The alpha meets this expectation and this implies that 29.2245 percent of the errors are corrected in the long run.

4.3.4 Granger Causality Test

Table 4.7 Test for Causality

Null Hypothesis	**Observations**	**F-Statistic**	**Prob**
LEDS does not Granger cause LRGDP	32	5.65990	0.0242
LRGDP does not Granger cause LEDS		6.91967	0.0135
LDSP does not Granger cause LRGDP	32	0.04306	0.8371
LRGDP does not Granger cause LDSP		5.75002	0.0231
EXR does not Granger cause LRGDP	32	13.5768	0.0009
LRGDP does not Granger cause EXR	0.07278		0.7892
LDSP does not Granger cause LEDS	32	7.11542	0.0124
LEDS does not Granger cause LDSP		13.9911	0.0008
EXR does not Granger cause LEDS	32	4.93139	0.0343
LEDS does not Granger cause EXR		0.22009	0.6425
EXR does not Granger cause LDSP	32	1.89008	0.1797
LDSP does not Granger cause EXR		1.68736	0.2042

Our focus is on the causal relationship between external debt and economic growth (LRGDP). The null hypothesis states that LEDS does not Granger cause LRGDP and LRGDP does not Granger cause LEDS. The rule of thumb states that the probability of F-statistic must be less than 0.5 to show causal relationship. The probabilities for our causal variables Real Gross Domestic Product and External Debt Stock are 0.0242 and 0.0135. Therefore we reject the null hypothesis and conclude that a bi-directional causal relationship exists between external debt and economic growth in Sierra Leone.

4.4 Conclusion

This chapter focused on the data analysis and interpretation. It highlighted the descriptive analysis which contained a summary of data statistics. Next was the empirical analysis where unit root, co-integration and vector error correction tests were carried out. The Augmented Dickey Fuller (ADF) test was used to check for stationarity (presence of a unit root) and to what degree. The test revealed that all the variables were stationary at first difference except exchange rate which was stationary at levels. The Johansen Co-integration test showed long run relationship among the variables and as such the normalized coefficients were interpreted. There is an inelastic relationship between External Debt Stock and Real Gross Domestic Product, External Debt Services Payments and Real Gross Domestic Product and a positive relationship between Exchange Rate and Real Gross Domestic Product which met the a priori expectation. The t-statistic revealed a significant relationship between Real Gross Domestic Product and Debt Service Payments, Exchange Rate and an insignificant relationship between External Debt and Real Gross Domestic Product. The Vector Error Coefficient of concern showed that about 29.2245 percent of the errors will be corrected in the long run and as such there is a convergence. Also the Granger Causality test revealed that there External Debt Stock causes Economic Growth and vice versa thus a bi-directional relationship exists between them.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Empirical Results

The study evaluated the relationship between public debt and economic growth of Sierra Leone over the period 1980 to 2015. The aim of the study was to analyse the growth effect of public debt stock as well as its impact on empirical determinant of economic growth. In order to understand the extent of the debt burden, the study also analysed the impact of a rising public debt stock on public debts service. The huge public debt accumulation recorded in the last two decades, coupled with low and sometimes negative growth rates prompted the need to undertake this study. This brought about a number of findings and these findings will provide recommendations for managing the debt situation in Sierra Leone all of which are outlined in this chapter.

5.1.1 Growth Model

The study analysed both the short-run and long-run impact of growth on economic growth using a VAR framework to take into account feedback effects between public debt and economic growth. On the basis of cointegration among variables which indicates a long-run relationship, a VECM was applied to analyse both the short-run and long-run dynamics of the model. VEC based granger non-causality test was also applied to investigate the presence of causality and direction of causality in the model.

The outcome of the analysis shows that all the explanatory variables had their prior expectation. Observing the variables of interest, shows that public debt and economic growth has a negative long-run stable equilibrium. The long-run elasticity which indicate the extent of the impact of public debt stock on real growth show that an increase in the stock of public debt results in a reduction in real growth. The model also shows the presence of short-run feedback effects running from economic growth to public debt while in the long-run, public debt is said to have a significant negative impact on growth.

Additionally, the empirical analysis carried out revealed a significant long run relationship between real gross domestic product (LRGDP) and external debt service payments (LDSP) and Real Gross Domestic Product exchange rate (EXR) and an insignificant long run relationship between LRGDP and external debt stock (LEDS). Also the Granger causality test showed that external debt (LEDS) Granger causes economic growth (LRGDP) and economic growth (LRGDP) Granger causes external debt (LEDS).

5.1.2 Public Debt Model

Theoretical argument inferring to growth effects of public debt asserts that the impact of public debt on growth is not explicit (Mankiw, 1956). The effects are however indirect through the empirical determinants of growth namely investment, domestic savings, interest rates and total factor productivity. The study employed the public debt model to analyse the impact of public debt on growth focusing on investment disaggregated into Public and Private Investment and Domestic Savings. Public Debt Service was also included to help understand the debt burden effects in Sierra Leone.

The result of the Public Debt model shows that all the variables had their expected signs and had significant long-run impact on public debt.

The result shows an inelastic relationship between Real Gross Domestic Product and External Debt Stock. A unit change in external debt will bring about a less than proportionate change in real gross domestic product.

There is an inelastic relationship between Real Gross Domestic Product and External debt service Payments. A unit change in external debt service payments will bring about a less than proportionate change in real gross domestic product.

There is a positive relationship between Real Gross Domestic Product and Exchange rate. A unit crease in exchange rate will bring about an increase in real gross domestic product.

The estimates of the short-run and long-run granger non-causality test were also insightful for policy. This outcome is important to note as continuous depreciation of the Leones would have a compounding effect on the stock of public debt and increase the debt burden. The cost relating to exchange rate variations would further worsen the debt

burden for Sierra Leone. A bi-directional granger-causality is however evident between Public Debt and Public Debt Service respectively showing a compounding effect of arising public debt stock. This outcome indicates a rising debt burden for Sierra Leone which can consequently hamper growth.

5.2 Policy Implication of Results

The significance of the results in this study gives strong foundation to guide policy in the area of public debt management in Sierra Leone.

The long-run inverse relationship between public debt and economic growth calls for policies that will promote conservative borrowing in order to reduce the negative growth effects of public debt on the economy. In this regard, government should come up with policies aimed at broadening the tax base to reduce the deficit which is financed by debt. There is also need for a public debt law to ratify any borrowings requirements. This will help to monitor all borrowings and ensure that all borrowings are directed towards the financing of capital projects that contributes to economic growth. Insight from the long-run causality between Public Investment and real GDP as well as the short-run causality from Government Expenditure and real GDP helps to explain that public debt is not the only factor affecting the output level in Sierra Leone.

As indicated in the long-run equation, Public Investment has a significant positive impact on growth which outweighs the negative impact of Public Debt on growth. Due to this positive effect of public investment and other factors not captured in the model, Sierra Leone economy has been recording positive growth 2013 until the Ebola disease outbreak in 2014. To reverse the negative effects of a growing public debt stock, government can enhance public investment in capital projects such as roads, hydro plants and human capital development to attract private participation, and thus increase its revenue base. The results also indicates long-run private investment has been affected by the crowding out effect of huge borrowings by the government on the domestic market. This phenomenon can be explained by Commercial Banks' preference to lend to government at high yield rates thus making the cost of capital expensive for local investors. As argued

by (Mankiw, 1956), private capital is an important determinant of economic growth but as the crowding out effect becomes greater, its contribution to GDP consequently reduces. When private sector returns are falling, government's domestic tax revenue and export receipts are also likely to fall, leading to the widening of the fiscal gap. If no proper measure are put in place the fiscal gap is likely to necessitate more borrowing. In the long-run the issue of affordability and debt sustainability are likely to evolve. Government should therefore minimize its dominance on the domestic market so as to build up savings for investment funds which will consequently result in lower interest rates.

The positive effect of public debt on public investment can help explain the government's investment in capital projects such as roads and hydro-power which consequently crowds in private participation and thus contributing to economic growth. Government should therefore target debt financing towards capital projects in order to enhance the crowding in of private sector participation.

The study also reviewed that the feedback effects are strong between public debt and public debt service. This outcome confirms that both public debt and public debt service can have a compounding effect on the current stock which could result in debt overhang. Implying that, as public debt stock increases, the debt service also increases. To meet debt service obligation, a large component of tax revenue in this case has to be diverted from important sectors which would have positive effects on growth. As a policy measure, an increase in public investment and widening of the tax base as explained above would reduce the incident of debt overhang.

The inverse causality effect between the stock of public debt, public debt service with exchange rates respectively indicates that as the exchange rate depreciates by one-dollar, the local currency equivalent of foreign public debt stock rises proportionately and the cost of the foreign component of public debt equally increases. The long-run inverse relationship therefore indicates that currency variation can have an adverse implication on the stock of public debt, more so, if the large component of public debt is held in foreign currency. This scenario indicates the importance of government putting in place a

public debt management strategy that is aimed at minimising the risks and costs associated with exchange rate variations.

5.3 Conclusion

This study evaluated the impact of external debt on economic growth in Sierra Leone. The study sought out to find a significant long run and causal relationship between external debt and economic growth. Real gross domestic product was used as a proxy for economic growth which is the dependent variable while external debt stock, external debt service payments and exchange rate were the independent variables. External debt stock and external debt service payments were used to capture the external debt burden in Sierra Leone.

The Johansen co-integration test was used to test the first hypothesis of no long run relationship between external debt and economic growth. The null hypothesis was accepted as the results showed no long run relationship between external debt and economic growth. The Granger causality test was used to test the second null hypothesis of no causal relationship between external debt and economic growth in Sierra Leone. The null hypothesis is rejected as the results show that there exist bi-directional causal relationship between external debt and economic growth. Based on these findings recommendations were given.

5.4 Recommendation

Based on the above findings, the following recommendations are given:

Firstly, external debts should be contracted solely for economic reasons and not for social or political reasons. This is to avoid accumulation of external debt stock overtime and prevent an obscuring of the motive behind external debt.

Secondly, the authorities responsible for managing Sierra Leone's external debt should adequately keep track of the debt payment obligations and the debt should not be allowed to pass a maximum limit so as to avoid debt overhang.

Lastly the Sierra Leone government should promote exportation of domestic products as a high exchange rate will make our goods more attractive in the foreign market and will increase foreign exchange earnings.

5.5 Suggestions for Further Research

An aspect worthy noting in this study is the dearth of data necessary to carry out an econometric analysis especially using co-integration procedure. The country needs to seriously embark on putting in place a reliable macro-economic database to support more research necessary to provide policy guidance. Efficient management of public debt statistics would also warrant efficient estimation of results to support policy recommendation necessary to ensure that the progression of Sierra Leone's public debt is maintained within a sustainable path. The presence of a negative long-run relationship of public debt and its effect on the economic growth indeed gives credence to the need for undertaking further research in this area, in particular to determine what drives the increase in public debt with a focus on policy recommendations and debt management strategies that tend to have a bearing on government borrowing.

Another important aspect for future research is the quality of the legal and institutional framework as it relates to efficient management of public debt. Emphasis on undertaking the future research in this area is premised on the fact that the current existing structures for managing public debt in Sierra Leone have serious weakness to warrant effective and efficiency public debt management.

Since this study focused on the impact of the stock of total public debt on economic growth, it would be important for future research to decompose the public debt into domestic and external to see how each component affects Sierra Leone's growth rate.

5.5 Limitations of Study

The researcher faced challenges in acquiring secondary data on some variables for Sierra Leone and as such these variables were exempted from the model. Notwithstanding this challenge, a national identity model was instead used on the basis of literature review.

Most of the data on Sierra Leone using both the African Development Indictors and the World Bank Development Indicators spans from 1980 while data for 2015 were used. Not so many studies have been done on Public debt in this area as such this research was mainly guided by literature review from studies focusing on either public external debt or public domestic debt.

A further limitation in undertaking this research and also future research is lack of a comprehensive database covering information for a long period of time. One has to rely on other data base from the internet in particular the World Development Indicators, ADI and OECD that had series which was not consistent.

REFERENCES

Adejuwon, K.D., James K.S. and Soneye, O.A. (2010). ”Debt Burden and Nigerian Development”. *Journal of Business and Organisational Development.* Vol.2.

Adepoju, A.A, Salau, A.S and Obayelu, A.E (2007). “The Effects of External Debt Management on Sustainable Economic Growth and Development: Lessons from Nigeria”. *Munich Personal RePEC Achieve (MPRA).* Paper No. 2147.

Adesola, W.A. (2009). “Debt Servicing and Economic Growth and Public Investment: The Case of Nigeria”. *Journal of Social Sciences.* 8(2).

Ahmed, A. (2014). “Short and Medium Term Approaches to Solving African Debt Problems”. *Central Bank of Sierra Leone Bullion.*

Ajayi, K (2000). “The Feasibility of Democracy in Africa”. *Dakar: CODESRIA Books.*

Aluko, F. and Arowolo, D. (2010). “Foreign Aid, the Third World Debt Crisis and the Implication for Economic Development: The Nigerian Experience”. *African Journal of Political Science and International Relations.* 4(4), 120-127.

Amin, S. (1976). “Unequal Development: An Essay on the Social Formations of Peripheral Capitalism”. New York: *Monthly Review Press.*

Audu, Isa (2004). “The Impact of External Debt on Economic Growth and Public Investment: The Case of Nigeria”. *African Institute for Economic Development and Planning (IDEP) Dakar Senegal.* http://www.unidep.org

Ayadi, F.S (2009). The Impact of Debt Servicing Requirements on Kenya’s Economic Development..

Ayadi, F.S and Ayadi, F.O (2008). “The Impact of External Debt on Economic Growth: A Comparative Study of Nigeria and South Africa”. *Journal of Sustainable Development in Africa.* 10 (3).

Chenery, H.B. and Strout, A. (1966). “Foreign Assistance and Economic Development”. *American Economic Review.* Vol.56, 679-733.

Clements, B., Bhattarcharya, R. and Nguyen, T.Q. (2003). “External Debt, Public Investment and Growth in Low Income Countries”. *IMF Working Paper No. 03/249.*

Cohen, D. (1993). Low Investment and Large LCD Debt in the 1980’s. *The American Economic Review.* 18 (3).

Debt Management Office of Ghana (DMO) (2012).

Ejigayehu, D.A. (2013). “The Effect of External Debt in Economic Growth”. *Journal of the Department of Economics Sodertorn University.*

Ekperiware, M.C. and Oladeji, S.I. (2012). "External Debt Relief and Economic Growth in Zimbabwe". *American Journal of Economics.* 2(7).

Faraji Kasidi and Makame Said, A. (2013). "Impact of External Debt on Economic Growth: A Case Study of Tanzania". *Advances in Management and Applied Economics.* 3(4), 59-82.

Folorunso, S. Ayadi and Felix, O. Ayadi (2012). "The Impact of External Debt Economic Growth: a Comparative Study of Nigeria and South Africa". *Journal of Sustainable Development in Africa*, 10 (3).

Fosu, A.K (2007). "The External Debt Servicing Constraint and Public Expenditure Composition: Evidence from African Economies". *UNU-WIDER.* Research Paper No. 2007/36.

Gohar, M., Bhutto N.A and Butt F. (2012). "The Impact of External Debt Servicing on the Growth of Low-Income Countries". *Sukkur Institute of Business Administration.*

Greene, J. (1989). "The External Debt Problem of sub-Saharan Africa". *IMF Staff Papers.* 36 (4), 836-74.

Hameed, H. , Ashraf and Chaudary, M.A. (2008). "External Debt and its Impact on Economic and Business Growth in Pakistan". *International Research Journal of Finance and Economics.* Issue 20, 132-140.

Hunt, S.D. (2007). "Economic Growth: Should Policy Focus on Investment on Dynamic Competition?" *European Business Review.* 19(4), 279-291.

Iyoha, M.A. (1997). "An Economic Study of Debt Overhang, Debt Reduction, Investment and Economic Growth in Nigeria". *NCEMA Monograph Series, No. 8.*

Krugman, P.R (1988). "Financing Versus Forgiving a Debt Overhang". *Journal of Development Economics.* Vol 29, 253-268

Malik S., Hayat M.K. and Hayat M.U. (2010). "External Debt and Economic Growth: Empirical Evidence from Pakistan". *International Research Journal of Finance and Economics.* Issue 44, 88-97

Mimiko, O.M. (1997). "The Global Village: Selected Topics on International Relations". Akure: *ABM Research and Services.*

Ministry of Finance, Republic of Sierra Leone quarterly debt stock analysis

Momoh, A. and Hundeyin, T (1999). "Perspectives on Political Economy" in Anifowose, R. & Enemuo, F. eds *Elements of Politics.* Lagos, Malthouse Press Limited.

Mutasa, C. (2003). "Regional Integration and Debt in Africa: A Comparative Report of Africa's Regional Groupings". *AFRODAD Research Series.*

Obadan, M.I (2004). "Foreign Capital Flows and External Debt: Perspectives on Nigeria and the LDCs Group". *Ibadan University Press.*

Ogbeifun, M.I. (2007). "The Politics of External Debt Relief: Nigeria's Unique Experience". *African Journal of Stability and Development.* 1(1).
Ogundipe, Adeyemi A. and Philip O. Alege. (2013) "Interest Rate Pass-Through to Macroeconomic Variables: The Nigerian Experience." *International Journal of Economics and Finance* 5.10, p18.

Ogundipe, A., & Amaghionyeodiwe, L. (2013). *Transnational Trade In Ecowas: Does Export Content Matter?* (No. 51617). University Library of Munich, Germany.

Ogunmuyiwa, M.S. (2011). "Does External Debt Promote Economic Growth?" *Current Research Journal of Economic Theory.* 3(1), 29-35

Okonjo-Iweala, N., Soludo, C. and Muhtar, M. (eds.) (2003). "The Debt Trap in Nigeria". Trenton NJ: *Africa World Press Inc.*

Oloyede, B. (2002). "Principles of International Finance". Forthright Educational Publishers, Lagos.
Omoruyi, S.E. (2005). "Debt Burden (Sustainability) Indicators". *Presentation Paper at Regional Course on Debt Recording and Statistical Analysis.*

Omotoye, O. Richard, Sharma, H.P, Ngassam, C. and Eseonu, M. (2006). Sub- Saharan Africa's Debt Crisis: Analysis and Forecast Based on Algeria's Managerial Finance". 32 (7), 606-620.

Osinubi, T.S. and Olaleru, O.E. (2006). "Budget Deficits, External Debt and Economic Growth in Nigeria". *Applied Econometrics and International Development.* 6(3).

Patillo, L. Ricci and H. Poirson (2004). "What are the Channels Through Which External Debt Affects Economic Growth?" *IMF Working Paper.* No. W04/15

Sachs, J.D. (2002). "Resolving the Debt Crisis of Low Income Countries". *Brooking Papers on Economic Activity*. 1-28

Safdari, M. and Mehrizi, M.A. (2011). "External Debt and Economic Growth in Iran". *Journal of Economic and International Finance.* 3(5).

Sogo-Temi, J.S (1999). "Indebtedness and Nigeria's Development" in Saliu, H.A. (ed). *Issues in Contemporary Political Economy of Nigeria,* Ilorin: Sally and Associates.

Sulaiman, L.A. and Azeez, B.A. (2012). "Effect of External Debt on Economic Growth of Nigeria". *Journal of Economic and Sustainable Development.* 3(8).

Todaro, MP (2003). "Economic Development, Eight Low Prize Edition, New Delhi: Pearson Education".

Were, M (2001). "The Impact of External Debt on Economic Growth in Kenya: An Empirical Assessment". *World Institute for Economic Research.* Paper No. 116.
World Bank Statistics (WDI 2013 & 2014).

World Bank Economic Development Data