LONG-RUN RELATIONSHIP BETWEEN MACROECONOMIC FACTORS AND PRIVATE SECTOR CORPORATE DEBT

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DECLARATION

The research project undertaking is original and had not been presented for any partial fulfillment of award of any qualification in any other institution.

Signature………………………………… Date……11/11/2022…………………………………………….

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This research project has been presented to the Department of Economics and Development Studies of the University of Nairobi, under my supervision.

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Dr. Joy Kiiru

DEDICATION

This project is dedicated to my dear parents Mr. & Mrs James Murebu for encouraging me to pursue more knowledge and for the unwavering support they have been offering while undertaking my postgraduate course.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADF	Augmented Dickey-Fuller test
ARDL	Autoregressive distributed lag
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
NGOs	Non-Governmental Organisation
OLS	Ordinary Least Squares
UNDP	United Nations Development Programme
WB	World Bank
WDI	Word Bank Development Index
IR	Interest Rate
PCD	Private Corporate Debt
PIG	Public Investment Growth

ABSTRACT

Industries in the private sector are key drivers of growth in an economy. Through creation of employment and production of goods and services, these industries contribute greatly to growth of the gross domestic product. However, these industries require sufficient funds for their operations. Funds are raised through various channels which include debt, equity, and retained earnings. A firm's level of corporate debt is usually determined by various market factors, among them being macroeconomic factors. This study determined the long run relationship between macroeconomic factors and private sector corporate debt. Time series data on private sector corporate debt, interest rate, gross domestic product growth rate, growth rate of public investment and foreign direct investment growth rate in Kenya from the year 1970 to 2020 was used. The model was specified through autoregressive distributed lag model. It Was established that public investment growth and foreign direct investment had a negative and significant effect on private corporate debt as predicted. Moreover, growth in GDPshowed a negative and significant effect on private corporate debt similar to the findings by Chebet (2017) while exploring the macroeconomic factors influencing credit demand by the Kenyan private sector. Furthermore, the study established an adverse significant impact between interest rates and private corporate debt. Therefore, the study recommends that the government should balance on public investment to combat rise in private corporate debt arising from increased borrowing to fund public utilities. It should also set up policies that encourage foreign investment and economic growth.This will result to improved capital holdings and investment capacity in different sectors. Lastly, the government can apply monetary policies to achieve the desired levels of corporate debt that would protect firms from risks associated with debt financing.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Financing operations remains major concern for government and firms. As such, firms, organizations and governments institutions have to identify appropriate mode of financing based on their current financial state (Huong, 2018). Firms, organizations and government's institutions in the market may utilize equity, private debt and public debt funds concurrently when there is need (Dreger&Reimers, 2015). However, it is not clear what compels these institutions to settle on certain form of financing/funding over the other.

Globally, debt continues to rise substantially. Global debt comprising government debt, household debt, financial sector and corporate (nonfinancial) has risen substantially to 318 percent of gross domestic product (GDP) in 2018 up from 292 percent of GDP in 2008 (Abraham, Cortina &Schmukler, 2020).Government debts together with private corporate debt were the major contributors to rising global debt after the global financial crisis (Tanna, Li, & De Vita, 2018). The ratio of government debt and private corporate to GDP in 2008 rose from 62 percent and 86 percent in 2008 to 78 percent and 92 percent, in that order(Abraham, et al., 2020). The rising global debt could be an implication that firms and government institutions are relying much on debt to finance their operations.

The rise in private corporate debt is viewed as a development signaling that corporates are experiencing limited funding challenges enabling them raise additional funds to undertake viable investments (Huong, 2018). Moreover, this phenomenon may imply that firms are getting funding support outside conventional commercial banking channel allowing the diversification of the sources of funding enhancing resilience during financial crisis. However, the rise in the use of private corporate debt also raises major concerns (Tanna, Li, & De Vita, 2018). As private corporate debt rises, without check, it can significantly result to firm indebtedness which is a threat to the global economy. The IMF (2019a) raised concerns that high private corporate debt could impair economic growth. World Economic Forum (2019) also cautioned that rising private corporate debt may trigger financial problems like the global financial crisis of 2008. However, Powell (2017) and Brunnermeier and Krishnamurthy (2020) are optimistic and argue that risks

associated with rising private corporate debt are controllable and in the event that it happens, the crisis will not be catastrophic.

Firms across the world have various ways of raising funds for their activities which constitutes to their capital structure. Most capital structures of public companies are made up of three components; namely, debt, equity, and retained earnings (Beattie, Goodacre, & Thomson, 2006). Firms raise money through debt financing by selling debt instruments such as bonds, mortgages, certificates, loans and overdrafts (Zein&Ångström, 2016). Equity financing involves raising funds from public members through issuance of shares whereas retained earnings financing is when a company reinvests its profits in the business instead of paying out dividends.

The choice of firms on which financing to use from the aforementioned three is informed by the cost and benefits associated with them. Previous literatures have identified various benefits accrued to debt financing in comparison to other forms of capital (Dreger&Reimers, 2015). A major benefit is tax-shield since debt financing reduces the taxable income. Debt financing also allows owners to retain control of their businesses as well as profits (Ebaid, 2009). Agency and bankruptcy costs are potential costs related with debt financing(Fama & French, 2002). Optimal debt financing minimizes capital costs while enhancing the value of a firm (Micah, Hari&Nirmala, 2014). It is therefore crucial for corporates to identify the optimal capital structure.

In light of this, studies have been done to identify various determinants of debt financing in business. Previous studies have explored other firm characteristicslike nature of assets, liquidity and non-debt tax shields (Micah, Hari&Nirmala, 2014). Karumba (2016) examined profitability, firm size and growth opportunity as determinants of debt financing for listedfirmsat the NSE. Results from the study indicated that profitability is the only determinant of debt financing for these firms. According to Gajurel (2005), macroeconomic variables like inflation, GDP and interest rates also impact firm corporate debt. Gajurel (2005)established that interest rates and growth rate of GDP positively influence corporate debt of firms in Nepal.Muthama, Mbaluka and Kalunda (2013) also found similar results for listed firms in Kenya. Figure 1.1 presents the growth of private corporate debt, FDI and GDP growth in Kenya from 1970 to 2020.

Figure 1.1: Growth of private corporate debt, FDI and GDP growth in Kenya from 1970 to 2020.
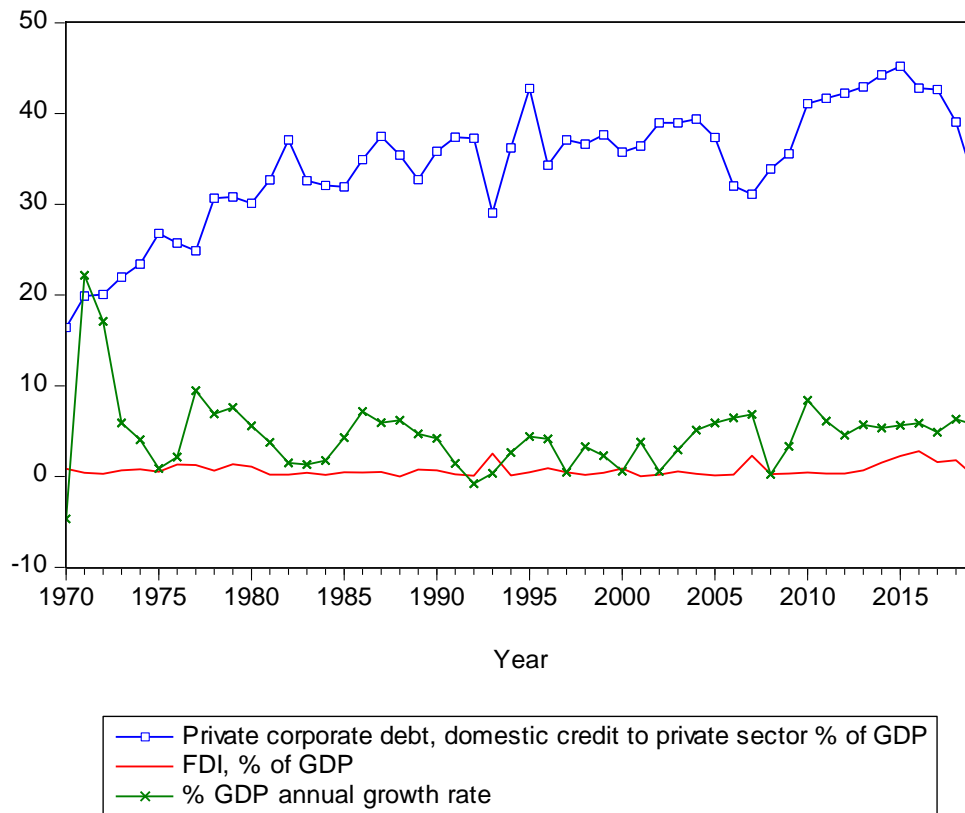
Figure 1.1 shows that private corporate debt measured as percentage of domestic credit to private sector has constantly been higher than GDP annual growth during the entire study period except in 1971. Increase in private corporate debt may indicate that firms are experiencing limited financing challenges enabling them raise more funds to undertake viable investment projects. During the, 1971, there was rapid growth in real GDP majorly supported by agricultural sector and growth in the industrial sector. In addition, there was a substantial rise in domestic savings, capital inflows, increased foreign aid and falling transaction expenses associated with marketing agricultural products.

Figure 1.1 also shows that Kenya's FDI remains relatively small in comparison to Kenya's economy. Growth of FDI as percentage of GDP has remained lower than annual GDP for most of the years except in 1993. Between the period 1993 and 1995, trade liberalization was high. This is the period that Kenyan government moved to liberalize trade with aim of opening up economy to

the world (Esaku, 2020). Trade liberalization might have led to increased foreign direct investment to Kenya.

1.2 Statement of the Problem

In most developing economies, a high percentage of growth is usually contributed by the private sector. Most of the industries in the private sector require finances for capital and for expanding their businesses. According to Nuri & Ayaydin, 2014; debt financing remains one of the major forms of external financing for firms seeking extra funding support. Globally, debt continues to rise substantially. Furthermore, government debt and private corporate debt were the major contributors to rising global debt after the global financial crisis (Tanna, Li, & De Vita, 2018). The ratio of government debt and private corporate debtto GDP rose from 62 percent and86 percent in 2008 to 78 percent and92 percent, in that order(Abraham, et al., 2020).

According toTanna, Li, & De Vita, 2018;the rise in the use of private corporate debt raises major concerns. For instance, as private corporate debt rises without check, it can significantly result to firm indebtedness which is a threat to the global economy. Likewise, the IMF (2019a) raised concerns that high private corporate debt could impair economic growth. World Economic Forum (2019) also cautioned that rising private corporate debt may trigger financial problems like the global financial crisis of 2008.

In Kenya, private corporate debt growth rate has constantly remained higher than annual GDP growth rate averaging 34.3% from 1970-2019 against average GDP growth of 4.6 (WDI, 2020). Between 2010 and 2015, there was a sharp increase in the growth of private corporate debt followed by a gradual decline from 2016 to 2019 (WDI, 2021). The rise and decline in private corporate debt may imply that there are certain macroeconomic factors shaping this nature of trend in the growth of private corporate debt.

Macroeconomic variables like inflation, GDP and interest rates impacts firm corporate debt (Gajurel, 2005).However, past studies have concentrated much on firm specific factors with a few studies done on macroeconomic factors that affect corporate debt (Huong, 2018; Tanna, Li & De Vita, 2018). This shows a contextual gap that needs to be filled by conducting a study on the short- and long-term correlation between macroeconomic factors and corporate debt.

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1.3 Study Objectives

1.3.1 General objective

The aim is to establishthe long run relationship between macroeconomic factors and private sector corporate debt.

1.3.2 Specific objectives

  i.   To analyze the correlation between GDP growth rate and private sector corporate debt.

  ii. To establish the impact of interest rate, public investment growth rate and foreign direct investment on private sector corporate debt.

  iii. To give policy recommendation aligned with the results obtained.

1.4 Research Questions

In this study, these research questions were answered.

  i.   How doesGDP growth raterelate withprivate sector corporate debt?

  ii. What is the impact of interest rate, public investmentgrowth rate and foreign direct investmenton private sector corporate debt?

  iii. What is the policy recommendations based on the results obtained?

1.5 Significance of the Study

The results are of particular significance in formulation of future policies that can help maintain sustainable levels of corporate debt for the private sector. Industries from this sector may greatly benefit from the study in making informed decisions on borrowing and investments. In the past, there have been studies carried out with a focus to analyze the determinants of the level of corporate debt for the private sector in Kenya. Findings from these studies have come up with different conclusions implying that there is still room for further discussions. This study contributes to these discussions by building on the existing knowledge using current data.

1.6 Scope of the Study

Theresearch examined the link between macroeconomic factors and corporate debt in the private sector employing data from 1970 to 2020 through a time-series analysis approach in Kenya. Secondary data extracted from World Development Index (WDI), KNBS Economic surveys and CBK database were employed in the study.

1.7 Organization of the Study

The remaining sections in the studywere arranged as: Chapter two presents the theoretical review underpinning the study, empirical literature and overview of literature. Chapter three outlined the theoretical model, empirical model, data sources, operationalization of variables and diagnostic tests. Chapter four provides an analysis of the results and discussions while the next chapter provides a summary, conclusion and suggestions for further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter outlines an overview of the existing theories, empirical literature and financial impact of the relationship between macroeconomic factors and corporate debt for the private sector in Kenya. The theories and the underlying assumptions create the framework on which corporate debt can be defined and explained.

2.2 Theoretical Review

This section outlines the theoretical model employed by the researcher. The theories explain the concept of debt financing.

2.2.1 Neoclassical growth theory

The neoclassical growth theory was advanced by Solow and Swan in 1956. According to the theory, economic growth is dependent on labor, capital, and technology. An economy may be limited in terms of labor and capital, however, for technology, the contribution is limitless (Solow & Swan, 1956). The total output of an economy based on the neo-classical model will depend on the quality of the employed physical capital, size of labor supply, and the average skills level of the labor force (Solow, 1999). Nonetheless, when the economy approaches the full equilibrium point, stock capital per worker will only grow with increase in productivity either via improvement in the quality of labor or improved capital stock (Solow, 2001).

Solow model has its own assumptions. The assumptions include diminishing marginal productivity of capital, constant returns to scale, technical growth exogenously determined and level of substitution between labor and capital (Hahn, 2010). As per the Solow growth model, in the long run, positive technological growth, skill labour force, high saving rate(investment rate), low rate of capital depreciation and lowerrate of population growth are critical predictors of economic growth.The neoclassical growth theory model is presented as;

$$GDPg = \beta KgK + \beta LgL + \beta AgA \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.2.1$$

Where $GDPg$ is GDP growth rate; gk is physical capital growth rate; gL is the human capital growth rate; gA is the technology growth rate and βk, βL, βA are the marginal factors of capital, labor force

and technology in that order. Thus, according to equation 2.1, growth in capital, labour and technology stimulate economic growth. So if there are observations on output growth rate, the labor force, and the capital stock formation, the growth rate of total factor productivity can be estimated. Growth in technology, labour and capital stock attract foreign direct investment (FDI).

2.2.2 Keynesian Theory

Keynesian theory was founded and popularized by Keynes in 1936. Keynesian theory states that the government has the role of boosting demand with the aim of enhancing growth. Keynesians argues that consumption is what drives the economy and that government has to rely on borrowing to finance itself in the event of deficit (Eichner&Kregel, 1975). According to the Keynesian theory, there is no real burden associated with foreign debt as long as foreign debt is applied into constructive economic activities; in that its effect will always be in line with the growth in the economy (Aspromourgos, 2014).

Keynes model recognizes that external debt in comparison to domestic debt is critical as it can be put into long-term investment public projects to generate more to the economy (Kregel, 1998). Furthermore, domestic debt is owed to the country's local people thus doesn't contribute to a country's resource capacity. On the other hand foreign debt is perceived to add resource capability to the country (Osipov, et al., 2017).

Macro-contractionary effect is witnessed in the economy when a government increases taxes to meet its expenditures resulting to a lower multiplier effectunlike when public expenditures are financed via public debt (Crotty, 1996). Nonethelessaccording to Aybarç (2019), public debt has no contractionary effect in macro terms. Keynesian theory anchors the expansionary fiscal effects in the economy (Eichner&Kregel, 1975). A limitation of the theory is that over-practicing it triggers inflation. During the contractionary phase of the business cycle, Keynes recommends deficit spending.

Keynesian theory is relevant to the study in understanding country's spending and borrowing behavior and pattern.During contractionary phase in the economy, deficit spending is recommended. A country can borrow from foreign lenders when it is facing deficit and the health state of the economy can support. By analyzing the state of countries external debt, external debt experts may advise the government to seek alternative ways of serving their expenditures locally

from domestic lenders other than borrowing further from external lenders. Uncontrolled borrowing may plunge the country into extreme debt level. Huge accumulated external debt renders the borrowing country unable to repay the loans resulting to sovereign default.

2.2.3 Trade-off Theory

Tis theory was propounded on by Myers (1984). The theory advocated for balance between tax saving emanating from debt, fall in agency costs and financial distress (Myers, 2001). According to the theory firms may resort to use of debt as form of financing during financial crisis (tax shield).Firms are partly financed using equity and debt (Campbel& Kelly, 1994; Hackbarth, Hennessy & Leland, 2007). However, tax shield can be offset by agency costs and financial distress related costs (Myers, 1984).

To achieve optimal leverage, interest payment benefits and expenses from issuing debt have to be balanced (Hackbarth, et al., 2007). Tax savings benefits from debt are helpful in decreasing agency costs and financial constraint costs stimulating firm growth (Serrasqueiro& Caetano, 2015). As per the theory, a firm can continuously borrow till a point when marginal benefits from tax shields is cancelled by costs resulting from financial constraint related costs.

This theory is appropriate for the study as it informs alternative financing sources for firms, organizations and government institutions. In the event a government is unable to finance its operations, it can resort to domestic borrowing properly through long term borrowing that come with some benefits including interest tax shield.

2.3 Empirical Review

In the past, there has been extensive empirical investigation that attempts to evaluate macroeconomic factors and corporate debt. In this section, empirical research relevant to this study was reviewed. This includes literature from all over the world with particular emphasis given to Kenya. Different models have been used in these studies to explain the relationship between macroeconomic factors and corporate debt.

Focusing on seven European nations, Zineckerand Mokhova(2014) conducted a study on macroeconomic factors and corporate capital structure. Time series data from 2006–2010 was

collected for the selected countries. In France and Germany, interest rate positively significantly impactscorporate debt both short-term and long-term. Except for Greece, GDP had insignificant and weak effect on corporate debt. In Hungary and Slovakia, government debt positively impacts capital structure. Moreover, weak nexus exist between interest rate and capita structure in Greece, Hungary and Poland. This study determines the macroeconomic effects on private corporate debt in the context of Kenya.

Huong (2018), focusing on listed firms in Vietnam researched on macroeconomic elements and corporate capital structure using GMM. A total of 464 listed companies participatedcovering the years 2008 to 2015. The results showed that economic growth and interest rate hareinsignificantlyrelated to capital structure decisions in the firms. The study slightly deviates from current study that wishes to study how macroeconomic factors influence private corporate debt.

While focusing on listed non-financial firmsfrom 2005 to 2014in Sweden,Zein and Ångström (2016) investigated if macroeconomic elementsaffect capital structure. The GDP growth and exchange rate positively influenced capital structure, and negative effect on corporate tax rate. However, the study did not elaborate how the firms selected mode of financing based on macroeconomic indicators.

Focusing at South Africa over the period 1983 to 2013, Oche, et al. (2016) determined the public debt's effect on FDI. VECM was adopt in modeling the long and short run nexus between public debt andFDI.Asignificant and positive long run relationship between interest rate and FDI and also between public debt and FDI was found contrasting current study that determines the effect of FDI on private corporate debt.In addition, Tanna, Li and De Vita, (2018) focusing at39 developing countriesexamined the link between external debt and FDIemployingyearly data from 1984 to 2010.

Dreger and Reimers (2015) examined public investments' impact on private investment in the Euro Zone using panel econometric techniques. It was established that there was a cointegration of public capital stocks and private investments. Further, including deviations from the stock equilibrium to the model resulted to cointegration effect between GDP, real interest rate and private investment.

In Nigeria, Nkwede (2017) explored selected macroeconomic variablesandbond market growth. Time series data for 32 years was gathered and analyzed using OLS. Results established a negative impacts of inflation rate,interest rate and exchange rate onthe growth of bond market in Nigeria. Effect of macroeconomic variables on private corporate debt has been found to vary across countries hence the need to study in the context of Kenya.

In Tanzania, Mabula and Mutasa (2019) determined how public debt impacts private investment from 1970 to 2016. Data analysis modeling was conducted usingARDL bound. Nonlinear short and long-run relationship was found between public debt and private investment. Effect of macroeconomic variables on private corporate debt has been found to vary across countries hence the need to study in the context of Kenya.

Using time series data from 1980-2013 in Kenya, Kamundia (2015) sought to find out public debts influence on private investments.The relationship between variables was checked suing OLS while Granger causality method was utilized to reveal the nature and direction of relationship. Unidirectional relationship exists fromdebt to private investments. Debt negativelyaffects private investments but positivelyimpacts GDP. OLS may not be very effective when dealing with time series data and may result to incorrect parameter estimates presenting methodological gap.

Likewise, Jerop (2018) investigated the macroeconomic impact on corporate capital structure of companieslisted at NSE by applying panel data regression. Data from 2007 to 2017 was collected. From the results, interest rate positivelyimpacts debt to equity ratio. FDI and GDP have a negative impact on Debt to Equity Ratio. However, Jerop (2018)did not elaborate how the firms selected mode of financing based on macroeconomic indicators.

Chebet (2017) explored the macroeconomic factors influencing credit demand by the private sector in Kenya.Yearly data from 1980 to 2012 was employed and analyzed using VECM. It was found thatshort andlong term interest rate,public investment and domestic debt positively affects credit demand by corporate firms whereasexchange rate andper capita GDP negativelyimpactscredit demand by corporate firms. FDI has been found to impact private corporate debt;however, it was left out by this study.

2.4 Overview of Literature

In the past, there have been various studies on factors affecting corporate debt. The empirical and theoretical review presents mixed findings on the relationship between macroeconomic factors and corporate debt. The studies have concentrated much on firm specific factors that affect corporate debt with a few studies on macroeconomic factors that affect corporate debt (Huong, 2018; Tanna, Li & De Vita, 2018). This shows a contextual gap that needs to be filled by studying the long and short run relationship between macroeconomic factors and corporate debt.

For those studies that looked on macroeconomic factors and private corporate debt, empirical results are conflicting. Oche, Mah and Mongale (2016) indicated that FDI positively impacts private corporate debt. However, Tanna, Li and De Vita, (2018) indicated that FDI had a negative impact on private corporate debt. According to Mokhova and Zinecker (2014), GDP has weak positive effect on private corporate debt contrasting Zein and Ångström (2016) and Jerop (2018) who presented a negative nexus between GDP and private corporate debt. Mabula and Mutasa (2019) presented a negative nonlinear short and long run relationship between public debt and private investment. However, Chebet (2017) presents a positive impact of private investment on private corporate debt. This study sought to establish short and long run effect of macroeconomic factors on private corporate debt in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The chapter captures the method adapted. Theoretical framework was introduced as well as the study empirical model and source of data to be employed in the analysis process. The description and measurement of study variables was also captured. In addition to this, the estimation technique was discussed.

3.1 Research Design

Correlational research design was utilized. It is suitable in determining the nature of relationship between study variables. This research design was the most suitable since the study wasfocused on finding how the variables in question are related without determining their causal relationship.

3.2 Theoretical Framework

To determine long-run relationship between macroeconomic factors and corporate debt for the private sector, the neoclassical growth theory advanced by Solow and Swan (1956), Keynesian Theory by Keynes in 1936 and Trade-off Theory by Myers (1984) was employed. According to the neoclassical growth theory, labor, capital, and technology are important predictors of economic growth. The total output of an economy as per the neo-classical model depend on the quality of the employed physical capital, size of labor supply, and the average skills level of the labor force (Solow, 1999). The neoclassical growth theory model is presented as

$$GDPg = \beta Kg + \beta Lg + \beta Ag \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.3.1$$

Where GDP$g$represents growth rate of real GDP; Kgrepresents growth rate of physical capital; Lgrepresents growth rate of human capital; Agrepresents growth rate of technology and βk, βL, βA are the marginal factors of capital, labor force and technology in that order. So if there are observations on output growth rate, the labor force, and the capital stock formation, the growth rate of total factor productivity can be estimated. Growth in technology, labour and capital stock attract FDI. Thus from equation 3.1, equation 3.2 is estimated by including the growth in FDI.

$$GDPg = \beta Kg + \beta Lg + \beta Ag + \beta FDIg \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.3.2$$

Where

Kg=growth rate of physical capital; Lg=growth rate of human capital; Ag=growth rate of technology and $FDIg$ =growth rate in foreign direct investment.

The Keynesian Theory, points out that public debt is a function of economic growth and government spending. A country can borrow from foreign lenders when it is facing deficit and the health state of the economy can support. By analyzing the state of countries external debt, external debt experts may advise the government to seek alternative ways of serving their expenditures locally from domestic lenders other than borrowing further from external lenders.

Public debt= f (aggregate government expenditure, economic growth)…………..…………….3.3

Introducing aggregate government expenditure in equation 3.2, equation 3.4 is formulated

$$PDg= \beta Kg + \beta Lg + \beta Ag + \beta FDIg + Gg \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.4$$

Where PDg=growth in public debt, Kg=growth rate of physical capital; Lg=growth rate of human capital; Ag=growth rate of technology, $FDIg$ =growth rate in foreign direct investment and Gg= growth in aggregate government expenditure

Further, Trade-off Theory argues that in the event a government is unable to finance its operations, it can resort to domestic borrowing. As a result domestic borrowing properly through long term borrowing that come with some benefits including interest tax shield.

Domestic borrowing =f (interest rate levy)………………………………………..…….3.5

Domestic borrowing contributes to public debt, hence equation 3.6

PDg=IRg………………………………………………………………………………..3.6

Where PDg=growth in public debt and IRg=growth in interest rate

Combining equation 3.4 and 3.6, we get equation 3.7 that form basis for the empirical model

$$PDg= \beta Kg + \beta Lg + \beta Ag + \beta FDIg + Gg + \beta IRg \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.7$$

Where PDg= growth in public debt, Kg=growth rate of physical capital; Lg=growth rate of human capital; Ag=growth rate of technology, $FDIg$ =growth rate in foreign direct investment,Gg= growth in aggregate government expenditure and IRg is growth in interest rate. Equation 3.7 forms the basis of the empirical model.

3.3 Empirical Model

The linkage between interest rate and corporate debt leads to significant implications on the economy. According to neoclassical growth theory, private corporate debt is a function of economic growth and foreign direct investment:

Private corporate debt = function (economic growth, FDI, interest rate)……………………….3.8

PCD=f(GDP, FDI,IR)……………………………………………..…..……………….…3.9

Where

PCD is private corporate debt, GDP is economic growth, FDI, is foreign direct investment and IR is interest rate.

According to Keynesian Theory;

Private corporate debt = function (government expenditure)……………….……….…3.10

Thus;

$PCDg$=f(Gg)……………………………………..…………….………….……3.11

Where

$PCDg$ is growth in private corporate debt and Gg is growth government expenditure. The following theoretical model was used:

PCDg = f(GDPg, PIg, FDIg, IRg)…………………………………………..…….……..3.12

Where; PCDg is growth in private sector corporate debt, GDPg is gross domestic product growth, IRg is growth in interest rate, PIg is growth in public investment growth and FDIg is growth in foreign direct investment growth rate.

The empirical model is specified as given in equation 3.13.

$$PCDg = \beta_0 + \beta_1 GDPg + \beta_2 PIg + \beta_3 FDIg + \beta_4 IRg + e\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots3.13$$

Where; PCDg is growth in private sector corporate debt, GDPg is growth in gross domestic product(growth in capital, labour participation and technology), IRg is growth in interest rate, PIgis growth in public investment andFDIgis growth inforeign direct investment. $\beta_0$is a constant, β_1 is a coefficient of GDP growth rate, β_2 is a coefficient of interest rate, $\beta_3$is a coefficient offoreign direct investment growth rate, $\beta_4$is a coefficient of interest rateand e is an error term.

3.4 Data source, Definition and Measurement of Variables

Table 3.1 shows the definition and how variables were measured.

Table 3.1: VariableDefinition and Measurement

Variables	Measurement	Expected sign	Reason for expected sign
Private corporate debt	Percentage of domestic credit to private sector		
GDP growth rate	The growth in monetary value of goods and services produced yearly in Kenya. GDP measured at factor cost.	Positive	In a study done by (Muthama, Mbaluka, & Kalunda, 2013)impact of macro-economic on corporate capital structure of firmslisted in Kenya, GDP growth rate positively impacts long term debt.
Interest rate	91 day treasury bill interest rate	Positive	A study on factors that influence demand for credit by private firms by (Muriu & Chebet, 2016) established that interest rate positivelyaffectprivate sector credit in Kenya.
Public investmentgrowth rate	Growth in actual values for government expenditure	Negative	According to crowding out theory, increase in public investments results in a decrease in private borrowing since funds available for private firms reduce. Public borrowing crowds out domestic private investment in the long run.

Foreign direct investmentgrowth rate	Growth in actual values of Foreign Direct Investment	Negative	Heavily subsidized FDI in attempt to attract foreign investors crowds-out domestic investment since domestic firms become uncompetitive. Reduced investment is has negative effect on leverage, (Tobin &Kosack 2006).

3.5 Data Source

Time series data spanning from 1970to 2020was employed.Main data sources were the WDI andKNBS economic surveys.

3.6 Data analysis

Data was analyzed employing Eviews Software. Data analysis comprised descriptive and inferential output. Descriptive results entailed means, standard deviation, minimums, maximums, skewness and kurtosis. ARDL model was adopted to evaluatethe long run relationship between macroeconomic factors and private corporate debt for the private sector. 95% confidence interval was adopted in the study.

3.7 Pre Estimation Tests

3.7.1 Stationarity Test

Most time series data is assumed to be non-stationary. Gujarati and Porter, (2011) noted thatnon-stationarydata may result to incorrect parameter estimates. Secondly, regressions subjected to non-stationary time series may result to spurious regressions. Because of this, Augmented Dickey-Fuller (ADF) testwasutilized on all the variables under the null hypothesis of non-stationarity. The variables found to be non-stationary were subjected to differencing.

3.7.2 Cointegration Test

Cointegration test is important for determining the kind of model to be estimated. In this regard, the study tested for cointegration using the Johansen test for cointegration, subject to the null hypothesis of no cointegration. Ifall the variables are cointegrated of order two and above, the VEC model isdetermined, otherwise, VAR model was estimated.

3.8 Post estimation Tests

The post estimation test included normality tests, serial correlation and Heteroscedasticity test.

3.8.1 Normality Tests

Before running statistical models, the residuals should be normally distributed which is not always the case (Zahediasl&Ghasemi, 2012). The normality assumption is very important in making precise deductions about the data distribution. Jarque-Bera test (Bera and Jarque, 1982) was employed to check for normality of data. The study tested the H_0 that the data is not normal. If the calculated p-value>0.05, the H_0 is accepted. Data that is not normal calls for non-parametric tests generally deemed suitable.

3.8.2 Serial correlation

Serial correlation test checks if the error term transfers from one period to the next. Errors can be correlated at first order (AR1) or second order (AR2). The Serial Correlation LM testwasadapted to check for serial correlation in the error terms. If the p-value>0.05, data is not suffering from serial correlation, and if the p-value<0.05, data suffers from serial correlation. In the event that serial correlation is found in data, the dependent variable is lagged.

3.8.3Heteroscedasticity

Breusch-Pagan/Godfrey test was utilized to test for heteroscedasticity. The $H_0$was that the error term is homoskedastic. If p-value<0.05, data suffers fromHeteroscedasticity. P-value>0.05 signified absence ofheteroscedasticity. In the event that the H_0 is rejected, the model was represented by running a FGLS model.

CHAPTER FOUR
DATA ANALYSIS AND DISCUSSIONS

4.1 Descriptive Statistics

Descriptive findings comprised the means, minimums maximums median, maximum, standard deviation, Skewness, Kurosis,Jarque-Bera probability and Sum Sq. Dev. Table 4.1 presents the descriptive output of the study.

Table 4.1 Descriptive Statistics

	FDI	GDP	IR	PCD	PIG
Mean	0.814341	4.511596	6.402983	23.87935	107.2115
Median	0.526448	4.406217	5.745513	22.15245	107.8567
Maximum	3.45731	22.17389	21.09633	40.20407	116.2188
Minimum	0.004721	-4.655447	-8.009867	15.11892	95.21637
Std. Dev.	0.755645	4.130608	7.0336	6.160024	5.581321
Skewness	1.554109	1.784081	0.057293	0.933236	-0.315553
Kurtosis	5.194415	9.372701	2.718691	3.158598	2.010623
Jarque-Bera	30.7625	113.3541	0.196063	7.456357	2.926465
Probability	0	0	0.90662	0.024037	0.231487
Sum	41.53139	230.0914	326.5521	1217.847	5467.786
Sum Sq. Dev.	28.54994	853.0961	2473.576	1897.295	1557.557
Observations	51	51	51	51	51

FDI= Foreign Direct Investment (% of GDP). GDP= Monetary value of goods and services produced yearly in Kenya. GDP measured at factor cost. IR= Interest Rate (Real Interest Rate). PCD= Private Corporate Debt (Percentage of domestic credit to private sector to GDP). PIG= Public Investment Growth Rate (Growth in actual values for government expenditure as a % of GDP)

FDI values had a mean of 0.814341% for the years between 1970 and 2020. The minimum and maximum FDI between theperiods were 0.004721% and 3.45731% respectively. The standard deviation was 0.7555641 which implies that there was little variation in FDI throughout the measurement period. The FDI data had a skewness and kurtosis of 1.554109 and 5.194415 respectively which is normal according to Kline (2011).

On Economic Growth, theaverage GDP growth between the years 1970 and 2020 was 4.511596. The lowest and highest GDP growth over the same period was -4.655447% and 22.172389% in that order. Additionally, there was askewness of 1.784081 and kurtosis of 9.372701 implies that GDP is normally distributed according to Kline (2011)

The real interest rates averaged at6.402983% for the period under study. The lowest and highest interest rates were -8.009867% and 21.09683% respectively. The standard deviation was 7.0336 implying that interest rates varied significantly during the period. The Jarque-Bera test was 0.196063 indicating a normal distribution.

The average PCD was 23.87935% from the year 1970 to 2020. The lowest PCD was 15.11892% while the highest PCD was 40.20407%. The PCD had a standard deviation of 6.160024 implying that the PCD was varyingduring the study period. The Jarque-Beta test was 7.456357 indicating that at 5% significance level the data is considered to be normally distributed.

PIG values between 1970 and 2020 averaged at107.2115. The minimum and maximum PIG values were 95.21637 and 116.2188 respectively. A standard deviation of 5.581321 shows a variation in PIG values throughout the measurement period. PIG had a skewness and kurtosis of -0.315553 and 2.010623 respectively. This indicates a normal distribution according to Kline (2011) as it is between ≤3 and ≤10 for skewness and kurtosis.

4.2 Trend Analysis

Trend line was drawn for GDP, FDI, interest rate, private corporate debt and public investment growth rate.The trend lines were presented in form of line graphs. Figure 4.1 show trend line for GDP growth rate.

4.2.1 GDP Trend Analysis
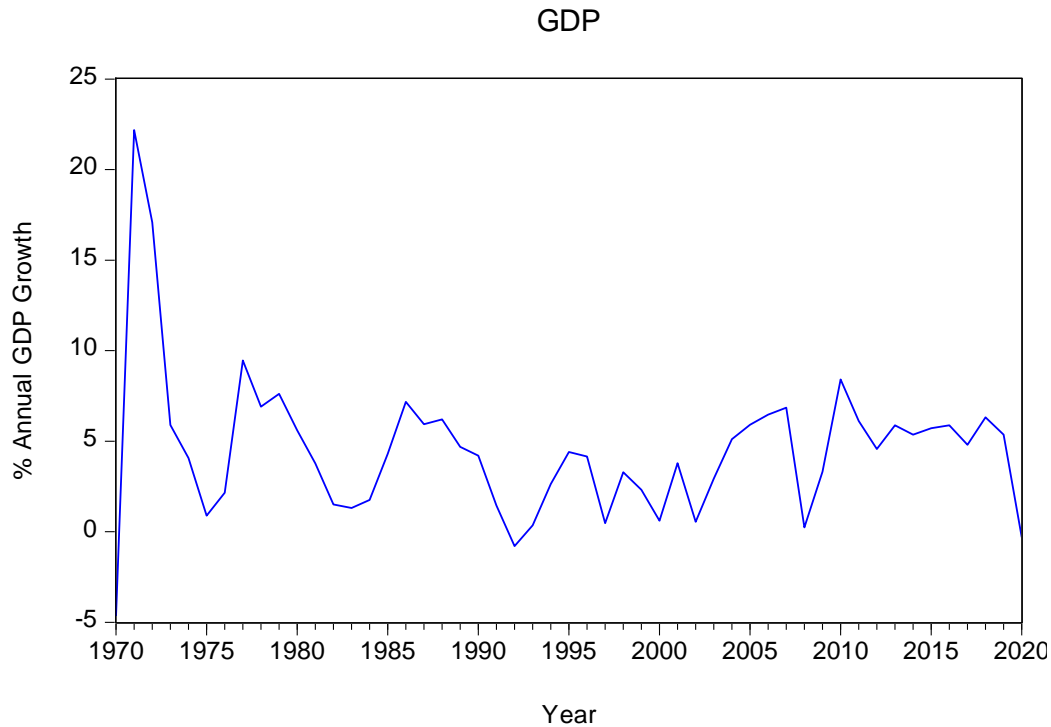
Figure 4.1: Economic Growth (GDP)

Figure 4.1 show that real GDP rose from -4.6 to its highest point in 1971 which indicates more than 20% growth rate. It then fell sharply to just above 0% in 1975. The growth rate rose to close to 9% in 1977 then fell again to 1% in 1983. The GDP growth rate rose again to 1986 before it fell to less than 0% in 1992. The GDP growth rate declined between 2% and 5% up to 2002 before it rose steadily to 6% in 2006 before it fell to 0% in 2008. In 2010, GDP growth rate rose again to 8% and dropped to 5% where it fluctuated slightly until 2019 before it dropped to -0.3075% in 2020.

4.2.2 Foreign Direct Investment Trend Analysis

FDI
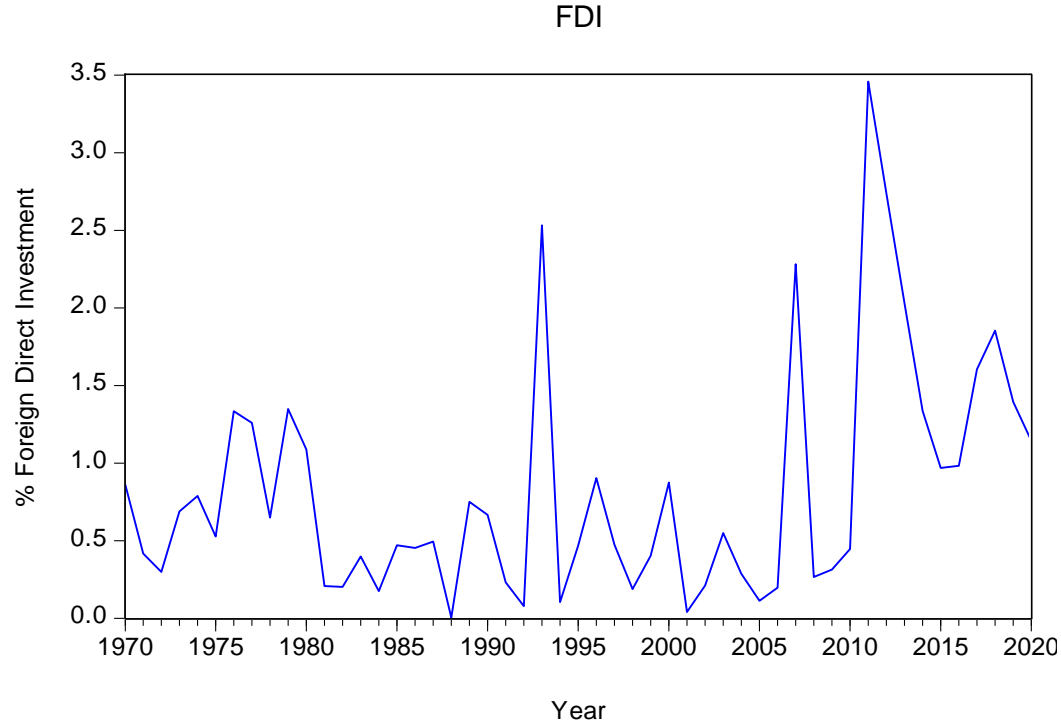
Figure 4.2: Foreign Direct Investment

Figure 4.2 presents the trend for foreign direct investment for the period between 1970 and 2020. The FDI rate has been fluctuating between 0% and 1.5% in the period between 1970 and 1992. In 1993, FDI rate rose sharply to 2.5%. A sharp decline followed immediately after and the FDI rate remained below 1% until it rose to 2.2% in 2007. Another sharp decline followed the next year before the FDI rate rose to its highest ever point to 3.5% in 2011. From then, it dropped to 1% in 2015 and has fluctuated between 1% and 2% to date.

4.2.3 Interest Rate Trend Analysis
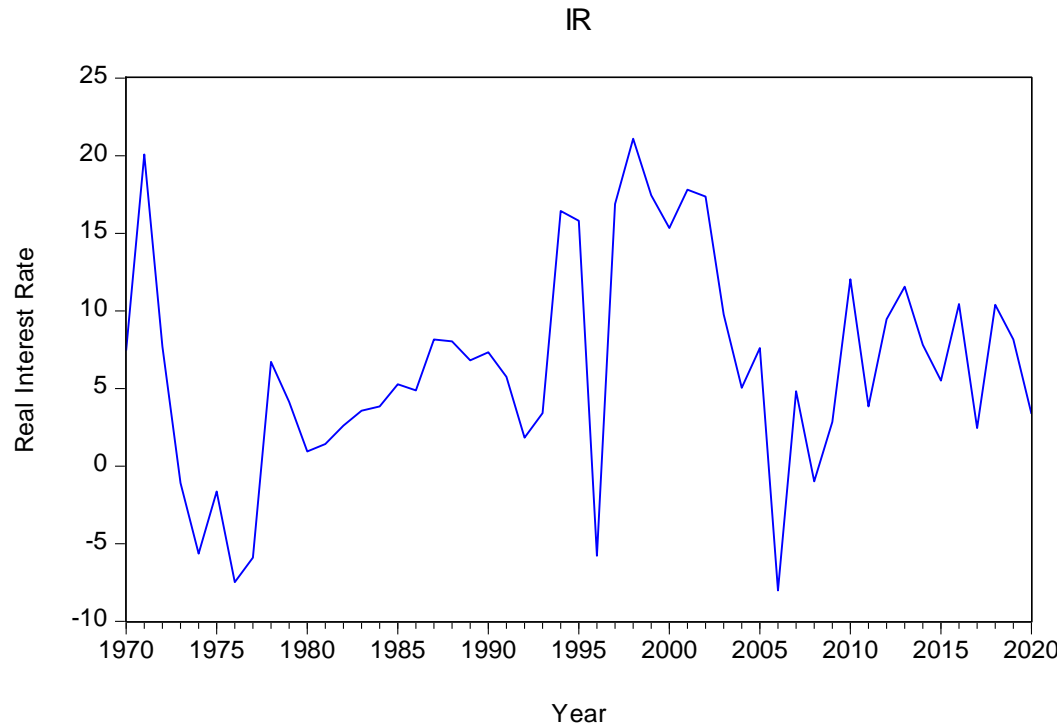
Figure 4.3: Real Interest Rates

Figure 4.3 indicatestrend line of real interest rates from 1970 to 2020. Real interest rate rose to about 20% in 1971 then dropped drastically to -5% in 1974 and further to -7% in 1976. The interest rate rose again to 6% in 1978 where it remained steady and only varied slightly until it dropped to 1% in 1992 before it rose again to 16% in 1994. In 1996, the interest rate dropped to -5% before it peaked at 21% in 1998. Another sharp decline followed with an all-time low of -8% in 2006. It bounced back to 12% in 2010 and fluctuated between zero and 10% between then and 2020.

4.2.4 Private Corporate Debt Trend Analysis

PCD
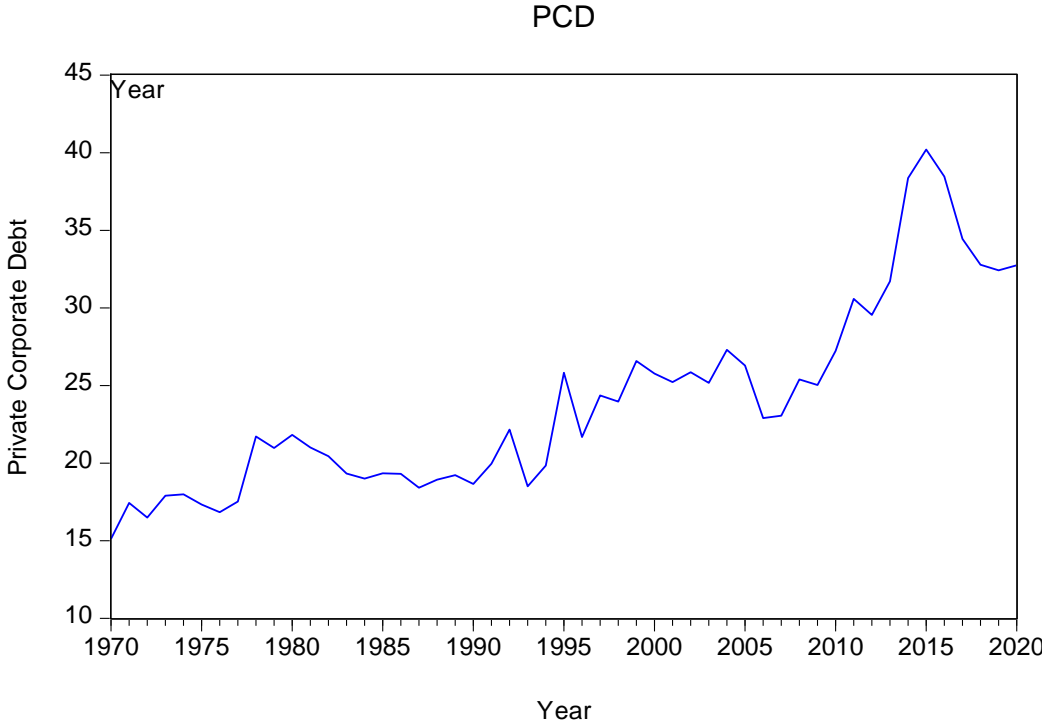
Figure 4.4: Private Corporate Debt

Figure 4.4 presents the trend analysis for private corporate debt as a % of GDP for the years between 1970 and 2020. Private corporate debt rose steadily from a low of 15% in 1970 to 18% in 1977. The private corporate debt rose to 21% then remained relatively steady until it rose again to 26% in 1999. The growth of private corporate debt remained steady until it rose sharply from 2011 and peaked to 40% in 2015 before it declined slowly.

4.2.5 Trend Analysis of Public Investment Growth Rate

PIG
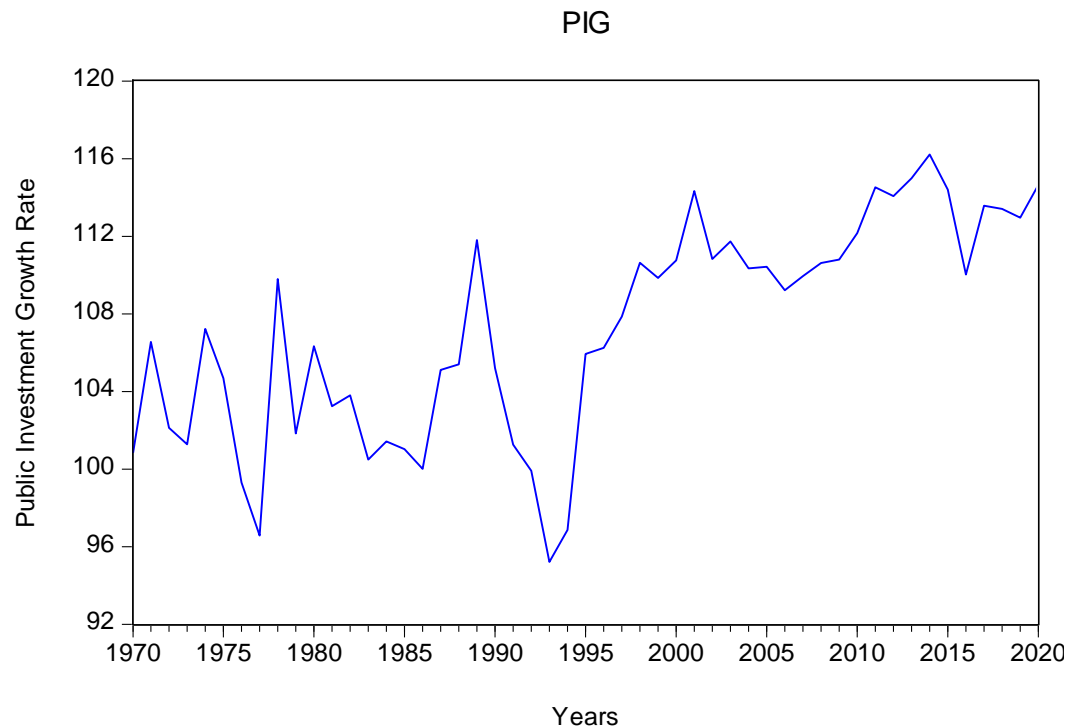
Figure 4.5: Public Investment Growth Rate

Figure 5.5 presents the public investment growth rate between 1970 and 2020. Public investment growth varied between 100 and 108 until 1977 when it dropped to 96 before it rose again to 109 in 1979. The public investment remained steady and varied slightly until it rose to 111 in 1989 then fell sharply to an all-time low of 95. It then rose again to 111 in 2012. From there it rose steadily to an all-time high of 116 in 2014. It then dropped slightly to 114 in 2020.

4.4 Diagnostic Tests

Diagnostic tests were undertaken before estimating the study models. The particular diagnostic tests include the stationarity, normality, multicollinearity, heteroscedasticityand autocorrelation tests. Diagnostic tests are often conducted prevent spurious regression output and to ensure that parameter estimates are precise and accurate.

4.4.1 Unit Root Test

In most instances economicdata are non-stationary and so before estimating any econometric model it is important to test for unit root. The ADF was employed to check for unit root. A

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significant p-vale>0.05 indicates presence of unit root while p-value<0.05 indicates absence. Table 4.2presents the unit root tests results.

Table 4.2: Stationary Test

Variable name	1% Level	5% Level	10% Level	ADF test	Sig.	Comment
GDP	-3.56831	-2.92118	-2.59855	-5.59691	0.0000***	Stationary
IR	-3.56831	-2.92118	-2.59855	-4.3415	0.0011***	Stationary
PIG	-3.56831	-2.92118	-2.59855	-2.52557	0.1156	Non-stationary
d(PIG)	-3.57137	-2.92245	-2.59922	-9.69433	0.0000***	Stationary
FDI	-3.56831	-2.92118	-2.59855	-4.84424	0.0002***	Stationary
PCD	-3.56831	-2.92118	-2.59855	-1.24458	0.6479	Non-stationary
d(PCD)	-3.57137	-2.92245	-2.59922	-7.38818	0.0000***	Stationary

*Sig at 10% **sig at 5% ***sig at 1%. FDI= Foreign Direct Investment (% of GDP). GDP= Monetary value of goods and services produced yearly in Kenya. GDP measured at factor cost. IR= Interest Rate (Real Interest Rate). PCD= Private Corporate Debt (Percentage of domestic credit to private sector to GDP). PIG= Public Investment Growth Rate (Growth in actual values for government expenditure as a % of GDP)

Results in Table 4.2 shows that GDP growth, interest rate and FDI were stationary at level. Public investment growth and private corporate debt were non stationary at level. They were thus differenced to make them stationary. At first level differencing, public investment growth and private corporate debt became fixed and thus could be employed in estimating the econometric model.

4.4.2 Normality Test

Data that are normally distributed are desirable for estimating statistical models (Jarque&Bera, 1987). To test for normality, theJarque-Beratechnique was employed. The null hypothesis is that data is not normally distributed. Data is termed to be normally distributed if the calculated p-value<0.05. Figure 4.6 presents the normality test results.

Series: Residuals	
Sample 1970 2020	
Observations 51	
Mean	-9.02e-15
Median	-0.506029
Maximum	12.09250
Minimum	-8.188127
Std. Dev.	3.709908
Skewness	0.918560
Kurtosis	4.901942
Jarque-Bera	14.85884
Probability	0.000594
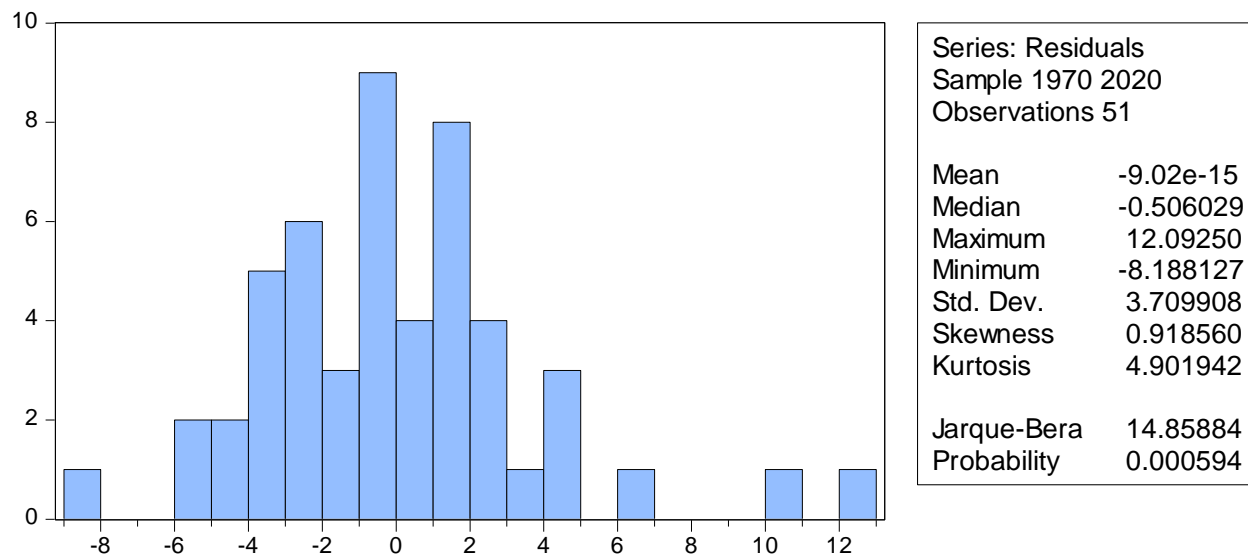
Figure 4.6: Normality Test

Figure 4.6 presents the normality test results. The p-value of 0.000594<0.05 with Jarque-Bera statistic of 14.85884 hence the null hypothesis is rejected leading to conclusion that the data is normally distributed. The Skewnesswas 0.918560 and Kurtosis of 4.901942, an indication that at 5% level of significance, the data is normal.The data was thussubjected to parametric test that include time series regression models.

4.4.3Heteroscedasticity Test

Breusch-Paganwas employed to check forHeteroskedasticity. Homoscedasticity is desired for estimating statistical models. Data is homoscedastic if the p-value calculated >0.05 and heteroskedastic if p-value calculated <0.05. Table 4.3 tabulates the Heteroskedasticityoutput.

Table 4.3: Heteroskedasticity Results

F-statistic	0.679180	Prob. F(4,46)	0.6099
Obs*R-squared	2.844050	Prob. Chi-Square(4)	0.5843
Scaled explained SS	4.514019	Prob. Chi-Square(4)	0.3409

The calculated p-value is 0.6099>0.05.The data was thus homoscedastic.

4.4.4 Autocorrelation Test/ Serial correlation tests

Serial correlation test was undertaken to test for correlation of error terms in the study population. Wooldridge test for serial correlation was employed in this study. Table 4.4 presents the serial correlation results.

Table 4.4: Serial Correlation Test Results:

F-statistic	13.20093	Prob. F(2,44)	0.3962
Obs*R-squared	19.12584	Prob. Chi-Square(2)	4.0645

The null hypothesis was that there is no serial correlation. The calculated p-value>0.05 implies absence of serial correlation while p-value<0.05 implies presence of serial correlation. The p-value 0.3962>0.05 indicating that the null hypothesis is not rejected. The data therefore did not have serial correlation problem.

4.4.5 Test for cointegration

After observing the stationarityfeatures of the series, cointegrationtests can be conducted. The Johansen Cointegration test was employed to test for cointegration. The hypotheses were;

H₀: There is no cointegration among test variables

H₁: There is cointegration among test variables

Cointegration test is established if variables arenon-stationary, and are of the same order of integration. Table 4.5 shows the cointegration results.

Table 4.5: Test for cointegration

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.600966	99.38928	69.81889	0.0000
At most 1 *	0.493781	54.37261	47.85613	0.0108
At most 2	0.228759	21.01408	29.79707	0.3568
At most 3	0.144888	8.286134	15.49471	0.4353
At most 4	0.012504	0.616539	3.841466	0.4323

When the probability (p-value) is higher than 0.05, we accept the H_0 hypothesis. If the p-value<0.05, the H_0 is rejected an indication that the variables are cointegrated. In Table 4.5, the Johansen Cointegration Test results show a p-value of 0.0000<0.05 hence the H_0 is rejected resulting to conclusion that the variables are cointegrated. Further the trace statistic of 99.38928> Critical Value of 69.81889 supporting the rejection of H_0 and admitting the presence of cointegrating equations.

4.5 Autoregressive Distributed Lag model

The Autoregressive Distributed Lag models (ARDL) modelwas adaptedto check for long run and short run relationships.Under ARDL model,the cointegrationvectors arereparameterized into ECT giving the short-run and long run relationship results. Table 4.7 shows theARDL model results.

Table 4.6: Autoregressive Distributed Lag model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PCD(-1)	0.415193	0.085476	4.857440	0.0000***
IR	-0.111638	0.036497	-3.058826	0.0040***
IR(-1)	-0.046452	0.039688	-1.170436	-0.2507
GDP	-0.090814	0.03146	-2.8866	0.0384**
GDP(-1)	0.194547	0.122376	1.589746	0.1220
GDP(-2)	-0.232822	0.082740	-2.813907	0.0084***
FDI	-0.135105	0.036355	-3.71627	0.0021***
FDI(-1)	-0.585135	0.305991	-1.912261	0.0651
FDI(-2)	-1.358050	0.294164	-4.616649	0.0001***
FDI(-3)	-0.959852	0.343018	-2.798253	0.0088***
FDI(-4)	-1.119879	0.368719	-3.037218	0.0048***
PIG	-0.177948	0.073245	-2.429483	0.0211**
PIG(-1)	-0.019649	0.071247	-0.275785	0.7845
PIG(-2)	0.033898	0.067992	0.498563	0.6216
PIG(-3)	-0.188493	0.062132	-3.033749	0.0049***
CointEq(-1)	-0.430310	1.751741	3.670811	0.0007***

R-squared	0.649414	Mean dependent var		24.18970
Adjusted R-squared	0.637740	S.D. dependent var		6.079797
S.E. of regression	1.517022	Akaike info criterion		3.851280
Sum squared resid	89.75289	Schwarz criterion		4.237366
Log likelihood	-84.35637	Hannan-Quinn criter.		3.997761
F-statistic	81.32963	Durbin-Watson stat		2.046024
Prob(F-statistic)	0.000000			0.000000

*Note: p-values and any subsequent tests do not account for modelselection.

*Sig at 10%. ** sig at 5%, *** sig at 1%

The CointEq(-1) (ECT) is negative and significant (0.0007<0.05). For long run connection to exist, the ECT (-1) is negative and statistically significant <0.05.Such highly significant ECT is proof

for the presence of a stable long run relationship in the model equation. The ECT was -0.430310which presents the adjustment speedof the modeltowards long run equilibrium.This indicates that the disequilibria achieved in private corporate debt in one period are corrected in the subsequent period.The short run outputindicate an R-squared of 0.649414 implyingthat 64.9414% of short run private corporate debtare explained by IR, GDP, FDI and PI. The F-statistic test of 81.32963with p-value of 0.000 implies that the ARDL model is adequate and significant.

The coefficient of real interest rate is -0.111638and significant at 5% and 1%. Thus a unit surge in real interest rate results to a reduction in private corporate debt by 0.111638. The long run coefficient of GDP and GDP lag (-2) was negativeand significantly related to private corporate debt. Model results also showed that FDI and FDI in lag (-2), lag (-3) and lag (-4) were negative and statistically significant with private corporate debt at 5% and 1% level of significance. Moreover, there was a negativeand significantinfluence of Public Investment Growthand Public Investment Growth (-3)on private corporate debt.

4.6 Discussion of Results

ARDL modelindicates that the coefficient value of real interest rate has negative and significant effect on private corporate debt in the long run. The findingsindicates that one unit increase in interest rate, results to a decrease in private corporate debt as firms tend to borrow less because of the high interests. Falling real interest rate tend to result to an increase in private corporate debt. As such, real interest rates can be adjusted to achieve the desired private corporate debt levels. The results concur with Oche, Mah and Mongale (2016) who found negative and significant long run associationbetween interest rate and public debt.However, Chebet (2017) exploring the macroeconomic factors influencing credit demand by the private sector in Kenya found that long term interest rate positively impacts credit demand by corporate firms.In addition, the results contradict that ofHuong (2018), that economic growth and interest rate have no significant effect on firms' corporate debt. Likewise, Zineckerand Mokhova(2014) did not establish any significant connection between interest rate and private corporate debt.

The long run coefficient of GDP and GDP lag (-2) was negativeand significantly related to private corporate debt.An increasing GDP in a country tend to reduce the volume of private corporate debt

while a decline increases private corporate debt. The results agree with Jerop (2018) study findings on the macroeconomic effect on corporate capital structure. Likewise, Zein and Ångström (2016) established a negative nexus between GDP growth and debt. However, Zinecker and Mokhova(2014) study on macroeconomic factors and corporate capital structure focusing at seven European nations found that for France and Germany, interest rate positively and significantly impacts corporate debt both short-term and long-term. GDP had insignificant and weak impact on corporate debt except for Greece.

Model results also showed that FDI and FDI in lag (-2),lag (-3) and lag (-4)were negative and statistically significant with private corporate debt. The results imply that an increase in equity financing results to a decrease in private sector debt. The results concur with Oche, Mah and Mongale (2016) who indicated a negative and significant long run relationship between public debt and FDI. However, Tanna, Li and De Vita, (2018) focusing at 39 developing countries investigated the link between external debt and FDI employing annual data from 1984 to 2010 and established a positive relationship between FDI and external debt.

Moreover, there was a negative and statistically significant impsct of Public Investment Growth and Public Investment Growth (-3)on private corporate debt. As such more investment in the public sector would reduce private corporate debt. The results concur with Chebet (2017) who found a negative relationship between public investment and corporate debt.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Summary

This study sought to determine the long run relationship between macroeconomic factors and private corporate debt for the private sector. The macroeconomic factors involved in the study were foreign direct investment (FDI), real interest rate, GDP growth as measured by the GDP and public investment. Time series research design was employed in the research to investigate the variables for the years between 1970 and 2020. Data analysis methods were descriptive statistics and inferential, statistics. The descriptive results entailed means, standard deviation, minimums and maximums. Inferential statistics included the ordinary least squares model. The ARDL model was employed to determine impact of macroeconomic factors on private corporate debt.

The CointEq(-1) (ECT)was -0.430310which depicts the adjustment speed of the model system towards long run equilibrium. This indicatesthat the disequilibria achieved in private corporate debt in one period are corrected in the subsequent period.The short run outputindicate an R-squared of 0.649414 implying that 64.9414% of private corporate debt in short run private corporate debt are explained by IR, GDP, FDI and PI. The F-statistic test of 81.32963with p-value of 0.000 implies the ARDL model is adequate and significant.

The estimation results indicated that the coefficient value of real interest rate has negative and significant impact on private corporate debt.The long-run coefficient of GDP and GDP lag (-2) was negativeand significantly related to private corporate debt implying that increase in GDP growth results to a decrease in private corporate debt. Model results also showed that FDI and FDI in lag (-2),lag (-3) and lag (-4) were negative and statistically significant with private corporate debt implying that growth in FDI results to a decrease in private corporate debt. Moreover, Public Investment Growth and Public Investment Growth (-3)had negativesignificanteffecton private corporate debt implying that more investment in the public sector would result to a decrease in private corporate debt.

5.2 Conclusions

The study found that public investment growth and foreign direct investment had aadverse and significant effect on private corporate debt as predicted based on crowding-out theory. Moreover, growth in GDPshowed a negative and significant effect on private corporate debt similar to the

findings by Chebet (2017) while exploring the macroeconomic factors influencing credit demand by the private sector in Kenya. Finally, the study revealed that interest rate had a negative and significant effect on private corporate debt.As such, real interest rates can be adjusted to achieve the desired private corporate debt levels.

5.3 Policy Recommendations

Public Investment growth was found to have a negative effect on private corporate debt. The study recommends that the government should balance on public investment so as to combat rise in private corporate debt arising from increased borrowing to fund public utilities.

The study also found that FDI has a negative impact on private corporate debt that is, an increase in shareholder financing results to a decrease in private sector debt.Consequently, the government should set up policies that encourage foreign investment such as tax breaks. This resultstoadecrease in private corporate debt and improve capital holdings in different sectors hence improving their investment capacity.

Real interest rate negatively impacts the private corporate debt. Therefore, the government can apply monetary policies to achieve the desired levels of corporate debt. Further, GDP negativelyinfluencesprivate corporate debt implying that increase in economic growth will cause a reduction in private corporate debt level. Positive economic growth boosts demand for firms' products and services leading to increased revenues translating to a reduction in borrowing.

5.4 Recommendations for Further Study

The macroeconomic factors were responsible for 64.94% of the variations in private corporate debt;future studies can be conducted on other variables to explain the remaining 35.06%.

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APPENDICES

Appendix I: Data Collection Sheet

Year	Private corporate debt, domestic credit to private sector as of % GDP	Economic growth, % annual GDP growth	Interest rate, 91 day treasury bill interest rate	Public investment growth rate, government expenditure % of GDP	FDI (% of GDP)

				15.11892
1970	-4.65545	7.453	100.8382	0.860645654	
1971	22.17389	20.06939	106.5497	0.416106402	17.43253
1972	17.08243	7.701927	102.1206	0.298963712	16.48605
1973	5.89658	-1.09238	101.2752	0.687923898	17.89332
1974	4.065617	-5.64353	107.2207	0.78856754	17.97643
1975	0.882203	-1.64091	104.6862	0.526447731	17.33317
1976	2.153964	-7.49008	99.30999	1.334617501	16.82708
1977	9.453798	-5.90234	96.5767	1.258132158	17.5086
1978	6.912494	6.712202	109.7998	0.648865948	21.71203
1979	7.615226	4.128561	101.8337	1.347523818	20.97326
1980	5.591976	0.942589	106.3361	1.086996806	21.81178
1981	3.773544	1.410506	103.2379	0.206398349	21.00308
1982	1.506478	2.605412	103.7963	0.202141562	20.43702
1983	1.30905	3.572394	100.491	0.397023829	19.32301
1984	1.755217	3.83512	101.4177	0.173683868	18.9864
1985	4.300562	5.257538	101.0275	0.470183987	19.33408
1986	7.177555	4.864495	100.0099	0.45206802	19.31199
1987	5.937107	8.15739	105.1115	0.494068886	18.41642
1988	6.203184	8.026232	105.3968	0.004720678	18.92614
1989	4.690349	6.815212	111.8038	0.750803531	19.22448
1990	4.192051	7.332797	105.1962	0.665873829	18.65653
1991	1.438347	5.745513	101.2562	0.231013008	19.95807
1992	-0.79949	1.825329	99.90736	0.077512889	22.15245
1993	0.353197	3.413472	95.21637	2.532351134	18.4962

1994	2.632785	16.42811	96.86456	0.103976797	19.83416
1995	4.406217	15.80165	105.9244	0.467474289	25.81412
1996	4.146839	-5.77659	106.2539	0.902160126	21.68163
1997	0.474902	16.87957	107.8567	0.473451365	24.35518
1998	3.290214	21.09633	110.6367	0.188365603	23.96342
1999	2.305389	17.45405	109.8547	0.402864464	26.56944
2000	0.599695	15.32743	110.7592	0.872895972	25.75838
2001	3.779906	17.8125	114.3336	0.040833358	25.22269
2002	0.54686	17.35814	110.8307	0.210062253	25.8546
2003	2.932476	9.770511	111.7326	0.548412532	25.15568
2004	5.1043	5.045258	110.3472	0.286194264	27.28752
2005	5.906666	7.609988	110.4293	0.113202055	26.27688
2006	6.472494	-8.00987	109.2124	0.196219537	22.88831
2007	6.85073	4.819091	109.9413	2.281276095	23.04496
2008	0.232283	-0.985	110.6143	0.266289351	25.38061
2009	3.30694	2.837078	110.7984	0.314031963	25.02161
2010	8.405699	12.02823	112.1647	0.445159513	27.22812
2011	6.108264	3.838512	114.5232	3.45730966	30.57264
2012	4.563209	9.456616	114.0667	2.737734058	29.53616
2013	5.878681	11.54784	114.9908	2.03064526	31.71305
2014	5.357126	7.815101	116.2188	1.335981373	38.36356
2015	5.718507	5.509324	114.4035	0.968195196	40.20407
2016	5.878949	10.42982	110.0244	0.981089215	38.46368

2017	4.805697	2.456821	113.5726	1.603415701	34.43976
2018	6.318451	10.38667	113.4158	1.852298221	32.77122
2019	5.365749	8.156975	112.9505	1.395176769	32.40639