

**RELATIONSHIP BETWEEN DOMESTIC DEBT AND
INTEREST RATE IN KENYA**

BY

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DECLARATION

I, the undersigned, declare that this project is my original work and that it has not been presented in any other university or institution for academic credit.

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

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DEDICATION

I would like to dedicate this project to my beloved family members who gave a magnificent input and support towards the success to this work. Alongside, to my friends and colleagues whose encouragement and understanding during the period of study made the task become lighter.

ABSTRACT

The study sought to determine the relationship between domestic debt and interest rate in Kenya. There is limited empirical literature on the relationship between domestic debt and interest rate, this study seeks to fill the existing research gap by conducting a study to determine the relationship between domestic debt and interest in Kenya. The causal study design was employed in this research. Causal research suggests causal linkages between variables by observing existing phenomena and then searching back through available data in order to try to identify plausible causal relationships. The population for this study was 10 years period starting from year 2003 to year 2012. Secondary data from Central Bank of Kenya was collected on the study variable, these include ,the domestic debt , interest rate , economic growth and private sector credit. Data analysis was done using inferential statistics. The study found that there was a positive relationship between domestic debt and interest rate, the study thus concludes that that domestic debt positively affects the interest rate in the country. The study established that there was a positive relationship between fiscal deficit and the country interest rate. The study further revealed that an increase in foreign exchange rate positively influenced increase in the interest rate in the country, thus the study concludes that foreign exchanges rate and fiscal debt positively influence the interest rate in the country. The study revealed that interest rate was negatively related to gross domestic product in the country, the study further revealed that private sector credit negatively influence the interest rate in the country, thus the study concludes that gross domestic product and private sector credit negatively influence the interest rate.

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LIST OF ABBREVIATIONS

ANOVA	-	Analysis of Variance
CBK	-	Central Bank Of Kenya
DSA	-	Debt Sustainability Analyses
GDP	-	Gross Domestic Product
GOK	-	Government Of Kenya
IMF	-	International Monetary Fund
MOF	-	Ministry Of Finance
OLS	-	Ordinary Least Square
ROK	-	Republic Of Kenya
SSA	-	Sub-Saharan Africa
US	-	United States of America

CHAPTER ONE:

INTRODUCTION

1.1 Background of the Study

Government needs resources for public expenditure. While taxes generally provide the bulk of the revenue, public borrowings bridge the resource gap between receipt and expenditure. Public borrowing could be in the domestic market or abroad. However, where local markets are not developed, external sources provide the bulk of funding for the resource gap (Adofu and Abula, 2010).

An emerging economy would therefore begin by tapping concessional external sources and choose between domestic and external commercial borrowing to bridge the gap. Though borrowing increases resource availability, it is a contractual liability and has to be repaid. Borrowings overtime leads to accumulation of debt and increases principal and interest liability. This study seeks to determine the relationship between domestic borrowing and interest rate.

1.1.1 Domestic Debt

Domestic debt may have positive as well as negative impacts on economic growth. The impacts of domestic debt on economic growth can be analyzed in the context of two different views i.e. traditional and Ricardian view. In the traditional view, a tax cut financed by government borrowing would have many effects on the economy. The immediate impact of the tax cut would be to motivate consumer spending. Higher consumer spending affects the economy in both short run and long run.

In the short run, higher consumer spending would raise the demand for goods and services and thus raise output and employment. As the marginal propensity to consume is higher than marginal propensity to save, the increase in private savings falls short of government dissaving. This increases the real interest rate in the economy encouraging capital inflow from abroad.

In the long run, the higher interest rate would discourage investment and thus crowd out private investment. The lower domestic savings mean a smaller capital stock. The inflow from abroad would result in greater foreign debt. The higher aggregate demand results in a higher price level that adjusts over time and the economy returns to a natural rate of output. The lower investment eventually leads to a lower steady state capital stock and a lower level of output. Therefore, the overall impact when considering the long run period would be smaller total output and eventually lower consumption and reduced economic welfare. This is also referred to as the burden of public debt, as each generation burdens the next, by leaving behind a smaller aggregate stock of capital (Modigliani, 1961).

In the Ricardian view, government debt is considered equivalent to future taxes (1978). Bearing in mind that consumers are rational and forward-looking, the discounted sum of future taxes is equivalent to the current deficit. So, the shift between taxes and deficits does not produce aggregate wealth effects. The increase in government debt does not affect consumption. The rational consumer facing current deficits saves for future rise in taxes and consequently total savings in the economy are not affected. A decrease in government dissaving is matched by increase in private savings. In view of unchanged

total savings, investment and interest rates are also unaffected and so is the national income.

Proponents of domestic debt stress its positive impact on growth, inflation, and savings from deeper and more sophisticated capital markets which increase the volume and efficiency of private investment. They are of the view that moderate levels of noninflationary domestic debt exert a positive impact on economic growth enhancing private savings and financial intermediation, thus negatively affecting interest rate.

1.1.2 Interest Rates

Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Crowley, 2007). Interest rate spread is defined by market microstructure characteristics of the financial sector and the policy environment. A key indicator of financial performance and efficiency is the spread between lending and deposit rates. If this spread is large, it works as an impediment to the expansion and development of financial intermediation (Crowley, 2007).

The magnitude of interest rate spread, however, varies across the world. It is inverse to the degree of efficiency of the financial sector, which is an offshoot of a competitive environment. The nature and efficiency of the financial sectors have been found to be the major reasons behind differences in spread in countries across the world. In economies with weak financial sectors, the intermediation costs which are involved in deposit

mobilization and channeling them into productive uses, are much larger (Hall and Henry, 1999).

Crowley (2007) states that the issue of exposure to both exchange rate and interest rate risk is of importance to individual investors and firms. For example, changes in exchange rates and interest rates can affect an investor holding a portfolio consisting of securities from different countries. Changes in exchange rates should naturally impact the cash flows of a multinational firm with operations in different foreign locations, importers and exporters and even solely domestic firms. Similarly changes in interest rates will alter the firms' financing costs, affecting the amount of loan interest and principal payments and impacting cash flows of the firm.

Economic development critically hinges on patterns and levels of resource mobilization and allocation in any country. Resources are mobilized through savings which at the level of macro economy pave way for the allocation of resources for the purpose of consumption and investment. Similarly, investment depends critically on banking credit and the underlying lending system which enables the investors to borrow for the purpose of investing in real capital to enhance existing businesses or for establishment of a new business entity. In this way banking credit contributes to the generation of economic activity and eventually leads to higher national income and growth.

Therefore, all economic players including households, businesses and public sector are sensitive towards the efficient flow of resources from surplus to deficit units. Analysis of

resource transfer through operations of banking system, therefore, has to contend with the price structure prevailing in the credit market (Crowley, 2007).

The strong correlation of banking system stability with the economic growth and development of any country has only recently been appreciated. A glance at the recent economic history reveals that weaknesses in the financial systems were the root cause of the economic woes of most of the economies. The supervisory authorities around the world are striving to ensure safety and soundness of their respective financial systems so that they can play an active role in the economic development of their countries (Hall and Henry, 1999). Kenya's interest rates were fairly stable before 1990s due to a combination of price controls and banking controls in the country. Interest rate volatility quickly set in after 1992 multiparty elections.

1.1.3 Relationship between Domestic Debt and Interest Rate

The proponents of free market argue that government intervention in the economy should be minimal as state activities compete with private sector for scarce funds in the economy thereby driving price up. The end result is crowding out of private investments by public sector projects. Hall and Henry (1999) were of view that faulty domestic policy which ranges from project finance mismatch, inappropriate monetary policy and fiscal policy are responsible for domestic borrowing problem.

Abbas and Christensen (2010) traces the origin of Nigeria debt problem to the collapse of the international oil price in 1981 and the persistent suffering of the interactional oil market and partly due to domestic lapses. As a result of the debt problem, credit facilities

gradually dried up, which led to a number of projects being stalled. He advocates the revival of the economy growth as the best and most durable solution to the debt burden. The needed growth however is disturbed by two factors which include limitation imposed by inappropriate domestic policy and the external factor, which are beyond the control of the economy (Christensen, 2010).

1.1.4 Domestic Debt and Interest Rate in Kenya

Many developing countries like Kenya have been unable to constrain the growth of their public domestic debt to ensure that sufficient revenues remain available after debt service payments to finance other vital government recurrent and development expenditures. Stagnating real revenue receipts, unending expenditure pressures and reduced external donor support especially in the 1990s among other factors, have resulted in accumulation of high stocks of domestic debt in developing countries, (World Bank, 2010). According to the IMF (2007), domestic debt accounted for 23 percent of total debt in sub-Saharan Africa between 1995 and 2000, up from an average of 20 percent between 1990 and 1994. Furthermore, the domestic debt to GDP ratio for these countries increased considerably from 12 percent to 16 percent in the same period.

Domestic debt in Kenya is defined as the central government debt incurred internally through borrowing in the local currency from residents. Government domestic borrowing comprises of government securities, overdraft at the Central Bank of Kenya and advances from commercial banks (RoK, 2012). Review of Kenya's debt level: In the 1980s and the years preceding, Kenya was among the major aid recipients in Africa, largely to put

up infrastructure so as to integrate the large rural economy into the then emerging import substitution Kenyan economy.

The 1990s witnessed a steady decline in development assistance to Kenya occasioned by a perception of poor governance and mismanagement of public resources and development assistance. Other factors include the end of the cold war and the collapse of the Soviet Union. These led to a debt crisis in the country in the early 1990s which turned Kenya into a highly indebted nation. The details of Kenya's debt burden continue to be disheartening, as of August 2008 the public debt stood at Kshs 867 billion in a country with a population of 36 million people with numerous challenges (Government of Kenya, 2012).

Furthermore, if the rollover amounts are quite large, the government is also faced with the risk of defaulting on servicing the debt due to unavailability of adequate funds. Frequent rollovers of domestic debt could also result in higher interest rate. This study analyses the relationship between public domestic debt and interest rate in Kenya.

1.2 Research Problem

Domestic debt may have positive as well as negative impacts on economic growth. The immediate impact of the tax cut would be to motivate consumer spending. As the marginal propensity to consume is higher than marginal propensity to save, the increase in private savings falls short of government dissaving. This increases the real interest rate in the economy encouraging capital inflow from abroad. In the long run, the higher interest rate would discourage investment and thus crowd out private investment.

Buchanan (1958) suggests that the incurrence of domestic debt results in the postponement of the tax liability from current to future generations, which positively affect the interest rate. Barro (1978) who investigated the effect of domestic debt on economic growth using the unanticipated component of domestic debt, or the debt stock and growth. Charan (1999) investigated the relationship between domestic debt and economic growth for India, Christensen (2010) used a cross country survey of the role of domestic debt markets in sub-Saharan Africa. Abbas and Christensen (2010) analyzed optimal domestic debt levels in low income countries (including 40 sub-Saharan Africa countries) and emerging markets between 1975 and 2004. Patillo *et al.* (2002), in their study assessed the non-linear impact of external debt on growth using a panel data of 93 countries over 1969-98 employing econometric methodologies. Adofu and Abula (2010) investigated the relationship between domestic and economic growth in Nigeria for the period 1986-2005.

Locally Maana *et al.* (2008) did a study on the impact of domestic debt in the Kenyan economy using the Barro growth regression model. Manundu (1984) looked at the debt management strategies for Kenya, Ng'eno (1991) looked at the external debt problem of Kenya while Ochieng (1991) looked at the determinants of the external debt burden and Mutiso (2001) looked at the determinants of external debt in Kenya. Koech (2012) did a study on the determinants of Kenya's external debt sustainability.

There is limited empirical literature on the relationship between domestic debt and interest rate, this study seeks to fill the existing research gap by conducting a study to determine the relationship between domestic debt and interest in Kenya, it will seek to answer the following research question, does there exist a relationship between domestic debt and interest in Kenya?

1.3 Research Objective

To determine the relationship between domestic debt and interest rates in Kenya.

1.4 Value of the Study

The study will be used as an indicator of how well the Kenyan economy is faring and, particularly, how well the Kenyan government is meeting its revenue needs to achieve its development goals. The Kenyan Government especially the Ministry of Finance and Planning will use the findings of this study to develop policy recommendations that will assist the policy makers in coming up with regulatory measures and guidelines of internal borrowing.

The Government will also use this study to identify determinants that ensures better debt management and that can be used as benchmarks for effective debt borrowing and management. The findings of this study will be useful to Researchers and academicians who will use this study as a source of theoretical information on relationship between domestic debt and interest rate also to add to the existing body of knowledge on this topic.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section provides a review of the theoretical literature on the relationship between domestic debt and interest rate in Kenya. This study begins the theoretical principles underlying domestic debt and interest rate and then discusses the empirical literature and finally the summary of the literature and research gaps.

2.2 Theoretical Review

2.2.1 Debt Overhang Theory

The most well-known theory explaining the sustainability of external debts comes from the debt overhang theories developed by Barro, (1978). He defines the “debt overhang” as the presence of an existing inherited debt sufficiently large that creditors do not expect with confidence to be fully repaid. These theories show that if there is some likelihood that in the future debt will be larger than the country’s repayment ability; expected debt-service costs will discourage further domestic and foreign investment. The existence of a potential debt overhang tax may affect the incentives of policymakers, but also those facing the private sector.

Adofu and Abula, (2010) a heavy foreign debt burden of a developing country government impedes economic growth through several channels. Higher debt tends to undermine macroeconomic stability by increasing budget deficits. If debt service is

covered by higher taxes rather than by an increased budget deficit, the high rates of taxation tend to undermine growth by introducing serious distortions in the economy, including heightened barriers to trade (via trade taxes), capital flight, tax evasion and reduced work effort. Charan, (1999), provide a typology of debt crises including the following categories: Debt overhang: the burden of debt is so heavy that future growth in the economy is effectively compromised. The debtor country cannot invest, and so cannot meet future debt obligations without new loans as well as debt relief.

Another strand of the debt overhang theory emphasizes the point that large debt stocks increase expectations that debt service tends to be financed by distortionary measures, (Ali, Malwanda and Sliman, 1999). According Adofu and Abula (2010), the uncertainty about future taxes for private domestic agents may adversely affect the domestic economy, over and above any disincentive effects on policymakers. In order to address this issue, several approaches to analyze external debt sustainability have been extensively discussed in both theoretical and empirical literature. The key determinants of such analyses include the prevalent stocks of external debt, the dynamics of fiscal and external repayment abilities that are linked to the economic growth and access to additional external financing.

2.2.2 Interest Rate Parity Theory

Concept that any disparity in the interest rates of two countries is equalized by the movement in their currency exchange rates (Huang, 1984). This theory states that the interest rate differential between two countries is equal to the differential between the

forward exchange rate and the spot exchange rate. Interest rate parity plays an essential role in foreign exchange markets, connecting interest rates, spot exchange rates and foreign exchange rates (MacKinnon, 1991).

Exchange rate changes can impact the level of competitiveness of firms that are exposed to exchange rate risk, or affect the value of net assets denominated in foreign currencies. This may indirectly affect the portfolio value of banks or financial institutions that finance or insure these firms. An additional source of risk is the exchange rate risk associated with currency activities, predominantly to the un hedged positions held by these institutions in investment and financing activities on international capital markets. Wetmore and Brick (1994) empirically test the theoretical model of Mosley, Hundson and Horrell, (1987), and confirm that US commercial banks are exposed to exchange rate risk resulting from their increasingly uncovered foreign loans. MacKinnon, (1991), found that one-third of US large banks are sensitive to exchange rate risk, while such is the case for only a few Japanese banks.

2.2.3 Arbitrage Pricing Theory

The underlying principle of the pricing theory involves the recognition that the anticipated return on any asset may be charted as a linear calculation of relevant macro-economic factors in conjunction with market indices (Mosley, Hundson and Horrell, 1987). It is expected that there will be some rate of change in most if not all of the relevant factors. Running scenarios using this model helps to arrive at a price that is equitable to the anticipated performance of the asset (MacKinnon, 1991). The desired result is that the asset price will equal to the anticipated price for the end of the period

cited, with the end price discounted at the rate implied by the Capital Asset Pricing Model. It is understood that if the asset price gets off course, that arbitrage will help to bring the price back into reasonable perimeters (Hendry and Juselius, 2000).

This model was in the study to determine the sensitivity of Kenya banks' stock returns to interest rate and exchange rate changes. Although it is well-known that unexpected changes in interest rates induce risk, market and interest rate risks are not the only risks faced by banks. They may also be affected by exchange rate risk, which increases as their international activities, and those of their clients, increase. Notwithstanding the increasing volume of banks' international activities, few studies have attempted to consider the exchange rate as a determinant of banks' stock returns (Hendry and Juselius, 2000).

2.3 Empirical Review

Keynes (1929) studies the impact of alternative deficit financing strategies on economic growth for sixty six low-income countries and emerging markets for the period of 1979-1993. The study shows that market based domestic debt issuance is the least cost method of financing the budget deficit as contrasting with external borrowing and seignorage. All of these methods reduce growth, domestic savings and increase inflation.

Keynes, (1929) explores the relationship between domestic debt and economic growth in India by applying co integration technique and Granger causality test for the period of 1959-1995. The author considers two theoretical views of domestic debt and economic growth one is traditional view of long-run negative impacts of domestic debt on

economic growth and second is Ricardian Equivalence hypothesis that shows neutrality of domestic debt to growth. The results of the Engle-Granger co integration test indicate that the domestic debt and economic growth are not co-integrated. The study supports the Ricardian equivalence hypothesis between domestic debt and growth in India.

Were (2001) explains the debt accumulation and its implications for growth and poverty in Pakistan. The study shows that debt accumulation (domestic and external) and debt servicing affects the poor adversely. The findings of the study illustrate that even though debt burden as a percentage of GDP of Pakistan exceeds that of all South Asian countries but it is not still so high as to go for debt write off. This means that Pakistan has the capacity to service the debt.

Granger (2003) investigates the quantitative effects of public debt (domestic and external) and economic growth on poverty in Nigeria by applying the per-capita income approach using annual data of 1970 to 2002. The study uses growth and debt variables and suggests that these variables have played very vital role towards poverty acceleration in Nigeria.

Charan (1999) observes the relationship between gross government debt and per capita GDP growth in developed countries. The results of the paper show that there is no strong evidence of a statistically significant relationship between gross government debt and per capita GDP growth for a sample of 24 industrial countries with data from 1970 to 2002.

Abbas and Christensen (2010), highlight the impact of domestic debt on economic growth for ninety three low-income countries from the period of 1975-2004 by applying Granger Causality Regression model. The analysis shows that moderate levels of marketable domestic debt as a percentage of GDP have significant positive, non-linear impacts on economic growth, but debt levels exceeding thirty five percent of total bank deposits have negative impact on economic growth.

Adofu and Abula (2010) examine the roles of external and domestic debt in Indonesia's macroeconomic situation. The authors have applied ordinary least square (OLS) estimation using annual data from the period 1991 to 2006. The study shows that the rising trend of external debt has become a central policy to overcome deficit. It has created positive effects on both investment and economic growth. But aside from these positive effects, the policy produces domestic currency depreciation. Conversely, rising trend of domestic debt discouraged private investment due to crowding-out effect, which reduces capital stock and total production.

Adofu and Abula (2010) investigate the effects of rising domestic debt on the Nigerian economy by applying OLS technique using time series data from 1986-2005. The findings of the study reveal that several factors responsible for rising domestic debt in Nigeria are high budget deficit, low output level, increased government expenditures, high inflation rate and narrow revenue base. The analysis shows that domestic debt has negatively affected the growth of the economy and recommends that government should made efforts to resolve the outstanding domestic debt.

Feyzioglu, Swaroop and Zhu (1998) determine the average impact of government debt on per capita GDP growth for twelve euro area countries over a period of about 40 years from 1970-2009. The channels through which government debt impact the economic growth are private savings, public investment productivity and real interest rates. The study shows non-linear negative impact of government debt on economic, total factor growth.

Maana *et al* (2008) analyze the economic impact of domestic debt on Kenya's economy. Authors examine the impacts of domestic debt on private sector lending by applying ordinary least square technique using annual data over the period 1996 to 2007. The study finds that domestic debt does not crowd out private sector lending in Kenya during the period due to substantial level of financial development in Kenya. The study also examines the effects of domestic debt on real output by using a modified Barro growth regression model. The results indicate that increase in domestic debt has a positive but insignificant effect on economic growth during the period. The study suggests that government should employ wider reforms that promote investment in treasury bonds and encourage institutional investors.

Manundu (1984) looked at the debt management strategies for Kenya; Ng'eno (1991) looked at the external debt problem of Kenya while Ochieng (1991) looked at the determinants of the external debt burden and Mutiso (2001) looked at the determinants of external debt in Kenya. Koech (2012), did a study on the determinants of Kenya's

external debt sustainability, the study found that the various determinant of countries external debt sustainability are gross domestic product, country export, domestic debt and external debt. The study found that external debt and domestic debt negatively affects external debt sustainability in Kenya, it was further revealed that gross domestic product and countries export positively influence the external debt sustainability in Kenya.

Gikandu (2008) did a study on the relationship between domestic debt and economic growth in Kenya. The study utilized data on volume of domestic debt as well as domestic debt by instrument, real GDP and real GDP growth, for a twelve year period from 1999/2000 to 2010/2011 financial years to establish the relationship between the two variables.

The research methodology adopted was descriptive design with use of secondary data from the CBK, MOF and annual economic surveys. The analysis of data was done using Spearman's rank correlation to establish the relationship that exists between domestic debt and economic growth in Kenya. The results are presented in tables and graphs. The analysis performed revealed a weak positive relationship between the two variables. This means that the use of domestic debt has some slight contribution to economic growth. The study recommended that though the relationship is positive, the government needs to use domestic debt with care so that the interest bill therein does not have a negative impact on economic growth.

2.4 Summary of Literature Review

Past research has focused on external debt for two reasons; first, while external borrowing can increase a country's access to resources, domestic borrowing only transfers' resources within the country. Hence, only external debt generates a "transfer" problem (Keynes, 1929). Second, since central banks in developing countries cannot print the hard currency necessary to repay external debt, external borrowing is usually associated with vulnerabilities that may lead to debt crises (Panizza, 2009).

In almost all of sub-Saharan Africa there is a high degree of indebtedness, high unemployment, absolute poverty and poor economic performance despite a previous culture of massive foreign aid. There is scanty of literature on relationship between domestic debt and interest rate, most of empirical literature have reviewed the relationship between domestic debt and economic growth with most researchers focusing on external debt. This study seeks to the fill the research gap by conducting a study to establish the relations between domestic debt and interest rate in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the research design, population of the study, sample size, data sources and data analysis procedure together with the model specification.

3.2 Research Design

Crowley (2007) notes that a research design is the structure of the research, it is the “glue” that holds all the elements in a research project together. The causal study design was employed in this research. Causal research suggests causal linkages between variables by observing existing phenomena and then searching back through available data in order to try to identify plausible causal relationships. It was concerned with determining cause and effect relationship and to understand which variable is dependent and which is independent. This research design was the best in explaining if two variables are related or if they vary. This will be established by use of enough information and data for testing cause and effect relationship. It aimed to explore the relationship between domestic debt and interest rate in Kenya and help answer the research questions.

3.3 Target Population and Sample Size

The population for this study was 10 years period starting from year 2003 to year 2012. The study period was selected since it was the time when there was so much internal borrowing in the last 10 years. Target population should have some observable

characteristics, to which the researcher intends to generalize the results of the study. The sample of this study was 10 years period from where secondary data was selected.

3.4 Data Collection Procedure

Secondary data from Central Bank of Kenya was collected on the study variable, these include, the domestic debt, interest rate, economic growth and private sector credit. The study collected secondary data for the last 10 years starting year 2003 to 2012.

3.5 Data Analysis Techniques

Data analysis was done using SPSS Version 20 whereby inferential statistics was applied whereby a multiple regression model will be employed. Analysis of Variance (ANOVA) is used to test for differences between the means of more than two groups, and can be used in designs with more than one independent variable. In the present study, ANOVA was used to test the mean score differences between mortgage financing and profitability of commercial banks in Kenya and to test for significance at 95% confidence level and 5% level of significance.

To test the relationship between domestic debt and interest rate in Kenya. In line with past studies and to better analyze the relationship between domestic debt and interest rate, the multivariate statistical model specification used variables like domestic credit and interest rates that have been shown empirically to be robust determinants in this relationship. The study therefore proceeded by using a modified version of Adofu and Abula (2010) Classical Linear Normal Regression Model (CLRM) of the following form:

$$\text{Int Rate} = \beta_0 + \beta_1 \text{GDrate} + \beta_2 \text{Pcredit} + \beta_3 \text{FXrate} + \beta_4 \text{Ddebt} + \beta_5 \text{Dfcit} + U_t.$$

Where:

Int Rate = is the interest rate, which will be measured through the country average interest rate per year.

Ddebt = is the domestic debt, which was measured as absolute data of Gross Domestic Product obtained from Central Bank of Kenya.

GDrate = is the Gross Domestic Product, this was measured by the actual data obtained on the country GDP growth rate

P credit = is the private sector credit which was measured by the amount of Private Sector Credit

FX rate = is the foreign exchange rate which was measured by the Growth in Foreign Exchange rate

D fcit = is the fiscal deficit which was measured as percentage of GDP

U_t = Stochastic variable (error term)

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data findings to determine the relationship between domestic debt and interest rate in Kenya. These data were collected from the Central Bank of Kenya and Kenya National Bureau of Statistics. Regression analysis was done for the periods to determine the relationship between domestic debt and interest rate in Kenya.

The study covered a period of 10 years from year 2003 to 2012.

4.2 Regression Analysis

Table 4.1: Descriptive Data

YEAR	GDP Rate	Ln (Private Sector Credit)	Ln (Domestic Debt)	Ln (Fiscal deficit)	FX rate	Interest Rate
2003	2.7%	6.42	7.68	8.72	81.42	13.91%
2004	4.6%	6.53	7.79	8.83	81.56	13.90%
2005	5.9%	6.54	7.91	8.84	83.75	14.13%
2006	6.3%	6.46	8.15	8.77	85.82	14.32%
2007	6.9%	6.50	8.17	8.80	87.04	14.79%
2008	1.5%	6.61	8.33	8.92	96.26	15.21%
2009	2.6%	6.63	8.52	8.93	96.52	18.51%
2010	4.9%	6.71	8.41	9.01	99.77	19.54%

2011	5.5%	6.73	8.56	9.04	99.83	20.04%
2012	4.2%	6.76	8.57	9.07	105.96	20.27%

In this study, a multiple regression analysis was conducted to test the influence among predictor variables. The research used statistical package for social sciences (SPSS V 20) to code, enter and compute the measurements of the multiple regressions.

Table 4.2: Model Summary

Model	R	R Squares	Adjusted R Square	Std. Error of the Estimate
1	.869 ^a	.755	.746	.33868

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings the study found that the value of adjusted R squared was 0.746 an indication that there was variation of 74.6% on interest rate dues to change in domestic debt , gross somestic product , private sector credit , foreign exchange rate and fiscal deficit at 95% confidence interval . This shows that 74.6 % change in interest rate could be accounted for by change in domestic debt , gross somestic product , private sector credit , foreign exchange rate and fiscal deficit. The study revealed that there is a strong relationship domestic debt and interest rate in Kenya as shown by a strong correlation coefficent of 0.869.

Table 4.3: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.292	2	0.146	1.059	.032
	Residual	0.296	8	0.037		
	Total	0.588	9			

From the ANOVA statistics in table above , the processed data, which is the population parameters, had a significance level of 3.2% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. It also indicates that the model was statistically significant.

Table 4.4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.786	.730		1.275	.710
	Domestic Debt	.138	.072	-.290	-1.931	.032
	Gross Domestic Product	-.131	.064	-.264	-2.050	.048
	Private Sector Credit	-.286	.123	-.347	-2.317	.026
	Foreign Exchange Rate	.093	.060	-.184	-1.546	.031
	Fiscal Deficit	.204	.240	.230	.850	.028

The established regression equation is

$$Y = 0.786 + 0.138 X_1 - 0.131 X_2 - 0.286 X_3 + 0.093 X_4 + 0.204 X_5$$

From the above regression equation it was revealed that holding domestic debt , gross domestic product , private sector credit , foreign exchange rate and fiscal deficit to a constant zero, interest rate in Kenya would be at 0.786, a unit increase in domestic debt would lead to increase in interest rate in Kenya by a factors of 0.138, unit increase in gross domestic product would lead to decrease in interest rate in Kenya by a factors of 0.131, a unit increase in private sector credit would lead to decrease in interest rate by a factor of 0.286, a unit increase in foreign exchange rate would lead to increase in interest rate in Kenya by a factor of 0.093 and the study revealed that a unit increase in fiscal deficit would lead to increase in interest rate in Kenya by a factors of 0.204 . All the p-value was found to be less than 0.05 an indication that all the variables were statistically significant influencing interest rate in Kenya.

4.3 Summary and Interpretation of Findings

From the findings the study revealed that there was a variation of 74.6% on interest rate due to change in domestic debt , gross domestic product , private sector credit , foreign exchange rate and fiscal deficit. The study revealed that there is a strong relationship between domestic debt and interest rate in Kenya as shown by a strong correlation coefficient of 0.869. From the findings on ANOVA, the study revealed that the significance level was 3.2% which shows that the data was ideal for making a conclusion on the population's parameter as the value of significance is less than 5%. This is an indication that domestic debt , gross domestic product, private sector credit , foreign exchange rate and fiscal deficit significantly influence the interest rate in the country. The study revealed that

interest rate was positively related to domestic debt, foreign exchanges and fiscal debt.

The study revealed that interest rate was negatively related to gross domestic debt and private sector credit.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Major Findings

From the findings the study revealed that there was a variation of 74.6% on interest rate due to change in domestic debt, gross domestic product, private sector credit, foreign exchange rate and fiscal deficit. The study revealed that there is a strong relationship between domestic debt and interest rate in Kenya as shown by a strong correlation coefficient of 0.869. From the findings on ANOVA, the study revealed that the significance level was 3.2% which shows that the data was ideal for making a conclusion on the population's parameter as the value of significance is less than 5%. This is an indication that domestic debt, gross domestic product, private sector credit, foreign exchange rate and fiscal deficit significantly influence the interest rate in the country.

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interest rate in Kenya by a factors of 0.204. The study revealed that interest rate was positively related to domestic debt, foreign exchanges and fiscal debt. The study revealed that interest rate was negatively related to gross domestic debt and private sector credit.

5.2 Conclusion

From the findings of the study revealed that domestic debt was positively influencing the interest rate, the study thus concludes that that domestic debt positively affects the interest rate in the country. An increase in domestic debt influence the commercial banks to leads to the government through bonds and treasury bills other than other loans leading to increase in interest rate of the amount of loan offered by the banks thus the positive relationship between domestic debt and interest in the country.

The study established that fiscal deficit in the countries expenditure positively affect the country interest rate. Increase in fiscal deficits lead to the government borrowing from other source including domestic debt which leads to high interest rate since the banks are willing to lead to the government other than private sectors thus positive relationship between fiscal deficit and interest rate in Kenya. The study further revealed that an increase in foreign exchange rate positively influenced increase in the interest rate in the country, thus the study concludes that foreign exchanges rate and fiscal debt positively influence the interest rate in the country.

The study revealed that interest rate was negatively related to gross domestic product in the country, the study further revealed that private sector credit negatively influence the interest rate in the country, thus the study concludes that gross domestic product and

private sector credit negatively influence the interest rate. An increase in the country GDP reduce the government domestic debt and fiscal deficit which means there will be reduction in government borrowing which will leave the banks to lead to private sector alone thus decrease in interest rate .

5.3 Policy Implications

From the above discussion and conclusion the study recommends that for the country to be able to control interest rate, the policy makers in the government must address the domestic borrowing by the government as this will help the country to control the interest rate through domestic borrowing, reduced domestic borrowing means that commercial bank will be ready to offer loans to private sectors thus leading to decrease in interest rate in the Country. There is need for the policy make to design various monetary policies that will help in reducing the exchange rate thus encouraging foreign direct investment which will help in improving the country economic growth thus decrease in interest rate.

There is need for the policy makers in the government to control interest rate, exchange rate and also the fiscal deficit and private sector credit as they affect interest rate in the country. The study also recommends that the government through it various agency that deal with country debt should churn from using internal debt as this will negatively affect the country's interest rate. There is need to introduce various fiscal policies that will help in stabilizing the country interest rate to encourage private sector investment which will help in enhancing the gross domestic of the country thus reducing the government borrowing .

5.4 Limitations of the Study

The study was limited to establish the relationship between domestic debt and interest rate in Kenya, where private sector credit , gross domestic product , foreign exchange rate and fiscal debt were used as the control variable , other aspects that influence interest rate were not considered in this study. Multiple regression analysis was used to test the relationship between the study variable however the study did not check for multicollinearity between the study.

The study was also limited to the degree of precision of the data obtained from the secondary source. While the data was verifiable since it came from the Central Banks website, an assumption had to be made. The study was limited by the availability of data relating to the relationship between domestic debt and interest rate in Kenya. Thus the study could not include the relationship between the study variable and other variables.

The study was also limited to 10 year period starting form year 2003 to year 2012. The study was based on 10 years. A longer duration of the study would have captured periods of various economic significances such as booms and recessions. This may have probably given a longer time focus hence given a broader dimension to the problem. Longer period of time could have captured the different era of governance and thus broaden the understanding whether country governance influence the the relationship between domestic debt and interest rate in Kenya.

5.5 Suggestion for Further Research

The study sought to determine the relationship between domestic debt and interest rate in Kenya, the study recommends an in-depth study should be done on the relationship between domestic debt and inflation rate. The study also recommends an in-depth study should be done on factors influencing domestic debt in Kenya. Further studies should be done to investigate effects of domestic debt on econometric growth in Kenya.

The issues should be examined empirically using advanced econometric model techniques and quarterly time series data spanning 2000 to 2012. Finally the study also recommends further studies to be done on the possible tradeoff between domestic and external borrowing and point out whether switching towards domestic borrowing can play a positive role in reducing the risk of sovereign finance.

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APPENDICE

Appendix 1: Introductory Letter

George Karanja Kariuki
University of Nairobi
P.O Box 30197-00100
Nairobi.

To whom it may concern
Dear Sir/Madam

RE: RESEARCH PROJECT

I am an MBA student at the University of Nairobi undertaking a research project as part of the requirements of the degree of Masters in Business Administration. The topic of my research is to determine the relationship between domestic debt and interest rates in Kenya." Your institution has been selected to form part of the study. I kindly request your assistance by availing time to respond to the attached data sheet. Any information provided will be treated with utmost confidentiality and used solely for academic purposes. A copy of the final report will be made available to you at your request. Your assistance will be highly appreciated. Thanking you in advance.

Yours faithfully
George Karanja Kariuki
MBA student
D61/72404/2011
Tel: 0725743409

Appendix II:Data

YEAR	GDP Rate	Private Sector Credit (Billion)	Domestic Debt(Billion)	Fiscal deficit (Billion)	FX rate	Interest Rate
2003	2.7%	612	216.1	612.2	81.4208	13.91%
2004	4.6%	686	241.2	686.2	81.5611	13.90%
2005	5.9%	691	272.5	691.6	83.7514	14.13%
2006	6.3%	642	346.2	642.7	85.8292	14.32%
2007	6.9%	662	351.6	662.2	87.0422	14.79%
2008	1.5%	746	413.2	746.1	96.2694	15.21%
2009	2.6%	754	503.9	754.8	96.5222	18.51%
2010	4.9%	818	450.2	818.1	99.7783	19.54%
2011	5.5%	839	522.4	839.7	99.8319	20.04%
2012	4.2%	866	526.2	866.7	105.961	20.27%