ANALYSIS OF SOME SELECTED FACTORS ON THE ADOPTION OF GDP-INDEXED BOND AS A BUDGET FINANCING OPTION IN KENYA

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no materials written or published by other people except where due reference is made and author duly acknowledged.

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DEDICATION

I dedicate this research to my immediate family, colleagues, and friends who have always encouraged me to pursue higher education.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

EU	-	European Union
UK	-	United Kingdom
GDP	-	Gross Domestic Product
NACOSTI	-	National Commission for Science, Technology and Innovation
SPSS	-	Statistical Package for Social Scientists
US	-	United States
EMDEs	-	Emerging Market and Developing Economies
CEEs	-	Central and Eastern European Countries
OECD	-	Organization for Economic Co-operation and Development

OPERATIONAL DEFINITION OF TERMS

Budget Deficit - this is the difference between revenue and the expenses of a government (Rahman, 2012). In this study, this is the difference between government revenue for a year and its projected yearly expenses.

Capital Market Development - this is the ability of the economy to absorb various financial tools such as loans and bonds (Prochniak & Wasiak, 2017). In this study, this is the ability of a government to absorb GDP-Indexed Bonds.

Economic Growth - this is the increases in per capita goods and services produced over a period of time - usually financial year quarters or the full year (Babatunde, 2018). In this current study, this was measured in terms of increases in GDP per year.

GDP-Indexed Bonds – these are financial instruments that are pegged to the economic growth rate of a country (Shiller & Robert, 2005). In this study, these are government-issued bonds whose returns are based on the GDP of the country. Investors get more if the GDP increases during the investment period and vice versa.

Government Credibility- This is the ability of governments to win investor confidence due to transparency, the credibility of its financial policies, and its ability to honour its obligations to investors (Roldos, 2004). In this study, this is the ability of the government to win investor confidence due to stable financial markets and its ability to honour its obligations to investors.

Openness of the economy - this is the degree to which the national economy is open for international trade (Le, 2020). In the context of this study, the openness of the economy is the level to which the national economy is receptive to various financial assets such as GDP-Indexed Bonds.

Volatility of returns- this is the difference between the lowest and highest stock prices during a given period (Brueckner & Carneiro, 2017). In this study, this is the level to which the potential deployment of government bonds could yield predictable returns.

ABSTRACT

This study analyses some selected factors that could influence the adoption of GDP-indexed bonds as a budget financing option in Kenya. Its specific objectives are to: examine how the openness of the economy could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya; assess how capital market development could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya; explore how government credibility could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya and; determine how the volatility of returns could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya. The study is founded on two theoretical foundations namely: Theory of Policy Credibility, and Keynesian Theory. It adopted the explanatory research design with data being obtained from secondary data sources. The data were checked for completeness, accuracy, and uniformity and cleaned. The data obtained was coded and analyzed. The researcher used the Statistical Package for Social Sciences (SPSS version 24) to analyze the data. Descriptive statistics (weighted means, percentages, and frequencies) and inferential statistics (Pearson correlation and regression analysis) were used to analyze the data. The findings from multiple regression show that openness of the economy, government credibility, capital markets development and volatility of returns had significant relationships with the feasibility of GDP-Indexed Bonds to finance budget deficits. Findings from the multivariate regression model showed that the combined influence of independent variables could explain use of GDP-indexed bonds to finance budget deficits in Kenya though the model was strong. F-test also showed that all the independent variables combined could statistically and significantly predict the feasibility of the use of GDP-Indexed Bonds in Kenya. Regression coefficients for all the independent variables were also significant. In this regard, the level to which the independent variables could statistically predict the feasibility of the use of GDP-Indexed bonds to finance economic growth in Kenya were ascertained by the regression model. It could thus be concluded that ensuring openness of the economy, development of capital markets, credibility of the government as well as the predictability and steadiness of stocks returns could enhance the adoption of GDP-Indexed bonds as a financing option in Kenya. Based on the findings of the study, the following policy recommendation is made. The government needs to put in place policies for checking corruption and for enhancing its credibility among local and foreign investors. There should also be efforts to ensure that fiscal rules and the associated legislation are stable and do not change erratically so as to maintain investor confidence. The openness of the economy should also be enhanced to make it able to absorb different financial tools without problems. Limitations posed by taxes and any inflexible trade laws should be dealt with. The government should also constantly revise its legal and policy frameworks to ensure that capital markets adapt to emergent capital market demands to make the country competitive in the international arena. Mechanisms for reducing volatility of stocks should also be put in place.

Keywords: Openness of the Economy, Capital Market Development, Government Credibility, Volatility of Returns, GDP-Indexed Bonds, Budget Deficit

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Financing public debt remains an elusive goal for many countries the world over. In this regard, governments are always foraging for ways of financing deficits in their national budgets; often without success. Although there are various financing options, one of the most important financial tools used in several countries is GDP-Indexed Bonds. This study conceptualizes that GDP-Indexed Bonds could be a panacea to some of the glaring financing challenges facing developing countries such as Kenya.

In Greek, a study by Bonovas and Nikolopoulos (2012) shows that the government debt crisis that started in 2009 was aggravated by limited financing. The country faced severe recession and was operating within severely constricted fiscal limits. This shows the gravity of the lack of financing public debt in a country. In Bangladesh, a study by Abdin (2019) on "Budget Implementation: Challenges and Limitations" shows that a lack of adequate financing was a major factor limiting economic growth. In the 2019-2020 fiscal year, for example, a deficit of 22.78, which was largely hard to finance from external sources, had negative impacts on economic growth in the country. It is thus evident that lack of financing for budget deficits can limit the economic growth.

In India, the lack of financing has also been found to be positively linked to economic growth. A study by Sandefur and Duggan (2019) titled "If India Stopped Growing, Would the IMF and World Bank Say So?" showed that the Indian economy had started to slump. In the second quarter of the 2019 fiscal year, economic growth had dropped 4.5 percent; which was the gravest for a long time. This was characterized by a reduction of government revenues almost to the negative territory. The scarcity of financial resources thus led to unprecedented challenges in financing government projects. This shows the need for innovative ways of financing public debt.

Financing is also an important challenge facing government at the regional level. Challenges related to financing government projects had led to the collapse of various government projects in Africa. In most developing countries, for example, lack of adequate financial resources had contributed to the collapse of infrastructural projects. Reduction of financing through the IMF, World Bank, and tax-payers led to increases in government project failure due to abandonment and cost deviation (Aziz, 2013). As envisaged by this current study, it is thus pertinent for governments to put in place tailor-made strategies for financing public debt. Failure to do so could continue challenging the economic growth of most developing countries.

Lack of financing also has had negative impacts on economic growth in other African countries. A study by Fabian and Amir (2011) for

example shows that lack of funding or inadequate funding had contributed to the abandonment of many projects in developing many countries. An example of this was the Chad-Cameroon pipe-line project which failed after costing the World Bank US$4.2 billion since the institution withdrew its funding. In Ghana still, a study by Damoah, Akwei, and Mouzughi (2015) titled, "Causes of government project failure in developing countries" investigated affirmed that financial limitations such as fluctuation of prices, Delays in payments, and Release of funds were linked to the collapse of major projects.

Lack of enough financial resources has led to slow economic growth in Tanzania. In a United Nations Human Development Report (UNDP, 2014) the country was ranked 159 out of 187 countries. This means that the country is characterized by low human development; with most Tanzanians living in abject poverty. Dismal resources to finance economic development mean that over a quarter (28.2%) of mainland Tanzanians lived below the basic needs poverty line as posited by the National Bureau of Statistics (NBS, 2013). This necessitated international financing to bridge budgetary deficits.

Historically, Kenya has faced immense challenges related to lack of financing and erratic economic growth. Although the Kenyan Vision 2030 had projected GDP growth rate to be 10% as of 2012, the GDP growth rate was at 5.6% in 2015. This shows that the country was not registering the anticipated growth (Republic of Kenya, 2015). As of

independence, Kenya's economy was of the same size as South Korea, Hong Kong Taiwan which are major Asian economic giants (World Bank, 2013). However, Kenya's economy was wrecked by macroeconomic instability in the 1990s. Coupled with a lack of government credibility, economic growth remained largely stagnant due to limited ability to attract sufficient international funding. This led to widespread poverty, unemployment, and inequalities. This shows the importance of sustainable financing on the economic development of a country.

The Kenyan economy is also characterized by low capital formation. This means that the country has to rely on external borrowing to finance budget deficits (Safdari & Mehrizi, 2011). In agreement with the World Bank (2013) report, macroeconomic instabilities such as inflation and exchange rate volatility also contribute to dismal economic growth. This means that without sustainable external funding, it could remain untenable to adequately finance budget deficits. This could go on to have adverse effects on Kenya's economic growth.

Kithinji (2011) found out that Kenya faced major challenges in ensuring that the country had steady economic growth. The country faced sustained fluctuated economic growth and slumps. This meant that development had largely remained slow despite the fact that the country had very liberal public policies. Slow economic growth was

evidenced by a steady drop in GDP growth rate from 5.9% in April 2019 to 5.1% in December (Trading Economics, 2020). It is thus imperative to investigate ways in which economic growth in Kenya can be enhanced through various financial instruments such as GDP-Indexed Bonds. This emanates from the fact that attracting sustainable financing has remained largely elusive enhance the need for innovative financing.

It is worth noting that the adoption of Gross Domestic Product (GDP)-indexed bonds could have a number of positive effects for the national economies the world over. The concept of indexing debt to GPD is not new. It emerged in the 1980s. Its key proponents have been renowned economists such as Williamson among others (Shiller & Robert, 2005; Borenzstein & Mauro, 2004). Although these bonds did not see immense adoption, they started seeing a renaissance in emerging markets in the 1990s due to rampant financial and debt crises. This comes about in the wake of the realization that they could contribute to reduced cyclical vulnerability in developing countries. Presently, GDP-indexed bonds are playing key roles in debt restructuring in these countries.

GDP-indexed bonds "are financial instruments that are positively correlated with the economic growth rate of a country and can be issued to stabilize debt servicing of the nation." In this regard, the borrowing nation designs these bonds in such a way that the coupon payment

various upwards or downwards on basis points particularly pegged to every percent rise or fall in the GDP growth rate along the GDP growth rate has numerous benefits. It ensures that the lenders are rewarded well during the periods robust of growth and vice versa. This saves upon debt payments during slump periods.

Griffith and Gottschalk (2007) argue that GDP-indexed bonds stabilized the cost of debt serving and reduce the risk of sovereign default while also assuring safe returns for the investors. Furthermore, these bonds stabilize economic growth and reduce debt servicing default. As a result, countries that deploy them are likely to reduce the chances of economic crisis and the associated negative repercussions.

However, the deployment of GDP-Indexed Bonds is often challenged by several factors. This study conceptualized that the potential use of GDP - indexed Bonds to finance economic growth in Kenya could be enhanced or challenged by the openness of the economy, capital market development, government credibility, and voluntary of returns among others. This study sets out to find out the level to which these variables influence the proclivity of Kenya to deploy these bonds.

The openness of an Economy can influence the ability of a country to Use of GDP-Indexed Bonds to Finance Economic Growth. A study by Le (2020) focused on 46 Emerging Market and Developing Economies (EMDEs) from 1990 to 2014 show that trade openness among other

factors was positively correlated with economic growth. In the context of this study, it is apparent that openness of the economy could encourage investment in various sectors of the economy.

Capital market development could also influence the adoption of various financial assets. A study was based on empirical evidence for the 28 European Union (EU) and 34 OECD (Organization for Economic Co-operation and Development) countries between 1993 to 2013 show that the ability of the economy to absorb various financial tools such as loans and bonds due to enhanced capital market development positively contributed to economic growth the countries studied (Prochniak & Wasiak, 2017). This study sets out to investigate the level to which capital market development could influence the potential absorption of GDP-Indexed bonds to finance economic growth in Kenya.

Government credibility could also influence the adoption of GDP-Indexed Bonds. A report by the International Finance Corporation (2019) shows that the investment market determines the willingness of investors to invest in a country or not. In economies that are devoid of transparency, investors tend to be more cautious. In instances where there is a lack of credibility of shared financial performance records, investors may also shy away from making substantial investments. Since the former study was not focused on Kenya, the level to which its findings apply to Kenya is hard to verify without studies such as this current one.

A study by Rupande, Muguto, and Muzindutsi (2019) focused on the Johannesburg Stock Exchange between July 2002 and June 2018 show that volatility influenced the price of financial assets. In this regard, increased riskiness and volatility of selected financial assets influenced investment behaviours since investors are rational persons. As such, the volatility of returns could influence the willingness to invest in some bonds such as GDP Indexed-Bonds as hypothesized by this study.

Ikikii and Nzomoi (2013) in an analysis of the effects of stock market development on economic growth in Kenya show that there were high correlations between capitalization, trade volume, and economic growth in Kenya. In this regard, both variables explained 91% of the variation in economic growth in the country over the study period. However, the former study was not focused on GDP-Indexed Bonds in Kenya. This means the level to which stock market development could contribute to the potential adoption of GDP-Indexed bonds in Kenya is hard to very without studies in that direction.

From the preceding discourse, it is apparent that GDP-indexed bonds affect the economy of a country. However, there is a scarcity of literature that investigates the factors that could influence the uptake of these Bonds to finance budget deficits. Most extant literature focuses on the variables under investigation in this study singly without looking at all the variables under one umbrella. This creates a literature lacuna

that may be hard to fill without studies such as this current one. In this context, this study investigates the factors that could enhance the adoption of GDP - indexed bonds as a budget financing option in Kenya.

1.2 Statement of the Problem

Kenya has repeatedly experienced high levels of budget deficits. The budget deficit for the 2019/2020 financial year was Kshs 657.4 billion. Compared to the budget deficit for year 2009/2010 which was Kshs 163.0 billion, this shows an increase in budget deficit within a decade by over 300% (Government of Kenya, 2020). These financing deficits have had negative impacts on economic growth in the country. According to Kithinji (2011), Kenya is characterized by high fluctuated economic growth and slumps. Even though the Kenyan Vision 2030 had projected GDP growth rate to be 10% as of 2012, the GDP growth rate was only at 5.6% by 2015 (Republic of Kenya, 2015). The GDP growth rate dropped steadily from 5.9% in April 2019 to 5.1% in December; leading to negative impacts on economic growth (Trading Economics, 2020). Historically, the erratic economic growth in the country has been attributed to challenges related to low capital formation and erratic economic growth (World Bank, 2013). This has pushed the country to opt for external funding to bridge budget gaps. However, lack of government credibility due to rampant corruption means that economic growth faces periodic slumps due to the inability to attract sufficient and sustainable international funding. According

to Transparency International (2019) Kenya ranked 137 least corrupt out of 180 countries. This calls for innovative financing solutions.

Though GDP-Indexed bonds could be a panacea to the financing challenges facing economic development in Kenya, they have never been applied to the country before. It thus remains unclear if the Kenyan economy is able to successfully deploy these financial instruments. Furthermore, the potential of GDP-Indexed bonds to finance budget deficit has not been empirically clear based on extant literature. This creates a literature lacuna that is hard to bridge without studies such as this current one.

Additionally, the combined effect of the factors that could influence the adoption of the bonds in the Kenya market such as openness of the economy, capital market development, government credibility, and volatility of returns as envisaged by this current study are not well understood. In this regard, it remains untenable making empirically backed recommendations on how GDP-Indexed bonds could be leveraged to finance budget deficits in Kenya. This could deny the country the benefits associated with this important financial instrument. This current study sets out to investigate how GDP-indexed bonds could be leveraged as a budget financing option in Kenya.

1.3 Research Objectives

The main objective of this study was to analyze some selected factors that could influence the adoption of GDP-indexed bonds as a budget financing option in Kenya.

1.3.1 Specific Objectives

(i) Examine how the openness of the economy could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya

(ii) Assess how capital market development could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya

(iii) Explore how government credibility could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya

(iv) Determine how the volatility of returns could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya

1.4 Research Questions

(i) How could the openness of the economy influence the use of GDP-Indexed Bonds as a budget financing option in Kenya?

(ii) How could capital market development influence the use of GDP-Indexed Bonds as a budget financing option in Kenya?

(iii) How could government credibility influence the use of GDP-Indexed Bonds as a budget financing option in Kenya?

(iv) How could the volatility of returns influence the use of GDP-Indexed Bonds as a budget financing option in Kenya?

1.5 Significance of the Study

Economists and other officials at the Kenya Central Bank and the national treasury could find this study important. This is particularly so since they would understand how GDP-Indexed Bonds could be used to finance budget deficits in Kenya**.** Economic scholars would find this research useful. This would contribute to the scholarly discourse on the GDP-indexed bonds and their effect on financing budget deficit. This would be important since other researchers might be prompted to undertake to follow up studies on the subject.

The government could use the findings obtained in this study to understand how to leverage the use of GDP-indexed bonds in the country. This is vital since their effect on the financing budget deficit of the country is important to myriads of government stakeholders as well as the local population.

1.6 Scope of the Study

This study took place in Nairobi City. It was limited to four factors namely: the openness of the economy, capital market development, government credibility, and volatility of returns that could influence the use of GDP-indexed bonds as a budget financing option in Kenya. It only targeted the Debt Management Section of the Central Bank of Kenya, the 38 commercial banks, 44 insurance companies and, 30 pension funds operating in Nairobi as of September 2020. Although

other financial institutions could adopt government indexed bonds in other parts of Kenya, these were not included in the study to make it tenable it tenable due to time and financial constraints as well as challenges related to the COVID 19 pandemic.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review. It includes sections on theoretical review, empirical literature review, conceptual framework and, operationalization of variables. The literature is reviewed in line with the study objectives.

2.2 Theoretical Review

2.2.1 Classical Theory of Interest Rate

This is one of the oldest theories. It is built on 19th and 20th century works of several British economists. It was later elaborated by Irving Fisher (1930). The theory analyses the determinants of pure and risk free rate. It posits that interest rate is a subset of two forces. These include "the supply of savings determined from the household, and demand for investment and capital mainly from the business sector."

The classical theorists see interest rate payment as a reward for the postponement of consumption now for the sake of greater consumption in the future. People are thus motivated to save for the sake of the returns they anticipate in the future. High interest rates thus act as a motivator for savings and investments. There is thus motivation for savings and investments if the anticipated interests are high. Within the context of this study, people can be motivated to invest in GDP-indexed bonds due to the interest they anticipate in future. If the interests anticipated from these bonds are more than those

from other traditional bonds and other forms of savings, then investors can be motivated to make more adopt them and vice versa.

A study by Dermirgut and Huizinga (1999) shows that "interest interest rate fluctuations reflect the substitution between debt and equity financing." In this regards, the expansion of equity market offers competitive returns. This makes banks respond by increasing the deposit rate so as to attract more funds from the public. It can thus be assuaged that the level to which GDP-indexed bonds offer better returns as opposed to bank deposits would motivate more corporate and individual investors to adopt them. This will go on to enhance financing of budget deficits in Kenya.

2.2.2 Theory of Policy Credibility

Kydland and Prescott (1977) postulated the theory of policy credibility. In this regard, rational agents look at the credibility of government policies when making decisions about potential future investments. Private agents thus critically analyze the ability of a government to honour its policies before deciding to make their decisions on whether or not to invest in a particular economy. In this regard, investors are prone to assess the national economic model and assess all available information to get a picture of future expectations.

When the government comes up with policies, agents must assess the credibility of the said policy and their implications before forming their expectations and judgments. However, it is not an easy feat to assess the

credibility of policies. There are major challenges related to ascertaining the viability and effectiveness of government policies. There are also issues related to the commitment of policymakers to sustain their policies. In some instances, the potential reversal of policies could lead to their collapse. There is thus the problem of circular logic; while economic policies are seen as being effective if they are considered as being credible to private agents; these policies are often seen as credible if they are considered effective (Blackburn & Christensen 1989).

In line with this current study, it is conceptualized that the credibility of government policies on financing through GDP-Indexed bonds could influence the potential uptake of these bonds by investors. If the investors do not trust the government to honour its policies and if the government is seen as having weak financial policies, adoption of the bonds could be thwarted. Also, the political credibility of a government and its inability to sustainably implement its policies could affect the level to which investors could trust its policies. This current study sets out to find out the impact of government credibility on the potential adoption of GDP-Indexed Bonds in Kenya.

2.2.3 Keynesian Theory

The Keynesian theory (1935) posits that irrespective of how minute they are, micro-economic level actions can if undertaken by a large portion of the population or corporate bodies, can lead to "inefficient aggregate macroeconomic outcomes." In this case, the economy would operate

below its potential output and economic growth. In this context, most Keynesian proponents advocate for the adoption of stabilization policies aimed at reduction of the "amplitude of the business cycle, which they see as one of the most serious of economic problems (Mankiw, 1992).

An example is the Great Depression in which Keynes saw the stimulation of the economy- by inducing investment- as the main solution. This was done through a combination of two approaches, reduction of interest rates and government investment in infrastructural projects. In this context, investment by the government would lead to more income being injected; this would have ripple effects since it would result in more spending in the general economy. This would in turn stimulate more production and investment which would entail more income and spending (Keynes, 1936).

In line with this current study, it is conceptualized that GDP-indexed bonds would avail more income to the government. This would bridge budget deficits. It would also lead to stabilized government spending on infrastructure projects as well as other parts of the economy. This would prompt more and more people to invest in the economy. The result would be increased output and economic growth.

2.3 Empirical Review

This section presents a review of the empirical literature relevant to the study subject.

2.3.1 Openness of the Economy and Use of GDP-Indexed Bonds to Finance Budget Deficit

Guerguil, Mandon, and Tapsoba (2017) carried out a study on "flexible fiscal rules and countercyclical fiscal policy." Data was obtained from secondary data sources. The findings show that financial stability influences the link between fiscal rules and counter-cyclicality. This current study sets out to find out the level to which GDP-Indexed bonds contribute to financial stability in Kenya and the associated impact on the pro-cyclicality of financial pressures affects economic growth in the country. This is pivotal since it was not the focus of the former study.

A study by Le (2020) focused on 46 Emerging Market and Developing Economies (EMDEs) from 1990 to 2014 utilized panel econometric techniques. The findings show that "institutional quality, gross fixed capital formation, government expenditure, financial development, and trade openness" were positively correlated with economic growth. In the context of this study, it is apparent that openness of the economy could encourage investment in various sectors of the economy. These findings could be extrapolated to this current study that envisages that openness of the economy could influence the use of GDP-Indexed Bonds to finance the budget deficit.

A study by Pilinkienė (2016) sought to investigate "trade openness, economic growth, and competitiveness with reference to the Central and

Eastern European Countries (CEEs).” Empirical research was carried out based on panel data for 11 CEEs. The study period was from 2000 to 2014. Correlation analysis techniques, Granger-causality tests, and vector auto-regression (VAR) models were used to analyze the data. The findings confirmed that there was empirical interdependence between trade openness, economic growth, and competitiveness. This study sets out to find out the level to which such openness could contribute to enhanced adoption of GDP-Indexed bonds in developing countries such as Kenya.

A study by Zahonogo (2016) sought to find out the link between trade openness and economic growth. The study was focused on developing countries. In this regard, 42 sub-Saharan Africa (SSA) were studied using a dynamic model with data covering 1980 to 2012 being used. The study shows that there is a trading threshold that exists between which increased trade openness registers beneficial effects and beyond which these benefits decline. This study tests how openness could influence the adoption of GDP-Indexed Bonds in Kenya.

Musila and Yiheyis (2015) in “the impact of trade openness on growth: the case of Kenya,” sought to find out how trade openness influences the level of investment and by extension the rate of economic growth in the country. Data were obtained from annual time series data. The study established that although trade-policy induced openness negatively and significantly affected investment and the rate of economic growth,

Granger Causality tests showed that when trade openness changed by a unit, it had a positive relationship on long economic growth long-term rate when influenced by the rate of physical capital growth. This study sets out to find on the level to which openness in the economy, which was not the focus of Musila and Yiheyis study could influence the adoption of GDP-Indexed Bonds to finance budget deficits in Kenya.

A study by Kwon (2019) focused on "Nominal GDP growth indexed bonds: Business Cycle and Welfare Effects within the Framework of New Keynesian DSGE model". This study examines how GDP-indexed bonds affect welfare through the use of a New Keynesian DSGE model and add to existing literature that shows GDP-indexed bond issuance helps in the stabilization of public debt giving room for a countercyclical fiscal policy. This is achieved by conducting a careful general equilibrium welfare analysis. Household welfare is immune to the source of government financing in the standard DSGE models where Ricardian equivalence holds, but this study examines how GDP-indexed bonds affect welfare when Ricardian equivalence does not hold. Data from 'hand-to-mouth' households (Gali et al., 2007), distortionary income taxes that fund debt, and Epstein and Zin (1989) type recursive preference is added to the medium-scale model of Smets and Wouters (2007). The findings show that when the fiscal authority makes efforts to stabilize debt, GDP-indexed bonds significantly helps in improving the welfare of the hand-to-mouth households through the stabilization of their consumption and their labour supply responses to fiscal

consolidations. For this to take place, trade openness is required to secure the willingness of investors to invest in these bonds.

A study by Cabrillac, Gauvin, and Gosse (2017) on the Benefits Of GDP-Indexed Bonds for Issuing Countries, Investors, and International Financial Stability uses simulations up to 2040 to help in the identification of the countries which would benefit from using GDP-indexed bonds instead of the conventional bonds in the prevention of sovereign debt crises. Findings show that through the use of GDP-indexed bonds, countries protect their debt ratios against deflation and recession, and through this, the contribution of GDP-indexed bonds to international financial stability is a reason for international coordination to promote their use.

Borensztein and Mauro (2004) in their study "The case for GDP-indexed bonds", sought to revive the case for countries to ensure against economic growth showdowns by issuing bonds indexed to the rate of growth of GDP. Through the simulation of the effects of GDP-indexed bonds under different assumptions about fiscal policy reaction functions and their output effects, findings show that GDP-indexed bonds have the impact of reducing debt/GDP paths.

Cabrillac et al. (2018) studied GDP-indexed bonds: a solution to debt crises? The background of this study is that a high public debt in a country is a challenge to the implementation of countercyclical fiscal

policies and this increases the default risk. This study aims at establishing if GDP-indexed bonds play a role in mitigating this risk to avoid costly and disruptive restructuring. Using the case of Greece, simulations were done to demonstrate that the conversion of half the public debt into GIBs in 2009 led to better trajectories for the economy and the debt. This in turn led Greece to avoid a restructuring as this helped in debt reduction.

2.3.2 Capital Market Development and Use of GDP-Indexed Bonds to Finance budget deficit

A study by Prochniak and Wasiak (2017) investigated "the impact of the financial system on economic growth in the context of the global crisis." The study was based on empirical evidence for the 28 EU and 34 OECD countries. The study period was from 1993 to 2013. Its main aim was to find out how the development and stability of the financial sector in the selected countries impacted economic growth. The findings show that the ability of the economy to absorb various financial tools such as loans and bonds due to enhanced capital market development had positive influences on the economic growth of the country. This current study sets out to investigate the level to which capital market development in Kenya could contribute to the potential absorption of GDP-Indexed bonds to finance the budget deficit in the country.

A study by Bist (2018) sought "financial development and economic growth." The study was based on evidence from a panel of 16 countries

drawn from Africa as well as other low-income countries from other continents. The study period was 20 years from 1995 to 2014. Data were subjected to fully modified and dynamic OLS techniques. The findings show that financial market development had a positive and significant impact on economic growth. In this context, this study sets out to find out the level to which market development could influence the deployment of GDP-Indexed Bonds in Kenya.

A study by Consiglio and Zenios (2018) sought to model the level to which receptivity and capacities of UK and US markets as well as other developed countries contributed to the adoption and deployment of GDP-Indexed Bonds. The findings show that developed markets in these countries as well as in Germany, Italy, and South Africa enhanced the adoption of GDP-Indexed Bonds irrespective of their riskiness. This current study sets out to find out the level to which market development could influence the adoption of FGD-Indexed Bonds to finance the budget deficit in Kenya.

A study by Pradhan, Arvin, Norman, and Bahmani (2018) sought to find out if there was a Granger causal relationship between five variables. These included stock market development, bond market development, and economic growth as well as two other macroeconomic variables (inflation rate and real interest rate). Data were obtained from a panel data set of the G-20 countries with the period being 1991 and 2016. The Auto-regression model was used to find out the existent nature of

Granger causality between the variables. The findings show that in the long-run, bond stock market development, market development, inflation rate, and real interest rate predicted economic growth

Coşkuna, Seven, Ertuğrul, and Ulussevera (2017) carried a study aimed at exploring the relationships between capital market development and economic growth in Turkey. The study period was 2006 to 2016 and the components of the capital market under investigation were "corporate bond, stock, mutual/pension funds, government bond markets." The findings show that while there were cointegration relationships between capital market development and economic growth, there was capital market development could support the use of GDP-bonds to finance budget deficit in the study area.

A study by Muawya (2019) sought to find out how the capital market affected economic growth in Oman. The real Gross Domestic Product (GDP) was used to represent economic growth. The study also scanned the impact of the Muscat Security Market (MSM) on the economic growth in Oman. Data was collected from annual official reports from the MSM, Central Bank of Oman as well as World Bank Development Reports. The findings show that there was a positive relationship between the capital market and Omani economic growth during the study period. This current study set out to find out the level to which capital market development could facilitate the adoption of GDP-Indexed Bonds as a budget financing option in Kenya.

Kapaya (2020) carried out a study titled, “stock market development and economic growth in Tanzania: an ARDL and bound testing approach.” The study aimed at establishing empirical evidence of the role of stock markets and its importance in the Tanzanian financial system and causal relationship with economic growth in the country and vice versa. Data were obtained from a sample of quarterly time-series from Q1 to Q2 between 2001 and 2019 in Tanzania. The findings show that while in the short-run stock market development had a negative causality with economic growth but had a positive long-term causality relationship with economic growth. This study sets out to find out the level to which stock market development could contribute to the adoption of GDP-Indexed bonds and to finance budget deficits in Kenya.

Ikikii and Nzomoi (2013) undertook an analysis of the effects of stock market development on economic growth in Kenya. The study used GDP and two measures of the stock market. These included capitalization and trade volume. The findings show that there were high correlations between capitalization, trade volume, and economic growth in Kenya. In this regard, both variables explained 91% of the variation in economic growth in the country over the study period. This study sets out to find out the level to which overall market development could influence the use of GDP-Indexed bonds to finance the budget deficit in Kenya.

Fink, Haiss, and Hristoforova (2003) carried out a study on "Bond Markets and Economic Growth." This study focused on the relationship between the development of the aggregate bond markets and the GDP in 13 developed economies. Bond markets have often been ignored as a third essential source of external finance and priority given to the ties of the banking sector and stock markets to the real and the financial sector. This study sought to fill this gap through the provision of empirical evidence for causality patterns that support the supply-leading approach in the USA, UK, Switzerland, Germany, Austria, the Netherlands, and Spain in the period 1950 to 2000. The Granger causality test and co-integration approach was used to test this conjecture and the results show evidence of interdependence between bond markets capitalization and real output growth in the cases of Japan, Finland, and Italy.

A study by Cytonn Investments (2019) on "The Role of the Capital Markets in Economic Development" sought to establish the role played by capital markets in financing infrastructure development, large enterprises, and Small and Medium Enterprises (SMEs) and their link to economic growth. This is aimed at filling the gap of development as outlined by the World Bank that for developing countries to achieve Sustainable Development Goals (SDGs) by 2030, an estimated USD 4.0 trillion is required. To achieve this, capital markets must be developed and strengthened to mobilize commercial financing. The findings show that a well-developed capital market creates a sustainable, low-cost

distribution mechanism for various financial products and services across the country. This in turn translates to the raising of long-term funds by businesses used to purchase goods, leading to growth and support to the country's economic growth.

Coşkun (2017) carried out a study on "Capital market and economic growth nexus: Evidence from Turkey" which aimed at exploring the relations between the development of capital markets sub-components such as mutual/pension funds, corporate bond, stock, and government bond markets and economic growth in Turkey in the period of 2006 to 2016. Findings show that there is a relationship between capital market development and economic growth. Through the use of ARDL, Markov Switching Regression, and Kalman Filter models, the findings also show that capital market development has asymmetric effects on economic growth.

Narayanaswamy, Blitzer, and Carvajal (2017) studied "The Importance of Local Capital Markets for Financing Development," a study that aimed at highlighting the importance of capital markets to the economic growth of a country. Findings show that strong capital markets have a gradual growth which requires strong leadership by the government and investment in terms of time and resources. This, in turn, translates to their ability to fund private investments and strategic economic needs

2.3.3 Government Credibility and Use of GDP-Indexed Bonds to Finance Budget Deficit

United Nations (2005) in a report from a brainstorming meeting titled "GDP-Indexed Bonds: Making it Happen" showed that credibility played a key role in enhancing the adoption of GDP-Indexed Bonds. The findings show that although developing countries may be interested in GDP indexed bonds, they are less attractive to investors than in developed countries due to the risks associated with a potential default. This study sets out to find out the influence of credibility on the potential uptake of GDP-Indexed Bonds in Kenya.

Ejigayehu (2013) carried out a study titled, "the effect of external debt on economic growth – A panel data analysis on the relationship between external debt and economic growth." Secondary data was collected for 8 poor African countries that were heavily indebted. The study period was from 1991 to 2010. The findings from estimation show that "external debt affects economic growth by the debt crowding out effect rather than debt overhang." This was aggravated by the fact that the selected countries were defaulting more than 95% of their accumulated debt. This challenged their creditworthiness. In the worst-case scenarios, some of these countries were transferring their resources, including but not limited to foreign aid and foreign exchange, to service their accumulated debt which had negative influences on economic growth. This current study sets out to find out the level to which the

credibility of the government in the context of perceived ability to pay investors affects the adoption of GDP-Indexed Bonds in Kenya.

Roldos (2004) posits that challenges related to lack of credibility, lack of transparency, and limited liquidity in the market contributed to poor absorption of government bonds in Mexico. However, longer-term government bonds rose sharply starting in 2004. This was facilitated by financial market reforms in the country. This was also recorded in Malaysia, where government efforts aimed at making the market easier and more attractive enhanced the uptake of government bonds. This study sets out to find out the level to which government credibility could contribute to the adoption of GDP-Indexed Bonds in Kenya (Cha, 2002).

A study by Hanish (2005) sought to establish the effect of the irrationality of rational expectations in investment processes. The paper shows that some investors, within the premise of rational expectations theory, often seek to push central bank decisions towards the fulfillment of higher inflation rates. In this regard, central banks should put in place mechanisms for buttressing their credibility in fighting inflation. Without such credibility, investor confidence would be limited. Within the context of this study, the willingness of investors to trade with a government that lacks credibility to control the macroeconomic environment in which GDP-bonds are traded could check the willingness of investors to trade in such bonds.

A report by the International Finance Corporation (2019) titled, "Creating Impact: the promise of impact investing" shows that the investment market determines the willingness of investors to invest in a country or not. In economies that are devoid of transparency, investors tend to be more cautious. In instances where there is a lack of credibility of shared financial performance records, investors may also shy away from making substantial investments. This study sets out to find out the level to which credibility of the government to honour the GDP-Indexed bonds and keep economic growth as indicated by GDP positive could influence the uptake of GDP-Indexed bonds in Kenya.

A study focused on The People's Republic of China by Burdekin and Hu (1999) shows that the government that faced with an inflation panic between 1988 and 1989, the government introduced GDP-Indexed Bonds. It also introduced these bonds again in 1993 when inflation soured suddenly. The government gained credibility in the first instance by controlling inflation; which led to high returns for investors. However, the inability to control inflation in the 1993 to 1995 period cost the government a lot as the bonds matured before inflation could be controlled. This cost the government high penalties. However, the inabilities to control inflation in the short-run cost the government highly. In instances when a government is not able to pay investors promptly, its credibility is lost, leading to reduced investor confidence. This current study sets out to find out the level to which government

credibility affects the propensity of governments to promptly deploy GDP-Indexed bonds with reference to Kenya.

Vishnu (2012) studied 'Discussion on Feasibility of GDP-Indexed Bonds in Emerging Economies –Viewpoint India.' The background of this study is that emerging economies are prone to financial distress and debts in a bid to sustain their high level of economic growth rate and that their over-reliance on foreign investments exposes them to the risk of growth rate fluctuations. This study aims at investigating the notion that GDP-indexed bonds are the solution to these woes. For purposes of this study, monthly data was collected on the GDP growth rate and 10-year bond yield. Results show that there is a correlation between returns on GDP-indexed bonds and economic growth in developing countries.

Carnot and Pamies (2017) studied 'GDP-linked Bonds: Some Simulations on EU Countries Summer'. This paper aimed at exploring the implications of GDP-linked bonds (GLBs) as instruments for national debt management, through the use of data and tools of the Commission Debt Sustainability Monitor. The results show that there are significant benefits from GLBs in reducing debt uncertainties for all European economies. These effects are largely self in economies that are characterized by medium-to-high debt, high macroeconomic volatility, and limited alternative tools to smoothen debt shocks.

2.3.4 Volatility of Returns and use of GDP-Indexed Bonds to Finance Budget Deficit

Kamal and Lashgari (2012) carried out a study aimed at "comparing GDP Indexed Bonds to Standard Government Bonds." The study was based on a desk review of extant literature for the 1947 to 2010 period. The study established that when compared to the more researched standard bonds, GDP bonds though lacking historical data in the United States, had a superior performance in a risk-return framework. Since the former study was not focused on Kenya or an African country, the findings obtained may not expressly relate to this current study. It is thus important to find out how GDP-indexed bonds have been applied in the country and the level to which their use has impacted economic growth in the country as compared to standard bonds.

In Canada, Brueckner, and Carneiro (2017) studied the nexus between trade volatility and real GDP per capita growth. The findings show that "terms of trade volatility in countries with pro-cyclical government spending had significant negative effects on economic growth in countries." Trade volatility affects the confidence of investors. Since investors are motivated by returns, this current study hypothesizes that volatility of returns could wear down investor confidence. Regrettably, the level to which volatility of returns could influence the uptake of GDP-indexed bonds was not the focus of the former study hence the need for this current study.

Brueckner and Carneiro (2017) carried out a study on "terms of trade volatility, government spending cyclicality, and economic growth in Canada" The study cast light on the nexus between trade volatility and real GDP per capita growth. Analysis of 5-year panel data from 175 countries in the period starting from 1980 and ending in 2010 was undertaken. The findings show that "terms of trade volatility in countries with procyclical government spending had significant negative effects on economic growth in countries." These findings cast light on this current study that hypothesizes that trade volatility could deter the confidence of investors and have negative impacts on economic growth. However, the level to which this could influence the uptake of GDP-Indexed Bonds in developing countries such as Kenya is hard to verify without studies such as this current.

Viceira (2012) in "Bond Risk, Bond Return Volatility, and the Term Structure of Interest Rates" shows that bond risks affect investment behaviour. Projected bonds and stock returns from extant data are often used by financial analysts to advise investors on where to put their money. In economies where high levels of volatility of returns are anticipated, investors may shun some forms of bonds. This current study sets out to find out the level to which bond return volatility could act as a motivation for potential uptake of GDP-Indexed Bonds as a budget financing option in Kenya

A study by Jivraj (2013) carried out a study titled, "stock-bond correlation: time variation, predictability & hedging." The study was based on secondary data sources. The findings show that the volatility of returns from various portfolios influences their attractiveness. Fluctuations in returns over time may limit the propensity of investors to purchase some bonds over time. Perceived inability to achieve the anticipated returns could check the attractiveness of GDP-Indexed bonds by investors. This current study sets out to find out the level to which volatility of returns in the Kenyan market could influence the potential uptake of GDP-indexed bonds by investors in Kenya.

Ogotseng (2017) carried out a study titled, "Stock returns behaviour and the pricing of volatility in Africa's equity markets." The study was based on a time-series analysis of stock prices between November 1998 and December 2016 in ten African equity markets. The study found out that volatility of stock returns had a weak but positive relationship with expected returns. The volatility of stocks could go on to have negative influences on their attractiveness. This current study sets out to find out the extent to which the anticipated volatility of returns could influence the potential uptake of GDP-Indexed Bonds in the Kenyan market.

De Santis and Imrohoroglu (1997) in "Stock returns and volatility in emerging financial markets" posit that there are higher levels of conditional volatility in emerging markets. This is attributable to selected pertinent macroeconomic factors that apply to emerging markets mainly linked to political, social, and economic events. This

affects the attractiveness of state-issued bonds in the market. These findings are corroborated by a study by Senbet and Otchere (2008) on "African Stock Markets" that shows that these risk factors are prevalent in the continent. These risks emanate from economic and political systems instabilities that are mostly without the control of the African stock markets. This current study sets out to find out the level to which volatility of returns due to economic and political instabilities among other factors in the Kenyan market influence the potential attractiveness of GDP-Indexed Bonds as a budget financing option in Kenya.

A study by Ishfaq (2018) investigated the "Impact of Cash Flow Volatility on Stock Returns: Evidence from Pakistan Stock Market." Data was collected from the Karachi Stock Exchange. In this light, 80 companies were studied with data focusing on 2005 to 2016. The findings show that cash flow volatility can have negative future impacts on stock returns at the firm level. Though focused on individual firms, these findings cast light on the potential impact of volatility of returns for stocks listed in the African stock market on the attractiveness of GDP-Indexed bonds by local and foreign investors.

A study by Rupande, Muguto, and Muzindutsi (2019) sought to investigate investor sentiment and stock return volatility. Data was collected from the Johannesburg Stock Exchange. The study period was July 2002 to June 2018. The findings show that volatility influenced the price of financial assets. Increased riskiness and volatility of selected

financial assets influenced investment behaviours. Since investors are expected to be rational people, increases in the volatility of returns could influence their willingness to invest in some bonds, and vice versa. This current study sets out to find out the veracity of these findings within the context of the potential uptake of GDP-Indexed Bonds in Kenya.

In the U.S., Japan, Hong Kong, U.K., France, Germany, and Turkey financial markets, a study by Abdelhédi-Zouch, Abbes, and Boujelbène, (2015) shows that amplification of volatility had positive impacts on the financial market in the US financial markets during the subprime crisis. There was also high sentiment during the period due to anticipated returns from some financial assets. This current study sets out to find out the level to which the amplification of potential returns could influence the potential attractiveness of GDP-Indexed bonds in the Kenyan market.

Hab, Junboc, and Chunchia (2019) studied "Volatility and the cross-section of corporate bond returns" which aims at examining the pricing of volatility risk and idiosyncratic volatility in the cross-section of corporate bond returns for the period of 1994-2016. The findings show that bonds with high volatility betas have low expected returns in all segments of corporate bonds and that bonds with high idiosyncratic bonds (stock) volatility have high (low) expected returns and that this relationship strengthens as ratings decrease. This current study sets out to investigate the veracity of these findings in Kenya.

Benlagha (2014) studied "Volatility Linkage of Nominal and Index-linked Bond Returns: A Multivariate BEKK-GARCH Approach." This study aims at investigating the behavior of volatility linkage between nominal and index-linked bond returns using the multivariate BEKK-GARCH approach. Analysis from data collected daily from French bonds with different maturity dates and different reference indices show two empirical regularities. These are that the relationship between nominal and index-linked bond returns is significant and is due to liquidity risk and that there is confirmation of co-persistence in volatility returns. This study sets out to find out how the volatility of returns influences the attractiveness of GDP-indexed bonds in Kenya.

A study by Viceira (2012) on "Bond risk, bond return volatility, and the term structure of interest rates" aims at exploring the time variation in the bond risk, as measured by the co-variation of bond returns with stock returns and consumption growth, and in the volatility of bond returns. Findings show that there is evidence that movements both in the short nominal interest rate and the yield spread are positively related to changes in the subsequent realized bond risk and bond return volatility.

2.4 Conceptual Framework

This study conceptualized that potential uptake of GDP - Indexed Bonds in Kenya could be enhanced by the openness of the economy, capital market development, government credibility, and volatility of returns

(independent variables). The joint effects of these benefits contribute to the financing of budget deficit through GDP-Indexed Bonds in the country (the dependent variable). The interactions of these variables and their respective indicators are presented in Figure 1.

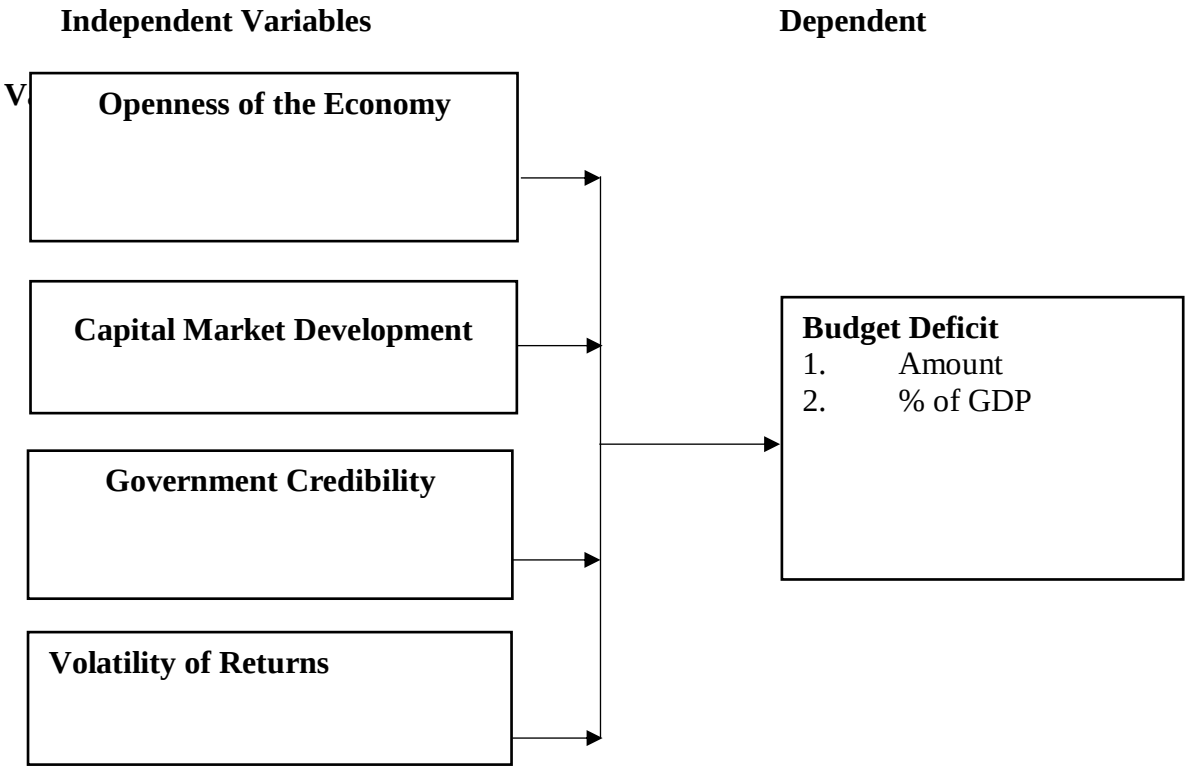

Figure 2.1 Factors that could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya

Source: Researcher (2020)

2.5 Operationalization of Variables

Table 2.1 Operationalization of Variables

Variable	Type of Variable	Indicators	Scale/Measurement	Type of Analysis
Openness of the Economy	Independent	• Trade Laws • Foreign Direct Investments • Tolerance of financial innovations	• Nominal • Ordinal	• Descriptive Statistics • Inferential Statistics
Capital Market Development	Independent	• Bonds traded • Ratio of market capitalization to GDP • Volume and value traded	• Nominal • Ordinal	• Descriptive Statistics • Inferential Statistics
Government Credibility	Independent	• Corruption • Policy stability • Government credibility • Control of inflation	• Nominal • Ordinal	• Descriptive Statistics • Inferential Statistics
Volatility of Returns	Independent	• Low/High Stock Price Differences • Profit margin fluctuations • Sales price variance over time	• Nominal • Ordinal	• Descriptive Statistics • Inferential Statistics
Financing	Dependent	• Budget of deficit per annum	• Nominal • Ordinal	• Descriptive Statistics • Inferential Statistics

Source: Author (2020)

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the researcher's design, target population, sample, and sampling technique. The researcher also explains the instrument, reliability, and validity of the instruments, data collection procedure and, data processing, and analysis.

3.2 Research design

A research design is an outline for acquiring responses to the inquiry being studied and controlling some of the challenges experienced during the process of research. According to Polit and Beck (2004), a good research design is guided by its ability to answer the questions being researched while at the same time, meet the objectives of the study as well as communicate the research problem.

This study adopted the exploratory research design. This design is appropriate for a research problem in cases where the researcher lacks past data or in situations where there are few documented students for reference (Babbie, 2007). Exploratory studies act as tools for initial research. They create a platform for follow-up studied. Since GDP-Indexed bonds have not been deployed in Kenya, this is deemed a suitable design for examining the factor that could influence their adoption in Kenya

3.3 Target Population

The study targeted publications from 10 organizations namely: The Global Economy, CEIC Data, Cytonne, Central Bank of Kenya, World Bank, Transparency International, the Kenya National Treasury, International Monetary Fund (IMF), European Bank and, African Development Bank. Quarterly and annual reports from these organizations were targeted. This translated to 5 reports per organization and 50 reports from the 10 organizations per annum. Since the study was limited to the events of 2015 to 2019 (5 years), a total of 250 reports were thus targeted. The five year period was chosen since it was anticipated that the findings obtained could cast light on the current situation on the subject under investigation. Only published relevant financial reports on the study subject from the reports was included.

3.4 Sampling and Sampling Procedure

Sampling is "the process of enrolling sub-sets of a population to represent the whole population to gather the desired information concerning the subject matter" (Kerlinger & Lee, 2000). Wimmer and Dominick (2000), state that determining an adequate sample size is one of the most controversial aspects of sampling. However, sample size can be determined by methodology, cost, and time among other factors. This study used purposive and total population sampling techniques to include all the 250 reports from the targeted organizations for the study period (2015 – 2019).

3.5 Research Instrument

The study used data collection forms based on the objectives of the study. These sought specific information on the study variables. The data collection forms had structured questions pegged to the research questions. Each report was subjected to the data collection form with the researcher endeavouring to extract and fill in the forms.

3.6 Validity and Reliability of the instrument

Validity and reliability were not carried out to since only secondary data was collected.

3.7 Data Collection Procedure

Before embarking on data collection, the researcher obtained a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI) located in Nairobi. The researcher then visited various organizations and request financial reports over the study period. This was supplemented with online searches of published reports from the targeted organizations.

3.8 Data Processing and analysis

The data collection forms were checked for completeness, accuracy, and uniformity and cleaned. The data obtained was coded and analyzed. The researcher used the Statistical Package for Social Sciences (SPSS version 24) to analyze the data. Descriptive statistics

(weighted means, percentages, and frequencies) and inferential statistics (Pearson correlation and regression analysis) were used to analyze the data.

3.9 Diagnostic Test

Diagnostic tests that were used in the study include normality, autocorrelation, multicollinearity test, and tests for heteroskedasticity.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND ANALYSIS OF DATA

4.1 Introduction

This study sought to investigate how GDP-indexed bonds could be leveraged to finance the budget deficit in Kenya. Its specific objectives were to examine how the openness of the economy could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya; assess how capital market development could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya and; explore how government credibility could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya. The findings from the secondary data are presented in this chapter.

4.2 Descriptive Statistics

This section presents the findings of the study. This is done in line with the study objectives.

4.2.1 Openness of the Economy and Financing public debt with GDP Index Bonds

The first objective of the study was to examine how the openness of the economy could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. Data were obtained from various secondary data sources. The findings are presented in the following sections.

4.2.1.1 Trade Openness

The study sought to find out the level of trade openness in Kenya. Panel data for the years 2015 to 2019 were assessed on trade openness (exports plus imports as percent of GDP). The findings show that trade openness decreased steadily from 44.18% in 2015 to 33.4% in 2019. This shows that Kenya registered decreasing levels of trade openness during the period of study. This could have a negative influence on the attractiveness of GDP-indexed bonds as investors are wont to invest in countries with high levels of trade openness.

Table 4.1 Trade Openness in Kenya (2015 - 2019)

Year	Trade Openness
2015	44.18
2016	37.7
2017	37.39
2018	36.15
2019	33.4

Source: Theglobaleconomy.com, 2020.

4.2.1.2 Foreign Director Investments as an Indicator of Openness of the Economy

The study sought to investigate the level of foreign direct investment (FDI) in Kenya between 2015 and 2015. This was particularly so since foreign direct investments show the receptivity of an economy to foreign investors. Higher volumes of FDI means that GDP indexed bond would be easily adopted and vice versa. The findings show a dip

in FDI as a percent of GDP in 2016 to 0.57 from 0.97 in 2015. This was followed by increases in the level of FDI to 0.85 in 2017 and 1.85 in 2018. This however dropped significantly to 1.4 in 2019. These findings show that FDI was low and registered fluctuations over the study period. This could lead to dismal investors in stocks such as GDP indexed bonds.

Table 4.2 Foreign Direct Investment (2015 - 2019)

Year	FDI
2015	0.97
2016	0.57
2017	0.85
2018	1.85
2019	1.4

Source: Theglobaleconomy.com, 2020.

4.4.2 Capital Markets Development and Financing public debt with GDP Index Bonds

The second objective of the study was to assess how capital market development could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. The findings are presented in the following sections.

4.4.2.1 Kenya's Market Capitalization as a Percentage of GDP

The study sought to find out the level of capital market capitalizations during the study period. The findings show that market capitalization, which is the amalgamation of the total publicly traded values of shares in the stocks market accounted for 32.614% of the nominal GDP in 2015. This rose and fell over the 5 years trade period to 26.077% of the nominal GDP. These findings show that the Kenyan capital markets were well developed which could influence the attractiveness of GDP indexed bonds if deployed.

Table 4.3 Kenya Market Capitalization: % of GDP

Year	Market Capitalization
2015	32.614
2016	27.504
2017	30.882

2018	23.639
2019	26.077

Source: www.ceicdata.com (2020).

4.4.2.2 Equities Market Performance

The study went on to study equities market performance. The findings show that between 2017 and 2019, the findings show that while several Sub-Saharan African countries registered negative returns in their stock markets at the end of 2019, Kenya registered positive gains. However, the market performed unsteadily between 2017 and 2019. In 2018 there was negative performance. The market recorded ups and downs during the period. This shows that investors could predict the potential performance of stocks and bonds in the market using this data. The Kenyan equities market was weak compared to other countries in sub-Saharan countries. In this regard, its attractiveness to investors, if GDP-Indexed bonds were deployed, would be average.

Table 4.4 Equities Market Performance

Equities Market Performance (Dollarized*)					
Country	**17-Dec**	**18-Dec**	**19-Dec**	**2018 y/y change (%)**	**2019 y/y change (%)**
Kenya	1.7	1.4	1.6	**-16.90%**	**18.80%**
South Africa	4815.3	3675.7	4079.3	**-23.70%**	**11.00%**
Uganda	0.5	0.5	0.5	**-16.70%**	**8.90%**
Tanzania	1.8	1.6	1.5	**-8.30%**	**-7.00%**
Nigeria	124.8	102.4	87.7	**-18.00%**	**-14.30%**
Ghana	570.4	518.5	405.5	**-9.10%**	**-21.80%**
Zambia	533.3	440.7	303.3	**-17.40%**	**-31.20%**

*The index values are dollarized for ease of comparison

Source: Cytonnreport.com (2020).

4.4.2.3 Stock of Domestic Debt

In the study period, stock market prices remained attractive for long-term investors. Between 2015 and 2019 treasury bills and treasury bonds saw steady increases from 318.9 billion and 1.04 trillion Kenya shillings to 954.3 billion and 1.75 trillion Kenya shilling respectively. This means that the stock market remained attractive over the years. This could enhance the adoption of GDP indexed bonds to finance public debt if they were deployed in Kenya.

Table 4.5 Stock of Domestic Debt

Year	Treasury Bills	Treasury Bonds
June 2015	318,929	1,035,662.00
June 2016	588,088	1,152,041.00
June 2017	744,155	1,332,418.00
June 2018	878,622	1,511,872.00
June 2019	1,511,872	1,748,602.57

Source: Central Bank of Kenya (2020).

4.4.2.4 Interest Payments on Domestic Debt

Interest Payments on treasury bills and treasury bonds accounted for most of the interest payments on domestic debt between 2015 and 2019. Interest paid on treasury bonds as of June 2019 was valued at 184.8 million Kenya shillings. This shows that interest in treasurer bonds was more than double the value of treasury bills. Treasury bills and bonds had high levels of interest rates. This could enhance the attractiveness of GDP-Indexed bonds if deployed in Kenya.

Table 4.6 Interest Payments on Domestic Debt

Type of debt	June 2015'	June 2016'	June 2017'	June 2018'	June 2019'
Treasury Bills	24,714	37,491	66,270	66,545	81,876
Treasury Bonds	108,948	127,496	144,566	167,030	184,771
CBK Commission	3,000	3,000	3,000	3,000	3,000
Pre-1997 Debt	825	794	759	725	707.1
Others (overdraft)	2,240	4,077	1,270	2,197	1,996.9
Total	**139,727**	**172,858**	**215,865**	**239,497**	**272,351**
Ratios (%)					
Domestic Interest/Revenue	13.5	14.9	15.2	17.6	16.8
Domestic Interest/GDP	2.4	2.6	2.8	2.7	2.9

Source: Central Bank of Kenya (2020)

4.4.2.5 Portfolio Investment, net (BoP, current US$) - Kenya

The study also sought to investigate net portfolio investment in Kenya. Portfolio investment is a group (portfolio) of assets such as equity, securities, stock, and bonds among others. The findings show that net portfolio investments increased steadily from USD 155.1 million in 2015 to USD 788.9 million. Portfolio investments however dropped sharply in 2018 and 2019 to – 624 million and -1000.3 million dollars. This shows a sharp drop in local portfolio investments in Kenya. This could reduce the attractiveness of GDP-indexed bonds in Kenya to local investors if deployed. These findings are presented in Table 4.7.

Table 4.7 Portfolio Investment, net (BoP, current US$) - Kenya

Year	Millions of USD
2015	155.1
2016	349.1
2017	788.9
2018	-624.7
2019	-1000.3

Source: Ceicdata.com (2020).

4.4.2.6 Kenya Foreign Portfolio Investment: % of GDP

Conversely, 2018 and 2019 saw sharp increases in Kenya's Foreign Portfolio Investment when expressed as a percentage of GDP. This shows that foreign Portfolio investment increased significantly after an abrupt dip in 2017 which was accountable to uncertainties related to the 2017 General Elections. This shows the importance attached to Kenyan financial assets such as securities and bonds by foreign investors increased significantly in the last two years. This could enhance the attractiveness of GDP-Indexed bonds in Kenya if they were deployed. These findings are presented in Table 4.8.

Table 4.8 Kenya Foreign Portfolio Investment: % of GDP

Year	Millions of USD
2015	0.056
2016	0.107
2017	-0.157
2018	1.944
2019	2.374

Source: Ceicdata.com (2020).

4.4.3 Government Credibility and Financing public debt with GDP Index Bonds

The third objective of the study was to explore how government credibility could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. Various measures of government credibility were used to assess the level of government credibility during the study period. The findings are presented in the following sections.

4.4.3.1 Ease of Doing Business

The ease of doing business was assessed. The findings show that the ease of doing business improved steadily from position 113 in 2015 to 56 out of 130 economies in 2019. This shows that the government had put in place policies aimed at making the business environment conducive for investors. This could have positive effects on the attractiveness of the Kenyan economy to investors.

Table 4.9 Ease of Doing Business

Year	Ranking
2015	113
2016	92
2017	80
2018	61
2019	56

Source: World Bank (2019).

4.4.3.2 Corruption Index

Kenya's corruption levels were assessed. This stems from the fact that corruption hinders a government's ability to enforce its laws. It could also make policy implementation untenable. Since GDP-Indexed bonds were highly dependent on the ability of the government to honour is bonds, corruption could affect the attractiveness of Kenya to investors. The corruption index ranks counties on a scale of 0 (very corrupt) to 100 (very clean). Kenya ranked 137 least corrupt out of 180 countries. This shows that Kenya

had high levels of corruption. This could thus challenge the ability of Kenya to deploy GDP-Indexed bonds to finance public debt

Table 4.10 Kenya's Corruption Perceptions Index

Year	Corruption Index
2015	139
2016	145
2017	143
2018	144
2019	137

Source: Transparency International (2019)

4.4.4 Volatility of Returns and Financing public debt with GDP Index Bonds

The last objective of the study was to determine how the volatility of returns could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. The findings are presented in the following section.

4.4.4.1 Volatility of the 10- Year Eurobond

The findings show that the Kenya Eurobond that was issued in 2014 saw increases and declines within the 5 years. It remained below the 6.9% anticipated yield in most of 2017 and early 2018, which could be explained by the volatile electioneering period. Though it saw a spike in November 2018, it saw declines since the beginning of 2019 and was still in decline in July the same year when the last data was collected. This shows that the yields of the bond were not steady and were characterized by high volatility. This could have negative effects

on the propensity of Kenya to successfully deploy the GDP-Indexed bond.

Table 4.11 Volatility of the 10-Year Eurobond (2014 Yield)

Year	Eurobond Yield	Deviation from 10 Year Coupon, 6.9%
2015	6.5	-0.4
2016	7.3	0.4
2017	7.2	0.3
2018	7.8	0.9
2019	4.9	-2

Source: Cytonne Report (2019).

4.4.4.2 Nairobi Stock Exchange All-Share Index (^NASI) Stock Profile

Figure 4.10 shows the NSE All-Share Index (^NASI) Stock Profile. The findings show that the price to earnings ratio (P/E) of 11.6x as of June 2019 was below the historical average of 13.3x based on data for the last 5 years. The findings show that for most of the period under investigation in this study (2015-2019), the NASI P/E was below the average. This shows the high volatility of the stock prices and earnings ratio. This could erode investor confidence, leading to reduced attractiveness of GDP-indexed bonds if they were deployed in the Kenyan market.

Table 4.12 Nairobi Stock Exchange All-Share Index (^NASI) Stock Profile

Year	**NASI P/E**
2015	15.5
2016	13.1
2017	11.7
2018	14.5
2019	11.6
Average	**13.3**

Source: Cytonne Report (2019).

4.4.4.3 Government Securities

The yield projection for 24 years shows that government securities were anticipated to see a steady increase in yield from 6.6% in the first year to 12.9% in the 24 years. This could enhance investor confidence and act as an incentive to the possible adoption of GDP-Indexed bonds to finance budget deficits if deployed in Kenya. These findings are presented in Table 4.13.

Year	Government Securities
91-Day	9.60%
5 Year	10.20%
13 year	12.10%
24 year	12.90%

Table 4.13 Government Securities

Source: Cytonne Report (2019).

4.4.5 Using GDP-Indexed Bonds as a Budget Financing Option in Kenya

The dependent variable was the budget deficit in Kenya. The findings are presented in the following sections.

4.4.5.1 Revenue, Expenditure, and Deficit in Kenya

Panel data on revenue, expenditure, and budget deficit in Kenya shows that the country registered immense deficits during the 5 years.

There were deficits for all the five years ranging from 0.5 trillion Kenya shillings in the 2015/16 financial years. This increased to 0.7 trillion Kenya shillings in 2016/17 and dropped to 0.6 trillion shillings in 2017/18. It then climbed again to 0.7 trillion Kenyan shillings in both 2018/2019 and 2019/20. This shows that Kenya had high budget deficits which could be bridged by deploying the GDP-Indexed bonds among other financial innovations.

Table 4.14 Revenue, Expenditure and Deficit in Kenya

Year	Revenue	Expenditure	Fiscal Deficit
2015/16	1.3	1.8	-0.5
2016/17	1.4	2.1	-0.7
2017/18	1.5	2.1	-0.6
2018/19	1.7	2.4	-0.7
2019/20	2.1	2.8	-0.7

Source: Kenya National Treasury (2020)

4.5 Inferential Statistics

This section presents findings from normality tests, correlation, and regression analysis.

4.5.1 Diagnostic Tests

Various diagnostic tests were carried out in this study before regression analysis. These included normality tests, tests for heteroskedasticity, autocorrelation, and multicollinearity.

4.5.1.1 Normality Test

Normal Q-Q plots were used to test the normality of the data collected from the data sets. The findings as shown in Figures 4.1 to 4.5 shows that the data were normally distributed as it appeared roughly as a straight line for both dependent and independent variables.

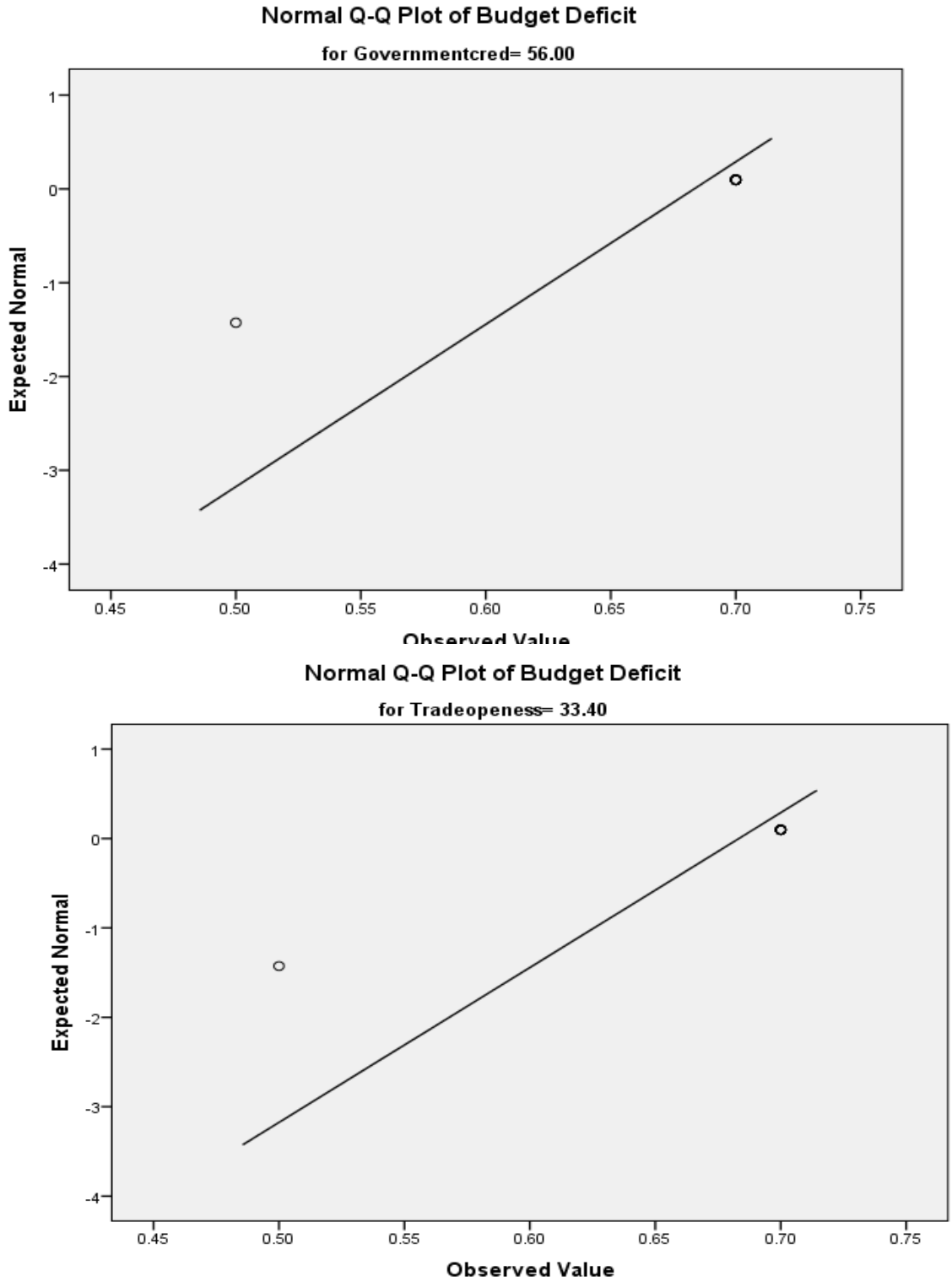

Figure 4.2 Q-Q Plots for Trade Openness and Budget Deficit

Figure 4.3 Q-Q Plots for Market Capitalization and Budget Deficit

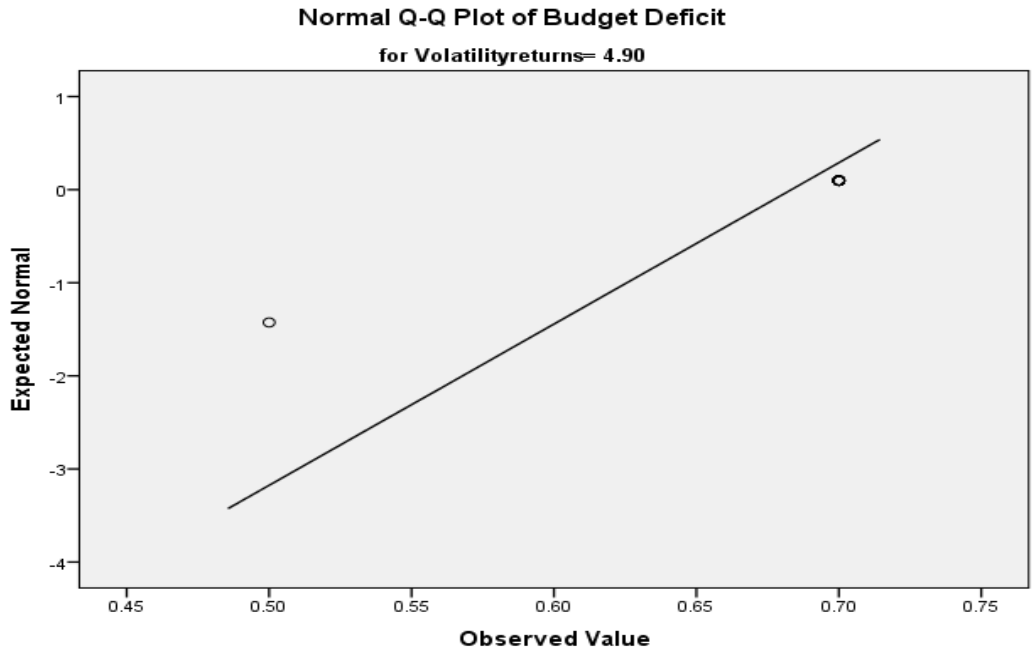

Figure 4.4 Q-Q Plots for Trade Open Voluntary of Returns and Budget Deficit

4.5.1.2 Heteroskedasticity

As shown in Figure 4.5, there was no heteroskedasticity problem as shown by the lack of a clear pattern in the scatter plot. Regression analysis could

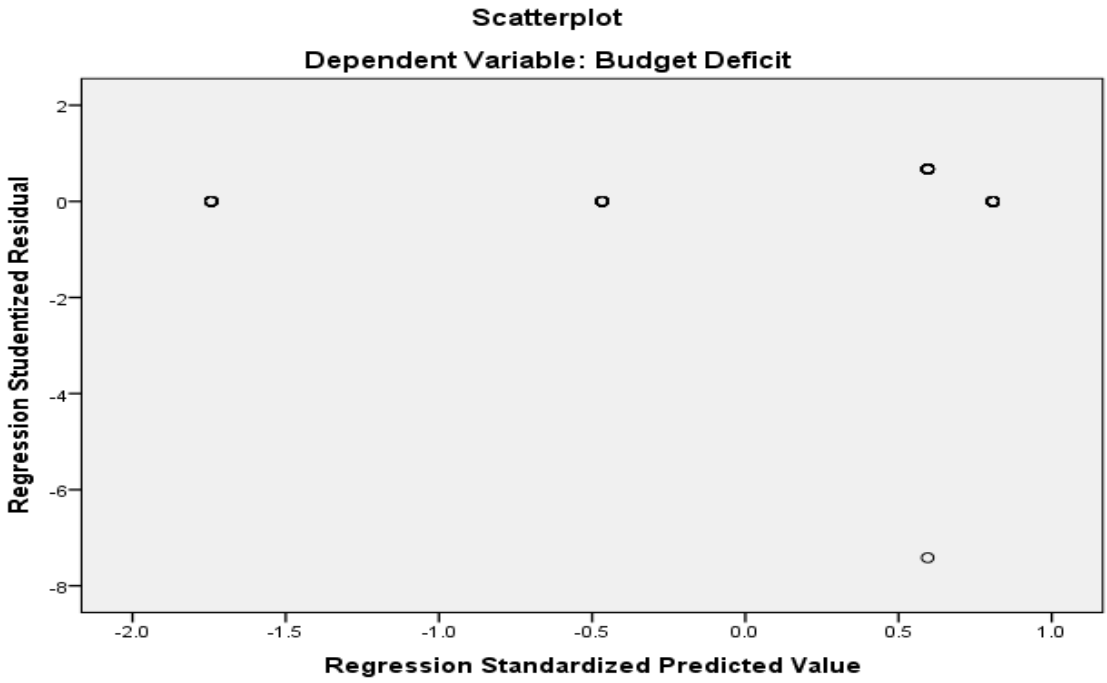

Figure 4.16 Test for Heteroskedasticity

4.5.1.3 Durbin-Watson Test for Autocorrelation

A value of 1.083 was obtained in the Durbin Watson statistic. This is indicative of the fact that there was a positive autocorrelation between the independent variables and the use of GDP-bonds as a budget financing option in Kenya as presented in Table 4.15.

Table 4.15 Durbin-Watson Test for Autocorrelation

Model Summary	
Model	Durbin-Watson
1	1.083[a]

a. Predictors: (Constant), Volatility of Returns, Capital Markets Development, Trade Openness, Government Credibility

b. Dependent Variable: Budget Deficit

4.5.1.4 Test for Multicollinearity

In this study, the Variance Inflation Factor (VIF) values below 10 for trade openness, market capitalization, and volatility of returns indicating that there was no Multicollinearity problem for these variables. A VIF value of more than 10 for government credibility shows that there was multicollinearity problem between this variable and the potential use of GDP-indexed bonds to finance the budget deficit in Kenya.

Table 4.16 Test for Multicollinearity

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Trade Openess	.114	8.793
	Mark Capital Markets Development Capitalization	.250	4.000
	Government Credibility	.097	10.295
	Volatility of Returns	.681	1.469

a. Dependent Variable: Budget Deficit

4.5.2 Pearson Correlation

Pearson correlation analysis was undertaken to find out if there were significant relationships between the dependent and independent variables. The findings show that there all the dependent variables had significant relationships with the potential use of GDP-Indexed Bonds to finance budget deficits as follows: Openness of the Economy, r=-0.810, $p<0.05$; Capital Markets Development, r=-0.858, $p<0.05$ and; Government Credibility, r=-0.715, $p<0.05$. However, Volatility of

Returns did not have positive relationships with budget deficits r=0.083, p>0.05). The study went on to carry out regression analysis to find out the level to which the dependent variable could be predicted by the independent variables.

Table 4.17 Pearson Correlation

Correlations						
		Trade Openness	Capital Markets Development	Government Credibility	Volatility of Returns	Budget Deficit
Budget Deficit	Pearson Correlation	-.810**	-.858**	-.715**	.083	1
	Sig. (2-tailed)	.000	.000	.000	.528	
	N	60	60	60	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.5.3 Regression analysis

Regression analysis was carried out to find out the level to which financing public debt through GDP-Indexed Bonds could be predicted by the independent variables. This section presents the coefficient of determination, Analysis of Variance, and regression coefficients.

4.5.3.1 Coefficient of Determination

The findings as presented in Table 4.18 show that the independent variables (volatility of returns, the openness of the economy, government credibility, capital markets development) could only explain 90.8% of economic growth in Kenya (R Squared = 0.908). An adjusted R2 value of 0.908 was obtained. This shows that in this study the population from which the study sample was obtained could

explain 90.8% variance in the applicability of GDP-indexed bonds as a budget financing option in Kenya.

Table 4.18 Coefficient of Determination

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.953[a]	.908	.902	.02582

a. Predictors: (Constant), Volatility of Returns, Capital Markets Development, Trade Openness, Government Credibility

4.5.3.2 Analysis of Variance

Table 4.19 shows that the combined influence of the independent variables could statistically and significantly predict the applicability of GDP-Indexed Bonds to finance budget deficits in Kenya ($F= 136.00$, $p<0.05$).

Table 4.19 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.363	4	.091	136.000	.000[b]
	Residual	.037	55	.001		
	Total	.399	59			

a. Dependent Variable: Budget Deficit

b. Predictors: (Constant), Volatility of Returns, Capital Markets Development, Trade openness, Government Credibility

4.5.3.3 Regression Coefficients

The regression coefficient shows that all the independent variables could statistically predict the applicability of GDP-Indexed bonds as a budget financing option in Kenya (P values <0.05). Standardized Beta Coefficient were also obtained as follows: Openness of the Economy, $\beta= -1.227$, $t=-10.130$, $p<0.05$; Capital Markets Development, $\beta=-0.709$, $t=-8.677$, $p<0.05$; Government Credibility, $\beta= 0.987$, $t=7.529$, $p<0.05$; Volatility of Returns, $\beta=0.129$, $t= 2.611$, $p<0.05$). These

findings indicate that a change in Openness of the Economy by -1.277; Capital Markets Development by -0.709; Government Credibility by 0.987 and; Volatility of Returns by 0.129 would lead to an increase in the applicability of GDP-Indexed Bond as a budget financing option in Kenya by 1 unit each.

Using the unstandardized coefficients, the fitted regression model was as follows:

*Budget Deficit = 1.825 - 0.028 * Openness of the Economy - 0.018 * Capital Market Development + 0.004 * Government Credibility + 0.010 * Volatility of Returns + 0.079.*

Table 4.20 Regression Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.825	.079		23.073	.000
	Trade openness	-.028	.003	-1.227	-10.130	.000
	Capital Markets Development	-.018	.002	-.709	-8.677	.000
	Government Credibility	.004	.001	.987	7.529	.000
	Volatility of Returns	.010	.004	.129	2.611	.012

a. Dependent Variable: Budget Deficit

4.6 Discussion of findings

This section presents discussions on the findings. This is guided by the research objective.

4.6.1 Influence of Openness of the Economy on Financing public debt with GDP Index Bonds

The first objective of the study was to examine how the openness of the economy could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. Panel data for the years 2015 to 2019 were assessed on trade openness (exports plus imports as percent of GDP). The findings show that trade openness decreased steadily from 44.18% in 2015 to 33.4% in 2019. This shows that Kenya registered decreasing levels of trade openness during the period of study. This could have a negative influence on the attractiveness of GDP-indexed bonds as investors are wont to invest in countries with high levels of trade openness. This could negatively influence the adoption of GDP indexed bonds and by extension economic growth as posited by Pilinkienė (2016) who found out empirical interdependence between trade openness, economic growth, and competitiveness. Such openness could contribute to enhanced adoption of GDP-Indexed bonds in developing countries such as Kenya.

The study also sought to investigate the level of foreign direct investment (FDI) in Kenya between 2015 and 2015. This was particularly so since foreign direct investments show the receptivity of an economy to foreign investors. Higher volumes of FDI means that GDP indexed bond would be easily adopted and vice versa. The findings show a dip in FDI as a percent of GDP in 2016 to 0.57 from

0.97 in 2015. This was followed by increases in the level of FDI to 0.85 in 2017 and 1.85 in 2018. This however dropped significantly to 1.4 in 2019. These findings show that FDI was low and registered fluctuations over the study period. This could lead to dismal investors in stocks such as GDP indexed bonds. This buttresses the findings of Zahonogo (2016) who points out that trade openness enhanced economic growth. These findings are also in line with Adam Smith's Absolute Advantage Theory that posits that trade plays a key avenue for exchanging surplus goods with what is locally needed and that for this to take place, there is a need for openness in the economy (Emeka, 2010). As such, Adam Smith's Absolute Advantage Theory is relevant to this study since it is evident that trade openness influences economic growth.

4.6.2 Influence of Capital Markets Development on Financing public debt with GDP Index Bonds

The second objective of the study was to assess how capital market development could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. The findings show that market capitalization, which is the amalgamation of the total publicly traded values of shares in the stocks market accounted for 32.614% of the nominal GDP in 2015. This rose and fell over the 5 years trade period to 26.077% of the nominal GDP. These findings show that the Kenyan capital markets were well developed which could influence the attractiveness of GDP indexed bonds if deployed. This corroborates the findings of Prochniak and Wasiak (2017) who was of the view that

the ability of the economy to absorb various financial tools such as loans and bonds due to enhanced capital market development had positive influences on the economic growth of the country.

The study went on to study equities market performance. The findings show that between 2017 and 2019, the findings show that while several Sub-Saharan African countries registered negative returns in their stock markets at the end of 2019, Kenya registered positive gains. However, the market performed unsteadily between 2017 and 2019. In 2018 there was negative performance. The market recorded ups and downs during the period. This shows that investors could predict the potential performance of stocks and bonds in the market using this data. The Kenyan equities market was weak compared to other countries in sub-Saharan countries. In this regard, its attractiveness to investors, if GDP-Indexed bonds were deployed, would be average. These findings corroborate those of Ikikii and Nzomoi (2013) which show that there were high correlations between capitalization, trade volume, and economic growth in Kenya. The findings further agree with Bist (2018) who points out that financial market development had a positive and significant impact on economic growth.

Interest Payments on treasury bills and treasury bonds accounted for most of the interest payments on domestic debt between 2015 and 2019. Interest paid on treasury bonds as of June 2019 was valued at 184.8 million Kenya shillings. This shows that interest on treasury

bonds was more than double the value of treasury bills. Treasury bills and bonds had high levels of interest rates. This could enhance the attractiveness of GDP-Indexed bonds if deployed in Kenya as envisaged by Muawya (2019).

The study also sought to investigate net portfolio investment in Kenya. Portfolio investment is a group (portfolio) of assets such as equity, securities, stock, and bonds among others. The findings show that net portfolio investments increased steadily from USD 155.1 million in 2015 to USD 788.9 million. Portfolio investments however dropped sharply in 2018 and 2019 to – 624 million and -1000.3 million dollars. This shows a sharp drop in local portfolio investments in Kenya. This could reduce the attractiveness of GDP-indexed bonds in Kenya to local investors if deployed. This agrees with Narayanaswamy et al. (2017) who point out that capital market development affects the adoption of financial assets such as GDP-Indexed bonds in Kenya.

Conversely, 2018 and 2019 saw sharp increases in Kenya's Foreign Portfolio Investment when expressed as a percentage of GDP. This shows that foreign Portfolio investment increased significantly after an abrupt dip in 2017 which was accountable to uncertainties related to the 2017 General Elections. This shows the importance attached to Kenyan financial assets such as securities and bonds by foreign investors increased significantly in the last two years. This could

enhance the attractiveness of GDP-Indexed bonds in Kenya if they were deployed as posited by Kapaya (2020). These findings further agree with Muawya (2019) who points out that capital market development could facilitate the adoption of GDP-Indexed Bonds to finance the budget deficit.

4.6.3 Influence of Government Credibility on Financing public debt with GDP Index Bonds

The third objective of the study was to explore how government credibility could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. Various measures of government credibility were used to assess the level of government credibility during the study period. The findings are presented in the following sections. To begin with, the ease of doing business was assessed. The findings show that the ease of doing business improved steadily from position 113 in 2015 to 56 out of 130 economies in 2019. This shows that the government had put in place policies aimed at making the business environment conducive for investors. This could have positive effects on the attractiveness of the Kenyan economy to investors since the business environment created by the government plays a crucial role in the adoption of financial instruments (Hanish, 2005).

Kenya's corruption levels were also assessed. This stems from the fact that corruption hinders a government's ability to enforce its laws. It could also make policy implementation untenable. Since GDP-

Indexed bonds were highly dependent on the ability of the government to honour is bonds, corruption could affect the attractiveness of Kenya to investors. The corruption index ranks counties on a scale of 0 (very corrupt) to 100 (very clean). Kenya ranked 137 least corrupt out of 180 countries. This shows that Kenya had high levels of corruption. This could thus challenge the ability of Kenya to deploy GDP-Indexed bonds to finance public debt. These findings agree with a report by the World Bank (2013) that shows that the lack of government credibility due to rampant corruption means that economic growth faces periodic slumps due to the inability to attract sufficient and sustainable international funding. These findings buttress those of the United Nations (2005) that shows that although developing countries may be interested in GDP indexed bonds, they are less attractive to investors than in developed countries due to the risks associated with a potential default.

These findings show that government credibility was a major stumbling block to the potential use of GDP-Indexed Bonds to finance the budget deficit in Kenya. This is in line with Roldos (2004) who points out that challenges related to lack of credibility, lack of transparency, and limited liquidity in the market could contribute to poor absorption of government bonds as was the case with Mexico. These findings also corroborate those of Hanish (2005) who argue that central banks should put in place mechanisms for buttressing their credibility in fighting inflation. If this was not done, the willingness of

investors to trade with a government that lacks credibility to control the macroeconomic environment in which GDP-bonds are traded could check their willingness to trade in such bonds.

4.6.4 Influence of Volatility of Returns on Financing public debt with GDP Index Bonds

The last objective of the study was to determine how the volatility of returns could influence the use of GDP-Indexed Bonds to finance the budget deficit in Kenya. The findings are presented in the following section. The findings show that the Kenya Eurobond that was issued in 2014 saw increases and declines within the 5 years. It remained below the 6.9% anticipated yield in most of 2017 and early 2018, which could be explained by the volatile electioneering period. Though it saw a spike in November 2018, it saw declines since the beginning of 2019 and was still in decline in July the same year when the last data was collected. This shows that the yields of the bond were not steady and were characterized by high volatility. This could have negative effects on the propensity of Kenya to successfully deploy the GDP-Indexed bond which corroborates the findings of Brueckner and, Carneiro (2017) who pointed out that trade volatility affected the confidence of investors.

The findings also show that the NSE All-Share Index (^NASI) Stock Profile. The findings show that the price to earnings ratio (P/E) of 11.6x as of June 2019 was below the historical average of 13.3x based on

data for the last 10 years. The findings show that for most of the period under investigation in this study (2015-2019), the NASI P/E was below the average. This shows the high volatility of the stock prices and earnings ratio. This could erode investor confidence, leading to reduced attractiveness of GDP-indexed bonds if they were deployed in the Kenyan market. These findings agree with those of Viceira (2012) who points out that in economies where high levels of volatility of returns are anticipated, investors may shun some forms of bonds

The yield projection for 24 years shows that government securities were anticipated to see a steady increase in yield from 6.6% in the first year to 12.9% by the end of the 24 years. This could enhance investor confidence and act as an incentive to the possible adoption of GDP-Indexed bonds to finance budget deficits if deployed in Kenya since the anticipated returns were expected to be stable. These findings buttress those of Brueckner and Carneiro (2017) that shows that trade volatility could deter the confidence of investors and have negative impacts on economic growth.

4.6.5 Use of GDP-Indexed Bonds as a Budget Financing Option in Kenya

The dependent variable was economic growth in Kenya. Panel data on revenue, expenditure, and budget deficit in Kenya shows that the country registered immense deficits during the 5 years. There were deficits for all five years ranging from 0.5 trillion Kenya shillings in

the 2015/16 financial years. This increased to 0.7 trillion Kenya shillings in 2016/17 and dropped to 0.6 trillion shillings in 2017/18. It then climbed again to 0.7 trillion Kenyan shillings in both 2018/2019 and 2019/20. This shows that Kenya had high budget deficits which could be bridged by deploying the GDP-Indexed bonds among other financial innovations as posited by Seetanah et al. (2009) and Consiglio and Zenios (2018). Deploying GDP-Indexed bonds in the country was thus recommendable.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary and discussions of the study findings. Conclusions and policy recommendations are also presented. Lastly, areas for further research direction are also provided.

5.2 Summary of Findings

This study sought to investigate how GDP-indexed bonds could be leveraged as a financing option in Kenya. Its specific objectives were to examine how the openness of the economy could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya; assess how capital market development could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya and; explore how government credibility could influence the use of GDP-Indexed Bonds as a budget financing option in Kenya. This section presents a summary of the study findings.

5.2.1 Influence of Openness of the Economy on Financing Budget Deficit with GDP Index Bonds

The first objective of the study was to examine how the openness of the economy could influence the use of GDP-Indexed Bonds as a financing option in Kenya. Panel data for the years 2015 to 2019 were assessed on trade openness (exports plus imports as percent of GDP).

The findings show that trade openness decreased steadily over the study period. This shows that Kenya registered decreasing levels of trade openness during the period of study. This could have a negative influence on the attractiveness of GDP-indexed bonds as investors are wont to invest in countries with high levels of trade openness.

The study sought to investigate the level of foreign direct investment (FDI) in Kenya in the study period. This was particularly so since foreign direct investments show the receptivity of an economy to foreign investors. Higher volumes of FDI means that GDP indexed bond would be easily adopted and vice versa. These findings show that FDI was low and registered fluctuations over the study period. This could lead to dismal investors in stocks such as GDP indexed bonds.

5.2.2 Influence of Capital Markets Development on Financing Budget Deficit with GDP Index Bonds

The second objective of the study was to assess how capital market development could influence the use of GDP-Indexed Bonds as a financing option in Kenya. The findings show that market capitalization, which is the amalgamation of the total publicly traded values of shares in the stocks market accounted for close to a third of the nominal GDP at the beginning of the study period. These rose and fell over the study period. These findings show that the Kenyan capital markets were well developed which could influence the attractiveness of GDP indexed bonds if deployed.

The study went on to study equities market performance. The findings show that while several Sub-Saharan African countries registered negative returns in their stock markets at the end of 2019, Kenya registered positive gains. This shows that investors could predict the potential performance of stocks and bonds in the market using this data. The Kenyan equities market was weak compared to other countries in sub-Saharan countries. In this regard, its attractiveness to investors, if GDP-Indexed bonds were deployed, would be average. In the study period, stock market prices remained attractive for long-term investors. This means that the stock market remained attractive over the years. This could enhance the adoption of GDP indexed bonds to finance public debt if they were deployed in Kenya. Interest Payments on treasury bills and treasury bonds accounted for most of the interest payments on domestic debt in the study period. Interest in treasury bonds was more than double the value of treasury bills. Treasury bills and bonds had high levels of interest rates. This could enhance the attractiveness of GDP-Indexed bonds if deployed in Kenya. The study also sought to investigate net portfolio investment in Kenya. The findings show that net portfolio investments saw fluctuations during the study period. This could reduce the attractiveness of GDP-indexed bonds in Kenya to local investors if deployed. The findings also show the importance attached to Kenyan financial assets such as securities and bonds by foreign investors increased significantly in the last two

years. This could enhance the attractiveness of GDP-Indexed bonds in Kenya if they were deployed.

5.2.3 Influence of Government Credibility on Financing Budget Deficit with GDP Index Bonds

The third objective of the study was to explore how government credibility could influence the use of GDP-Indexed Bonds as a financing option in Kenya. Various measures of government credibility were used to assess the level of government credibility during the study period. The ease of doing business was assessed. The findings show that the ease of doing business improved steadily during the study period. This shows that the government had put in place policies aimed at making the business conducive for investors. This could have positive effects on the attractiveness of the Kenyan economy to investors.

Kenya's corruption levels were assessed. This stems from the fact that corruption hinders a government's ability to enforce its laws. It could also make policy implementation untenable. Since GDP-Indexed bonds were highly dependent on the ability of the government to honour is bonds, corruption could affect the attractiveness of Kenya to investors. The findings show that Kenya had high levels of corruption. This could thus challenge the ability of Kenya to deploy GDP-Indexed bonds to finance public debt

5.2.4 Influence of Volatility of Returns on Financing Budget Deficit with GDP Index Bonds

The last objective of the study was to determine how the volatility of returns could influence the use of GDP-Indexed Bonds as a financing option in Kenya. The findings show that the Kenya Eurobond that was issued in 2014 saw increases and declines within the 5 years. This shows that the yields of the bond were not steady and were characterized by high volatility. This could have negative effects on the propensity of Kenya to successfully deploy the GDP-Indexed bond.

Findings from the NSE All-Share Index (^NASI) Stock Profile show that for most of the period under investigation in this study, the NASI P/E was below the average. This shows the high volatility of the stock prices and earnings ratio. This could erode investor confidence, leading to reduced attractiveness of GDP-indexed bonds if they were deployed in the Kenyan market. Yield projection for 24 years shows that government securities were anticipated to see a steady increase in yield in the 24 years. This could enhance investor confidence and act as an incentive to the possible adoption of GDP-Indexed bonds to finance budget deficits if deployed in Kenya.

5.2.5 Use of GDP-Indexed Bonds to Financing Budget Deficit in Kenya

The dependent variable was budget deficits in Kenya. Panel data on revenue, expenditure, and budget deficit in Kenya shows that the country registered immense deficits during the five years. This shows

that Kenya had high budget deficits which could be bridged by deploying the GDP-Indexed bonds among other financial innovations.

5.3 Conclusions

The findings from multiple regression show that openness of the economy, government credibility, capital markets development, and volatility of returns had significant relationships with the feasibility of GDP-Indexed Bonds to finance budget deficits. Findings from the multivariate regression model showed that the combined influence of independent variables could explain the use of GDP-indexed bonds to finance budget deficits in Kenya though the model was strong. F-test also showed that all the independent variables combined could statistically and significantly predict the feasibility of the use of GDP-Indexed Bonds in Kenya. Regression coefficients for all the independent variables were also significant. In this regard, the level to which the independent variables could statistically predict the feasibility of the use of GDP-Indexed bonds to finance economic growth in Kenya was ascertained by the regression model. It could thus be concluded that ensuring openness of the economy, development of capital markets, the credibility of the government as well as the predictability and steadiness of stocks returns could enhance the adoption of GDP-Indexed bonds to finance budget deficits in Kenya. This means that if the profitability of government-issued bonds was assured, if investors were assured that the capital market could successfully absorb GDP-Indexed bonds and, if the government could

be relied upon to keep the economy stable, the ability to deploy innovative financial tools such as GDP-Indexed bonds to finance Kenya's budget deficit could be enhanced.

5.4 Policy Recommendations

Based on the findings of the study, the following policy recommendation is made. The government needs to put in place policies for checking corruption and for enhancing its credibility among local and foreign investors. There should also be efforts of ensuring that fiscal rules and the associated legislation is stable and does not change erratically to maintain investor confidence. The openness of the economy should also be enhanced to make it able to absorb different financial tools without problems. Limitations posed by taxes and any inflexible trade laws should be dealt with. The government should also constantly revise its legal and policy frameworks to ensure that capital markets adapt to emergent capital market demands to make the country competitive in the international arena. Mechanisms for checking market shocks should be put in place to ensure the volatility of stocks is checked and that the anticipated return from stocks is kept positive.

5.5 Recommendations for Further Study

This study sought to investigate how GDP-indexed bonds could be leveraged to finance the budget deficit in Kenya. Studies comparing the factors influencing the adoption of other kinds of bonds in Kenya are recommended.

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APPENDICES

APPENDIX I: DATA COLLECTION FORM

PART A: Openness of the Economy

Measure	2015	2016	2017	2018	2019
Trade Openness					
FDI					

Part B: Capital Markets Development and GDP Index Financing

Measure	2015	2016	2017	2018	2019
Equities Market Performance					
Stock of Domestic Debt					
Interest Payments on Domestic Debt					
Portfolio Investment, net (BoP, current US$) - Kenya					
Kenya Foreign Portfolio Investment: % of GDP					

Part C: Government Credibility

Measure	2015	2016	2017	2018	2019
Ease of Doing Business					
Corruption Index					

Part D: Volatility of Returns

Measure	2015	2016	2017	2018	2019
Volatility of the 10- Year Eurobond					
Nairobi Stock Exchange All-Share Index (^NASI) Stock Profile					

Government Securities					
GDP-Indexed Bonds as a Budget Financing Option in Kenya					

Part E: Use of GDP Index to Finance Budget Deficit

Measure	2015	2016	2017	2018	2019
Revenue, Expenditure, and Deficit in Kenya					

APPENDIX II: RESEARCH PERMIT

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