Response of Economic Growth to Domestic Borrowing in Kenya

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Abstract

Kenya envisioned economic growth rate of 10 per cent per annum and a reduction in domestic debt levels to below 25 per cent of GDP by 2012. These targets were not achieved. Whether the slow rate of economic growth is a result of the high debt is a question that begs to be analysed. This study analysed the response of economic growth to domestic borrowing in Kenya in the period 1971-2013 using a multivariate linear regression model in which other variables likely to influence economic growth were also included. The study also investigated whether there exists any moderating effects of changes in political regimes and market reforms on the response of economic growth to domestic borrowing in Kenya. The findings indicate that economic growth responds negatively to domestic borrowing. Economic growth was also found to respond negatively to Private Consumption and Inflation but responds positively to growth in Private Investments and Net exports. Market reforms were found to have no significant effects on economic growth. The findings further indicate that economic growth in the third political regime under President Mwai Kibaki was on average higher than that in the regime under President Jomo Kenyatta. Changes in the political regimes are shown to have had no effect on the response of economic growth to domestic borrowing. These findings suggest that domestic debt and changes in political regimes only have own individual effects but no joint effects on economic growth in Kenya, thereby indicating no moderating effects of political forces on effect of debt on economic growth. The study recommends that the Kenya government should further pursue policies to successfully reduce domestic borrowing and curb inflation while also enhancing private investments and net exports to realise higher rates of economic growth.

Key Words: Economic Growth, Domestic Borrowing, Political Regimes, Market Reforms

JEL Classification: H74, O40

Paper Classification: Research Paper

Introduction

Trends of Economic Growth and Domestic Borrowing in Kenya

Kenya's economic growth in its post-independence period has been unstable. Between 1963-1970, Kenya's GDP growth was high due to high levels of private and public investments and high agricultural production (Republic of Kenya, 1972). However, between 1970 and 2013, there have been wild fluctuations in real growth rates as shown in Figure 1. The fluctuations in the real GDP growth rates are thought to be the result of erratic weather conditions, escalating oil prices leading to widening of the current account deficits, reduced earnings on key exports, inflation, government policies aimed at stimulating economic activity, and market reforms including liberalization of exchange control regulations (Republic of Kenya, 1978; 1984; 2005).

According to the first medium term plan in the framework of the Kenya vision 2030 covering the period 2008 to 2012, the economy was supposed to grow at 10 per cent by the year 2012. This growth rate was to be sustained henceforth to transform the economy to a middle income country. The target was not met. Instead the actual growth rate in 2012 was only 4.6 per cent. Even in earlier years, the country has not always met the set targets in terms of GDP growth rates as illustrated in Figure 2. It is only in the period between 2003 and 2007 that set targets in real GDP growth rates were met. In the given period, the Kibaki government was implementing the plans under the economic strategy for wealth and employment creation (Republic of Kenya, 2008). All the targets for the other years 2008-2012 were not attained with actual growth rates falling below the targets. The trends indicate that unless appropriate policies focus on closing this gap, the desired socio economic transformations for the country will not be realised by 2030.

The relationship between domestic debt and economic growth in Kenya is an issue of great debate among scholars. On one hand, debt could increase economic growth by bridging the gap between government receipts and expenditure and aiding beneficial public investment (Matiti, 2013). However, excessive public debt may be harmful to the economy because it may limit productivity and weaken investment growth in the private sector (Barro, 1979). The government of Kenya has experienced budget deficits over the years which have necessitated borrowing from both internal and external sources. Internally the government borrows from the domestic market using securities, overdrafts at the Central Bank of Kenya and advances from commercial banks (Republic of Kenya, 2010).

Kenyan domestic debt has grown for the period 1971 to 2013 as shown in figure 3. In the 1970's debt was on the rise with the oil crisis being one of the major causes (Republic of Kenya, 1978. Krugman, 1988). The gradual rise in domestic debt in the period 1971 and 1994 was due to moderate increase in budget deficit and government expenditure. The decline in debt in the period 1994-1995 was a result of implementation of tight monetary policy and liberalization of trade (Republic of Kenya, 1999). Bilateral donor funding especially from Japan, Netherlands and France also increased by 250 per cent (IMF, 2010). From 1995 some structural adjustment efforts such as establishment of recurrent expenditure ceilings for ministries, improved tax collection and reduced government borrowing were implemented (Republic of Kenya, 1999). The drastic increase in debt after 1997 was due to widened budget deficit as well as reduced donor funding (Republic of Kenya, 1999) and need for more funding to address effects of El Nino rains and general elections.

In order to maintain sustainable debt levels, the government set policies to reduce domestic debt levels and increase the level of donor funding (Republic of Kenya, 2008). The Medium Term Debt Management Strategy (MTDS) formulated in 2009 suggesting an appropriate mix between

domestic and external debt and initiatives to develop a vibrant domestic debt market   targeted to slow down domestic borrowing so as not to 'crowd-out' the private sector. Borrowing was to be biased towards medium to long term debt to create liquidity around benchmark bonds and to lower costs of borrowing (Republic of Kenya, 2010). However, domestic debt levels increased persistently and remained above 50 per cent of the total debt contrary to the set target of less than 50 per cent. The country is also contending with high cost of servicing of growing debt, a situation that raises borrowing costs and in effect increases interest rates (Republic of Kenya, 2014).

Market reforms and changes in Political regimes in Kenya

Markets play a critical role in growth and adjustment process to improve competitiveness and efficiency (Swamy, 1994). Market conditions in post independent Kenya have changed over time from a period of heavy government controls between 1963 to 1985 to the structural adjustment programmes (SAPs) in the period 1986 to 1992 and finally to full liberalization in 1993-2014 (Republic of Kenya, 1980; 1996; 2014). The period of heavy government controls was characterised by very high effective rates of protection for new firms which made them enjoy near monopolies (Republic of Kenya, 1978). The SAPS, initiated and supported by the International Monetary Fund (IMF) and the World Bank and implemented in the 1980s were meant to deal with challenges faced in the 1970's due to the heavy controls (Republic of Kenya, 1999; IMF and World Bank, 2001). The programmes aimed at attaining macroeconomic stability by eliminating fiscal and external imbalances through liberalization of prices and marketing systems. There were also reforms of international trade regulation, government budget rationalization, divestiture and privatization of parastatals as well as civil service reforms (Republic of Kenya, 1999). By 1991, the interest rates were fully liberalized and the government was less involved in market activities (Republic of Kenya, 1994). Such liberalisation of markets remains to date.

The political climate in a country is determined by the government policies whose implementation directly depends on the political regime in place at a given time. The commitment to the set policy targets also varies from one political regime to another. The latter can therefore explain performance and impact of key macroeconomic variables in an economy. In the period 1971 to 2013, Kenya saw political rule of three presidents with the fourth president; honourable Uhuru Kenyatta having been in office for less than one year. The first presidential regime of Mzee Jomo Kenyatta lasted up to 1978, after which his predecessor Daniel Arap Moi took over. The first two regimes were both under the party of Kenya African National Union (KANU) which ruled Kenya under single party rule up to 1992 and extended its rule up to 2002 in the era of political pluralism. In 2003 there was change of political power to the then opposition party, the National Rainbow Coalition (NARC) under Mwai Kibaki. At the time, real GDP growth rate in 2002 had fallen to as low as 0.2 per cent (Republic of Kenya, 2010) which was also accompanied by huge domestic debt, worsening fiscal deficit and rising inflation. The launch of Economic Recovery Strategy (ERS) for the period 2003 to 2007 specified measures and policies that were to be undertaken to create opportunities for productive employment by rebuilding sound governance structures and addressing main macroeconomic vulnerabilities through strengthening the budgetary position, reducing domestic debt, developing the financial system, reforming the parastatals sector, labour market and trade system to foster a more competitive private sector (Republic of Kenya, 2010).

Statement of the Problem and Objectives

Kenya targeted a sustained economic growth rate of 10 per cent per year from the year 2012. This was to enable transformation of the economy to a middle-income country providing high

quality of life to all its citizens (Republic of Kenya, 2007). The flagship projects of this vision required financing most of which is based on public borrowing because of revenue mobilisation challenges (Republic of Kenya, 2010). Growth of the private sector which is considered the engine for the required growth also depends on borrowing from the public through the financial markets. Therefore, domestic debt and economic growth are key policy issues in Kenya. The targeted economic growth rate of 10 per cent and a reduction of domestic borrowing to below 25 per cent by 2012 were not realised. The question is whether the two policy variables, economic growth and internal debt are related and if so whether they negatively affect each other, so as to provide an explanation to the observed outcomes.

Studies that have analysed the relationship between domestic debt and economic growth in Kenya found an insignificant effect of debt on economic growth in the period 1996 to 2007 (Maana, Owino, and Mutai, 2008); a positive relationship between economic growth and new issues of debt by government in the period 2003 to 2011, and that total debt for Kenya in the period 1992 to 2012 had a negative relationship with economic growth (Koka, 2009; Matiti, 2013). The latter two studies measured debt by value of bond issues and total of internal and external debt, respectively and in the estimated models, institutional variables are not included. The results from the studies are not conclusive and also cannot be generalised to conclude on the effect of borrowing from the country's citizens on economic growth and the role of institutional reforms on such effect. This study was conducted to ascertain such effects. The specific objectives of the study were:

(i)   To determine the response of economic growth to domestic borrowing in Kenya.

(ii) To analyse the moderating effect of changes in governance and market reforms on the response of economic growth to domestic borrowing in Kenya.

Literature Review

Theoretical Framework

The study used the neoclassical model of internal debt developed by Fischer (1933) to explain the effects of government borrowing on the private sector. The model is based on the assumptions that capital markets are perfect, debts must be repaid, prices are fixed and money supply is fixed. According to the model, an increase in government expenditure, financed by either taxes or debt issuance to the public could crowd out the private sector. The extent to which crowding out occurs depend on the economic situation. If the economy is at full employment, a sudden increase in budget deficit could create competition with the private sector for scarce funds available for investment, resulting in an increase in interest rates and reduced private investment or consumption, so that other factors are constant, debt finance leaves the future generation with a smaller capital stock and the members therefore are less productive and have smaller real incomes than otherwise would have been the case. In this way, the debt imposes a burden on future generations through its impact on capital formation.

The crowding out could be partial or complete. Partial crowding out occurs when both investments and savings are sensitive to interest rates such that a decrease in private investments due to government debt is offset by an increase in savings. As a result the private investments crowded out are less than the government debt. On another hand, complete crowding out occurs when savings are insensitive to interest rates but investments are sensitive to interest rates such that the private investments crowded out equals the government debt since savings remain constant. However, if private investments are insensitive to interest rates, crowding out does not occur and crowding in could also occur when private investments are sensitive to interest

rates and positively depend on income. In the latter case, the increase in income due to more government spending leads to more savings and investments.

The hypothesis can be used to explain how increased domestic borrowing leads to higher interest rates. The private sector, which is sensitive to interest rates, will likely reduce investment due to a lower rate of return which in turn hurts long-term economic growth of the supply side.

Using Keynes (1936) aggregate demand equation for open economy which computes national income as the sum of the aggregate expenditure components, economic growth may be modelled as dependent on growth in the expenditure components which include private consumption, government spending, private investment expenditure   and net efforts. Thus equation for the growth of income can be presented as

$y=f (c,g,i,x—m)$ (1)

Based on the arguments of the neoclassical model, the functional relationship can be extended to include debt variable so that the effect of growth of debt can be investigated. Thus modifying equation 1 to include debt, we could then have a modified model such as

$y=f (c,g,i,x—m, dd)$ (2)

Where y, c, g, i, x-m, dd are national income, private consumption, government expenditure, private investment, net exports and domestic debt, respectively in growth terms. From this framework, the hypothesis of effect of growing debt on economic growth of a country can be tested.

Empirical Literature

Maana, Owino, and Mutai (2008) analysed the impact of dmestic debt on economic growth in Kenya between the period 1996 and 2007 using time series data on the rate of growth of real GDP, domestic debt to GDP ratio, government expenditure to GDP, private sector credit, broad money supply (M3), enrolment in secondary schools and trade balance (total exports and imports of goods and services) to GDP ratio. Estimation of the model with real GDP growth rate as the dependent variable was based on the generalised method of moments. The results indicated that domestic debt expansion had an insignificant effect on economic growth in Kenya during the study period. Lagged values of GDP and the ratio of trade balance to GDP had a positive significant effect on economic growth in Kenya while the other explanatory variables did not have any significant effect. Despite the inclusion of key variables in the model specified in the study, the time horizon was quite short which challenges reliability of the results. This study borrowed some variables from the reviewed study such as government expenditure but deviated from it by extending the study period and adding more explanatory variables especially the market reforms and governance to see whether they affected the response of economic growth to domestic borrowing in Kenya.

Rother and Checcherita (2010) analysed the impact of growing government debt on economic growth in twelve countries in euro area in the period 1970-2009. Data on the growth rate of GDP per capita, gross government debt, gross capital formation, fiscal indicators, long-term real interest rate, indicators for openness of the economy and external competitiveness captured by total of export and import shares in GDP; growth in terms of trade and real effective exchange rate were used in the study. A panel fixed-effects model corrected for heteroskedasticity and autocorrelation was used to regress GDP per capita growth rate on debt in first differences. Findings showed that government debt negatively associated growth in per capita GDP.

In the study by Koka (2012), the relationship between government bond issues and economic growth in Kenya was analysed using time series data in the period 2003 to 2011. Economic growth was regressed on market capitalization of bonds, value of bonds traded and total new issues of bonds. The findings showed that the issuance and performance of government bonds had a positive significant impact on the economic growth of Kenya. The study period coincides with the period during which the third president of Kenya was in power and policies to revamp the economy and employment creation were being implemented.

Rabia and Kamran (2012) examined the impact of domestic and external debt on the economic growth of Pakistan using time series data over the period 1980 to 2010. Economic growth was regressed on domestic debt and external debt separately. The findings indicated an inverse relationship between domestic debt and economic growth, thereby supporting the crowding out hypothesis. However, only variables on economic growth, internal and external debt were included in the models. Omission of other variables that could impact economic growth leaves a possibility of the results being unreliable. This study thus incorporated other intervening variables and extended the study period for more reliable results.

Matiti (2013) investigated the relationship between public debt and economic growth in Kenya for the period 1992-2012 using time series data on economic growth, domestic debt and external debt from the government records at the Kenya National Bureau of Statistics and the Central Bank of Kenya. Treasury Bonds, Treasury Bills, Government Stock, Overdraft at the Central Bank of Kenya and advances from Commercial banks were used to capture domestic debt. Economic growth was regressed on domestic and external debt. The results showed a positive relationship between economic growth and treasury bonds and bills while there was a negative relationship between economic growth and Overdraft at the Central Bank of Kenya, government stocks, advances from commercial banks and external debt.

Research gap and Contribution of the study

According to the theoretical literature, domestic debt affects economic growth through the rise in interest rates. Findings of reviewed studies in Kenya report no effect, positive as well as negative effect of debt on economic growth. The studies cover different periods over which market reforms and political environments differ. For example, the study by Maana, Owino, and Mutai (2008) covered data spanning across two presidential regimes but short time periods in each case and more of periods of political transition. On the other hand Koka (2012) utilised data spanning a period under only one president, but covering the entire political regime of the third president. The third study, Matiti (2013) used data spanning ten years of each successive presidents and found contrary results for effect of public debt. In all the studies, whether the effect of debt on economic growth depends on the political factor or other institutional factors have not been investigated. This study included variables to capture changing market conditions, political regimes and other macroeconomic conditions to find out if they moderate the relationship between debt and economic growth. This study provides understanding on the effects of such factors on economic growth as well as how they affect the response of economic growth to domestic borrowing which could be used by policy makers as well as future researchers.

Methodology

Type of study

This was a basic study conducted purely for the purpose of expanding the models used to explain the relationship between economic growth and public debt. It was useful in determining

whether in modelling effect of institutional factors in this relationship, such factors fit as slope variables or intercept variables.

Study period

The study adopted a longitudinal design in which values of each study variable over each year in the period 1971 to 2013 were utilised. The design was considered appropriate because it provided the possibility of analysing growth or changes in the variables over time and hence the possibility to analyse cause effect relationship of such changes over the time where different institutional conditions and changing levels of debt have been experienced in Kenya. The period is long enough and provide data on all the study variables unlike for the case of earlier years when data on some variables were missing. The study was concluded in 2015 at a time when statistical information available for the year 2014 were still provisional.

Data type, Sources and Collection Procedures

The study used time series data for all variables from published and unpublished sources for the year 1971-2013. All the data was extracted from government of Kenya statistical records in various issues of economic surveys and statistical abstracts sourced from the Kenya National Bureau of statistics and the Central Bank of Kenya.

Definition and measurement of variables

Domestic public debt is the total amount of money borrowed by the government within the country to raise revenue needed for government spending measured as a per cent of gross domestic product (GDP) for each year.

Economic growth is the growth rate of the real GDP from one period to the next.

Private investments are the sum of domestic investments in the private sector measured by its reported value for Kenya as per cent of GDP in a given year.

Real interest rate is the rate of interest an investor expects to receive after allowing for inflation. This was measured by the reported values for real interest rates for the country for each year.

Net Exports is the difference between reported values for exports and imports for the country in each year, as per cent of GDP.

Private Consumption is the total market value of all goods and services purchased by households in an economy measured as per cent of GDP.

Government expenditure is the total expenditure by the government for purchases of goods and services in a given period measured as per cent of GDP.

Inflation Rate is the percentage change in the cost of acquiring a basket of goods and services to the average consumer in a year.

Market liberalisation refers to the removal of heavy government control on economic activities to allow market forces to control private activities in the economy. This was measured by a dummy which was equated to 1 for the period 1993-2013 and 0 otherwise.

Changes in governance refer to the change of leadership from one president to another. It was measured using 3 dummies for each governance regime.

Research Hypotheses

The study's hypotheses were as follows:

(i)   Economic growth in Kenya reduces as domestic borrowing increases

(ii) Changes in political regimes and market reforms moderate the response of economic growth to domestic borrowing in Kenya.

Research Model Specification

Based on the theoretical framework discussed, the study adopted a functional representation relating economic growth rate to variables that affect it while incorporating domestic debt and dummies to capture periods of identified market reforms as well as different political regimes. The empirical model in the study was specified as:

$$\text{GRATE}_t = f(\text{DD}_t, \text{PI}_t, \text{R}_t, \text{PC}_t, \text{GEXP}_t, \text{XM}_t, \text{Inf}_t, \text{M}_1, \text{M}_2, \text{G}_1, \text{G}_2, \text{G}_3) \qquad (3)$$

Where:

GRATE is growth rate of Real GDP, DD is the total value of domestic public debt, PI is the level of Private Investments, R represents real interest rates, PC is the level of private consumption, GEXP is government expenditure, XM is net exports, Inf is the inflation rate, subscript t in each variable represent the time period, M1 and M2 are dummies to capture the pre-liberalisation and the liberalisation periods, respectively, G1, G2 and G3 are dummies capturing the first, second and third, presidential regimes, respectively.

Data Analysis

The time series were first subjected to unit root tests using Augmented Dickey Fuller (ADF) and Kwiatkowski Phillips Schmidt-Shin (KPSS) tests before estimation of the models to address the objectives of the study. Correlation analysis was also carried out to determine whether there could have been any problem of multicollinearity in the models.

To determine response of economic growth to domestic borrowing in Kenya, real GDP growth rate was regressed on Domestic debt as a percentage of GDP with the inclusion of other exogenous variables according to the following equation 4.

$$GRATE_t = \alpha_0 + \alpha_1 DD_t + \alpha_2 PI_t + \alpha_3 RIR_t + \alpha_4 XM_t + \alpha_5 GOVT_t + \alpha_6 INFL_t + \alpha_7 PC_t + \alpha_8 G_1$$
$$\alpha_9 G_2 + \alpha_{10} G_3 + \alpha_{11} M_1 + \alpha_{12} M_2 + \alpha_{13} UNUSUAL1 + \alpha_{14} UNUSUAL2 + \mu_t \qquad (4)$$

Where UNUSUAL1 and UNUSUAL2 are dummies that captured the unusual occurrences in some years and the others are as defined in the previous equation 3

The moderating effect of changes in governance and market reforms on the response of economic growth to domestic borrowing in Kenya was investigated through inclusion of interaction terms in the model as in following equation 5.

$$GRATE_t = \beta_0 + \beta_1 DD_t + \beta_2 PI_t + \beta_3 XM_t + \beta_4 INFL_t + \beta_5 G_3 + \beta_6 UNUSUAL1$$
$$+ \beta_7 UNUSUAL2 + \beta_8 DD * G_3 + \mu_t \qquad (5)$$

Outputs of the regression models were subjected to residual based tests to ascertain that the ordinary least squares assumptions applied. Specification tests and parameter constancy tests were also conducted before adopting the models to address the research objectives. Hypothesis test were based on the student t-statistic and the probability (p-value) of observing the t-statistic given that the coefficients were equal to zero.

Empirical Results and Discussions

Time series properties and model diagnostic test Results

All the time series were subjected to unit root tests using the Augmented Dickey Fuller (ADF) test. Where ADF reported presence of unit root, the series was also subjected to tests using the Kwiatkowski Phillips Schmidt-Shin (KPSS) test. As shown in Table 1, the results of the ADF tests indicate that apart from government expenditure, all the series were stationary. The series of government expenditure was subjected to the KPSS test which reported absence of unit root. The results led to the conclusion that all the series were stationary and thus their use in the regression models would not generate spurious results. Correlation coefficients between the variables are shown in Table 2. The coefficients show that there was no evidence of high correlation between the series of the independent variables to be included in the models for estimation, hence no evidence of problem of multicollinearity.

Table 1: Results of the Unit Root Tests

Variables	*Adf Test Statistic		Mackinnons' Critical Values		Conclusion
	With Intercept only	With both intercept and trend	With Intercept only	With both intercept and trend	
Real GDP growth rate	-4.77	-4.67	-2.94	-3.52	Stationary
Domestic Debt	-3.68	-4.38	-2.94	-3.52	Stationary
Private Investments	-3.45	-3.32	-2.94	-3.52	Stationary
Interest Rates	-4.08	-4.64	-2.94	-3.52	Stationary
Inflation Rate	-3.91	-3.92	-2.94	-3.52	Stationary
Net Exports	-2.30	-3.63	-2.94	-3.52	Stationary
Government Expenditure	-2.21	-2.21	-2.94	-3.52	Non-Stationary
Private Consumption	-8.67	-8.38	-2.94	-3.52	Stationary

Variables	*Kpss Test Statistic		Lm Critical Values		Conclusion
	With Intercept only	With both intercept and trend	With Intercept only	With both intercept and trend	
Government Expenditure	0.25	0.12	0.46	0.15	Stationary

*Under the ADF test, the null hypothesis of presence of unit root is rejected if the ADF statistic is greater than the Mackinnon's critical value while under the KPSS test, the null hypothesis of no unit root is rejected if the test statistic is less than the LM critical values

Table 2: Correlation coefficients between the study variables

	Real growth rate (GRATE)	Domestic debt (DD)	Government expenditure (GOVT)	Inflation (INFL)	Private Consumption (PC)	Private Investment (PI)	Real interest rate (RIR)	Net export (XM)
GRATE	1.00							
DD	-0.14	1.00						
GOVT	0.43	-0.02	1.00					
INFL	-0.34	-0.12	-0.21	1.00				
PC	0.35	-0.02	0.16	-0.33	1.00			
PRINV	0.59	-0.00	0.44	-0.10	0.47	1.00		
RIR	-0.18	0.14	-0.24	-0.34	0.26	-0.12	1.00	
XM	-0.10	-0.30	-0.13	0.42	-0.22	-0.11	-0.22	1.00

The models to address each study objective were then estimated. However before the results could be adopted they were subjected to the residual based diagnostic tests to ascertain their statistical soundness. Normality of the regression residuals was tested using the Jarque Berra test while autocorrelation and heteroskedasticity tests were conducted using the Breuch-Godfrey (BG) langrage multiplier and the autoregressive conditional heteroskedasticity (ARCH) tests, respectively. The results are shown in Table 4 and 6 respectively for the models estimated to realise the first and second objectives of the study. The results showed that the normality assumption on the residuals hold and that the residuals are homoscedastic and there was no autocorrelation in all the models.

The Ramsey RESET test results showed that the models were correctly specified and the recursive estimations, CUSUM tests, CUSUM of squares tests, One-Step Forecast tests, N-Step Forecast tests and recursive Coefficient tests performed showed that the residuals lied within the two standard error bands implying stability or constancy in the models' parameters. The model outputs were therefore used to address the study objectives

The response of Economic Growth to Domestic Borrowing in Kenya

The results of the regression of real GDP growth rate on domestic debt as a percentage of GDP with the inclusion of other variables according to equation 4 are presented in Table 3. The coefficient of domestic debt is statistically significant which implies that economic growth responds to growth in domestic borrowing in Kenya. The negative coefficient suggests that economic growth reduces as domestic borrowing increases. The value of the coefficient, -0.21, shows that growth in Domestic borrowing by one per cent would lead to decrease in economic growth by 0.21 per cent. The findings on the negative relationship are similar to that of Matiti (2013) where the estimated effect of domestic debt on economic growth in Kenya was found to be negative and less proportionate to domestic debt growth in the period 1992 - 2012. However, the results contradict the findings by Maana, Owino and Mutai (2008) and Koka (2012) who reported no relationship in the period 1997 – 2007 and positive relationship for the period 2003 -2012, respectively.

Table 3: Regression results for the model to establish response of Economic Growth to domestic borrowing in Kenya

Dependent Variable: Real GDP growth rate			
Independent Variable	Coefficient	t-statistic	Probability
Constant	-4.0050	-1.0588	0.2984
Domestic Debt (DD)	-0.2148***	-5.0439	0.0000
Government Expenditure	0.0714	0.4061	0.6876
Inflation Rate	-0.1499***	-5.0986	0.0000
Private Consumption	-0.0879*	-1.8998	0.0674
Private Investments	0.6889***	5.8157	0.0000
Real Interest Rates	-0.0192	-0.4846	0.6316
Net Exports	0.1969***	3.5163	0.0015
Unusual occurrences1	-3.2835***	-4.6069	0.0001
Unusual occurrences2	0.5011	0.7499	0.4593
Market Liberalization (M2)	-0.2879	-0.4309	0.6697
Second presidential regime G2 (1979-2002)	0.6191	1.3358	0.1920
Third presidential regime G3 (2003-2012)	3.6862***	6.2813	0.0000

Asterisk (***) and (*) indicates that the effect is significant at 1% and 10%, respectively
The first presidential regime in the period of study (1971 – 1978) is used as reference point for regime changes.

Table 4: Residual properties for the model for estimation response of economic growth to domestic debt

Type of test	Test Statistic	Conclusion	
Histogram-Normality Test	Jarque-Berra	0.172114	The residuals are normally distributed
	Probability	0.917542	
Breusch-Godfrey LM test for Serial Correlation	F- statistic	1.788914	No serial correlation
	Probability	0.1864	
ARCH	Obs*R2	4.490200	No evidence of heteroskedasticity
	Probability	0.1059	

Variables other than debt, which were included in the models, are also shown to affect economic growth in Kenya. The coefficient for inflation rate is negative and statistically significant showing that economic growth reduces as inflation rises. Thus periods of high inflation are accompanied by economic slowdown, a finding consistent with that of Matiti (2013). The coefficient for private consumption is negative and statistically insignificant at 5 level of significance. Growth in Private investments on the other hand is shown to stimulate growth. According to the results, if private investments increase by one percent, economic growth would rise by 0.69 per cent. Growth in net exports as a percentage of GDP is also shown to lead to increase in economic growth as was also established in Maana, Owino, &Mutai (2008).

The coefficient of the dummy variable was included in the model to remove outliers and to capture unusual occurrences such as the oil shocks of 1975, poor agricultural seasons the attempted coup of 1982, drought years, years of general elections and election related unrests was found to be negative and statistically significant. The coefficient value of -3.28 shows that economic growth would on average be 3.28 per cent lower in the periods of such occurrences compared to the periods considered normal.

Change in presidential regimes was shown to have made a difference only in the period 2003 to 2013 when Mwai Kibaki was the president. The result suggests that the governance and macroeconomic reforms that the government pursued in the period under the economic recovery strategy and employment creation and implementation of the programs under first medium term plan of the vision 2030 had a real stimulation on the economy. The results seem to convey a similar message to the study by Koka (2012) which found a positive effect of debt in the period 2003 -2012. The results provide evidence that all other factors constant, political factors are critical in explaining economic performance.

The insignificant coefficients for government expenditure, real interest rates and private consumption show that changes in the variables did not impact economic growth in the study period. Similarly, there was no difference in the economic growth path between the period of liberalisation and the pre liberalisation period as well as between the first and second presidential regimes.

Moderating effect of changes in presidential regimes on the response of economic growth to domestic borrowing in Kenya

To determine the moderating effect of changes in presidential regimes on the response of economic growth to domestic borrowing in Kenya, the study adopted the model specified in equation 4 but all variables that were found to be statistically insignificant at 5 percent level of significance were dropped. Among the political regimes, only the third presidential regime

(G3) had a significant coefficient. Therefore, an interaction term between domestic debt and G3 (DD*G3) was included in the modified model for regression. The results are reported in Table 5.

Table 5: Regression results for the model estimated to analyse the moderating effect of changes in governance on the response of economic growth to domestic borrowing in Kenya

Dependent Variable: Real GDP growth rate			
Independent Variable	Coefficient	t-statistic	Probability
Constant	-2.8156	-1.4284	0.1626
Domestic debt (DD)	-0.1993***	-4.1086	0.0002
Inflation rate	-0.1339***	-5.0466	0.0000
Private investments	0.6695***	6.9018	0.0000
Net exports	0.2181***	3.8642	0.0005
Unusual 1	-2.6868***	-4.8537	0.0000
Unusual 2	0.9759	1.4732	0.1502
Third presidential regime (G3)	3.0966	0.9059	0.3716
DD*G3	0.010395	0.0585	0.9537

Asterisk (***) and (*) indicates that the effect is significant at 1% and 10%, respectively

The coefficients of all variables remain statistically significant as in the previous model except for that of the third presidential regime which with the new construction turns to be statistically insignificant. The coefficient of the interaction term is also statistically insignificant. The results imply that there is no joint effect of changes in presidential regime and domestic borrowing on economic growth of Kenya. Therefore changes in political regimes in Kenya so far have not had any influence on the response of economic growth to domestic borrowing by the government of Kenya. The findings suggest that each of the variables have their own individual or independent effects on economic growth in Kenya. The study therefore fails to find an empirical evidence to support that political factors or market conditions could be important in influencing the effect of debt on economic growth.

Table 6: Results for the residual properties tests for the model analysing the moderating effect of governance on response of economic growth to domestic debt in Kenya

Type of test	Test Statistic	Conclusion	
Histogram-Normality Test	Jarque-Berra	1.9845	The residuals are normally distributed
	Probability	0.3707	
ARCH	Obs*R2	0.2809	No evidence of heteroskedasticity
	Probability	0.5961	
Breusch-Godfrey LM test for Serial Correlation	F- statistic	2.4862	No serial correlation
	Probability	0.0997	

Limitations of the Study and Scope for Future Research

This study was limited to analyzing the response of economic growth to growth in domestic debt, governance and market reforms in Kenya using data for the period 1971-2013. Earlier studies had revealed different findings but were based on data covering different periods prompting the hypothesis that institutional differences could explain the different findings. The hypothesis is rejected prompting the need for further research to determine the factors that explain the differences in the effect of debt on economic growth in different periods.

Conclusion and Policy Implications

The aim of this study was to determine the response of economic growth to domestic borrowing in Kenya and to analyze the moderating effect of changes in political regimes and market reforms on this response in the period 1971 to 2013. The study found that economic growth in Kenya responds negatively to growth in domestic borrowing since the coefficient for domestic debt was negative and statistically significant. Given that in most of the years, government expenditure plans are often accompanied by deficits which must be financed through borrowing, especially in financing deficits in development expenditures, internal borrowing is not the favourable instrument. The government of Kenya should therefore formulate and implement policies that will effectively reduce growth in domestic debt to enhance economic growth. The government current emphasis on having an optimal mix of domestic and external debt to guard against the crowding out effect is therefore a move in the right direction. Effective means of financing development such as through private public partnerships are other avenues that could be pursued to limit borrowing.

Given that economic growth in Kenya was significantly higher during the third presidential regime under Mwai Kibaki than in that in the regime of Mzee Jomo Kenyatta while there was no significant difference between the regimes of Presidents Daniel Moi and Mzee Jomo Kenyatta, the study provides empirical evidence that political changes that occurred in 2003 with election of a government with completely different orientation and the economic policies implemented for employment creation and recovery bore fruits for the country. However, the political regime changes have no influence on how debt affect economic performance.

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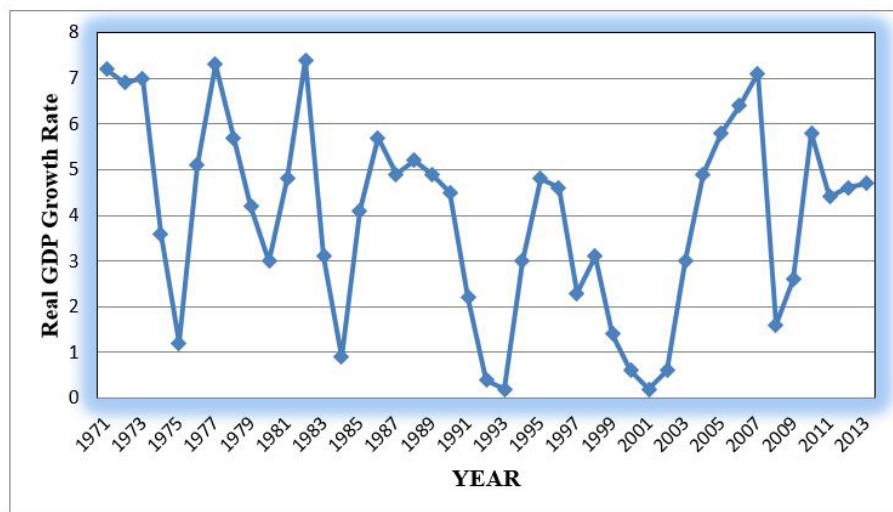
Appendix

Figure 1: Trend of real GDP Growth Rates for Kenya in the period 1971-2013

The figure shows wild fluctuations in the growth rate of real GDP for Kenya in the study period
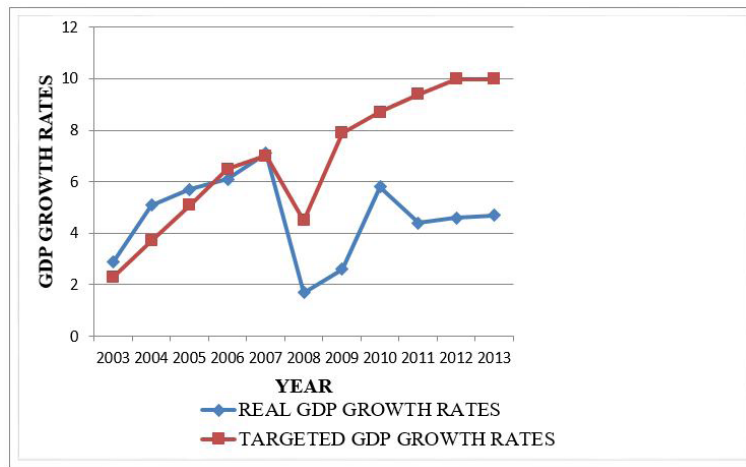

Figure 2: Trends for Real and targeted GDP growth rates in the period 2003-2013

The figure 2 shows the disparity between targeted and actual growth rates of GDP for Kenya in the specified period
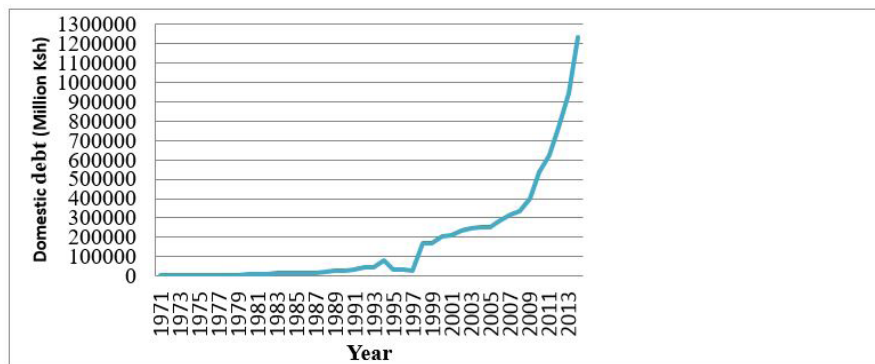

Figure 3: Trend of Domestic debt in Kenya for the period 1971-2013

The figures shows that levels of domestic debt has risen at varying rates over the study period

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