RELATIONSHIP BETWEEN BUDGET DEFICIT AND ECONOMIC GROWTH IN KENYA

BY

HARRISON M.MUSYOKA

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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.

HARRISON MOSES MUSYOKA   **D61/68057/2011**

Signature...   Date....................................

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

Signature …………………………………………   Date ....

Mr. Herick Ondigo

Lecturer, Department of Finance and Accounting, School of Business,

University of Nairobi.

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DEDICATION

I would like to dedicate my research project to my family for their love and support during this study.

ABSTRACT

It is important to determine the relationship between debt and economic growth empirically in order to examine how debt contributes to economic growth, whether positively or negatively, and the significance of its contribution. The widening budget deficit in Kenya has also become a major concern because increasingly more debt is needed to finance the government's budget deficit should it continue to widen. Empirical Studies have found mixed results on the nature of the relationship between budget deficit and economic growth, this study seek to fill the existing research gap by answering the following research question, what is relationship between budget deficit and economic growth in Kenya? The study adopted a descriptive cross-sectional research design. Secondary data from central bank for a 10-year period from where secondary data was selected. Data was collected for the period starting from 2003 to 2012 from Central Bank of Kenya. The data that was collected in the study was quantitative in nature. Regression analysis was used to analyze the data and find out whether there exists a relationship between budget deficit and economic growth in Kenya. In this research, a dynamic econometric model was employed to assess the joint relationship between budget deficit and economic growth in Kenya. From the findings budget deficit negatively affect the economic growth in the country, as it was found from the regression and correlation analsyis that there was a negative relationship between eceonomic growth and budget deficit The study also concludes that gross investment in the country positively influence the country economic growth as it was revealed that increase in gross investment postively influence the country eceonomic growth . The study further revealed that increase in inflation rate, exchange rate and interest rate, negatively influence the country economic growth. Increases in inflation rate scare away investor as it reduces the currency purchasing power thus decreasing the economic growth in the country.

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LIST OF ABBREVIATIONS

ANOVA Analysis of Variance

EU European Union

GDP Gross Domestic Product

GNP Gross National Product

IV Instrumental Variable

LDCs Less Developed Countries

OLS Ordinary Least Square

UAE United Arab Emirates

VAR Value At Risk

CHAPTER ONE:

INTRODUCTION

1.1 Background of the Study

As the world slowly recovers from the worst recession after the Great Depression, triggered by a credit crunch in the US financial system that spread throughout the global financial system, the world economic recovery is once again threatened by the possibility of a sovereign debt crisis spreading across the European Union (EU). It began in the middle of 2010, when the sovereign rating of the government of Greece was downgraded to "junk" level, indicating a dangerous possibility of insolvency and bankruptcy due to its excessive debt-to-GDP level and fiscal deficits (Sibert, 2010). The contagion soon spread to other nations that had similarly higher than average debt level, fiscal deficit, or a combination of both, such as Portugal, Ireland and Spain. Greece in particular, faced immense pressure in fulfilling its debt obligations as investors demand increasingly greater yield on sovereign bonds due to the perceived risk of default. This had destabilized the Greek economy and austerity measures taken to reduce the level of debt and fiscal deficits further hampered its recovery (BBC, 2010).

Budget Deficit results in situations where the expenditures of the country exceed its revenues, earned from the taxes and other sources. According to Sill (2005) the expenditure of an entity, which exceeds the earning or income it has is termed as budget deficit. In the absence of financing from external sources the deficit carry forward to next financial year. The deficit can be a result of delays in collection of the revenues, taxes or other sources of revenues (Sibert, 2010).

Chronic government budget deficits and escalating government debt have become major concerns in both developed and developing countries. An extensive theoretical and empirical literature has been developed to examine the relationship between the budget deficit and macroeconomic variables. At a theoretical level, much of the literature (Premchand, 1984); Yellen, 1989; Barro, 1990) has focused on the relationship between private investment and public expenditure mainly because of the crowding out effect of public spending.

Some of these studies, such as Premchand (1984), assert that financing the budget deficit by borrowing from the public implies an increase in the supply of government bonds. In order to improve the attractiveness of these bonds the government offers them at a lower price, which leads to higher interest rates. The increase in interest rates discourages the issue of private bonds, private investment, and private spending. In turn, this contributes to the financial crowding out of the private sector. While other literature (Aschauer, 1989) has argued that higher public investment may raise the marginal productivity of private capital and, thereby, "crowd-in" private investment. Some of these studies, such as Achauer (1989), argue that public capital, particularly infrastructure capital such as highways, water systems, sewers, and airports, is likely to bear a complementary relationship with private capital.

1.1.1 Budget Deficit

Today, monetary policy is applied for making decision about the appropriate amount of money or the appropriate rate of money growth to influence economic activities

(Moraseli, 2005). The name of Milton Freedom is integrated with monetary economy theory. Freedom says: 'inflation is basically a monetary phenomenon which is created by increasing money volume faster than production volume. Outstanding change in prices or nominal income in most likely the reason of change in nominal money supply, (Kashani, 2010).

Based on a dynamic systematic analysis, the relation between budget deficit, money supply, and inflation can be analyzed as follows: increase in government budget deficit leads to more debts for public sectors, and further increase in monetary base balance, and finally more money supply. Considering the positive relation between general inflation and liquidity, the money supply increase will result in more general inflation. One the other hand, price growth also decreases actual value of cabinet expenditure in the next run, and enforces the cabinet to compensate such a decrease by increasing the figurative expenditure and inflation, (Piontkivsky, 2001) Inflation is a situation where general level of prices is continuously growing. An important point in inflation is time and continuation of general price level (Tafazoli, 1997).

Keynes believes inflation takes place when consumables demand is more than their supply. This exceeding demand makes an inflation gap so that the price goes up to the level of filling the gap. The distinctive points between classic economists and Keynzians changes have no effect on real economic variables; production is placed in full employment level. So, production is determined according to real economic factors. But in Keynzian model, money can affect production (Tashkini, 2004). Its supply as an

inflation reason has drawn a great attention since freedman's approach (1968). In the relationship between budget deficit and inflation is important in many respects: budget deficit increases total expenditure and price level because economy involves in full employment, (Dwyer, 1982).

Keynzian approach supports the positive relation between budget deficit and actual demand. In economic literature there is a theory called demand management policies about unemployment which is mainly based on Keynes theory. It states that unemployment can be affected by increasing total production demand or increasing money supply many economists believe when economy confronts high rate of unemployment and capital exploitation is low, growth in total production demand usually leads to unemployment reduction, and decrease in demand usually leads to higher unemployment. (World Economic Outlook, 2005).

1.1.2 Economic Growth

Kenya's nascent personal finance markets are being fuelled by the sustained economic growth that underpins the development of the rest of the banking sector. High commodity prices, relative political stability and economic reform in Kenya have seen average annual growth rates in excess of 6 percent, and the International Monetary Fund expects Kenya to grow at an average rate of 6.4 percent in 2008 (McLeod, 2002). Economic success has manifested itself in the emergence of a middle class and increasing numbers of educated professionals from the diaspora returning to the continent. As more people

enter the formal economy, the market for personal finance is seeing ever greater demand (Immergluck, 2009).

Financial reform emphasizes the abolition of interest rate and credit ceilings and the promotion of a competitive environment with reduced government control and ownership. Although achieving competitiveness does not imply nonexistence of an interest rate spread, Ho and Saunders (1981) note that the size of the spread is much higher in a non-competitive market, which also calls for strengthening the regulatory and legal framework to enhance the stability of the market. Caprio (1996) notes that a weak legal system, where the courts are not oriented toward prompt enforcement of contracts and property rights are ill defined, increases credit riskiness and banks have no incentive to charge lower rates.

1.1.3 Relationship between Budget Deficit and Economic Growth

The explanation on the economic effects of budget deficits varies across different school of thoughts. According to Bernheim (1989), neoclassical school envisions farsighted individuals planning consumption over their own life cycles. Through budget deficits, individuals raise total lifetime consumption by shifting taxes to subsequent generation. If economic resources are fully employed, increased consumption implies decreased saving and interest rates must then rise to bring capital markets into balance.

Persistent deficits crowd out private capital accumulation and can be highly detrimental to the economy. Contrary to this, the Keynesian school views budget deficit as contributing to the rise in national income and generate second round known as the Keynesian multiplier, provided if resources in the economy are initially underemployed. This is because deficits stimulate both consumption and national income; saving and capital accumulation need not be adversely affected. On the other hand, Barro (1989) explained the Ricardian view on budget deficit by using the government's budget constraint, which equates total expenditures including interest payments, to revenues from taxation or other sources. Hence, by holding fixed the path of government expenditures and non-tax revenues, a budget deficit today must be matched by a corresponding increase in the present value of future taxes. Therefore, running a budget deficit will not impact on the aggregate demand because fiscal policy would affect aggregate consumer demand only if the expected present value of taxes is altered to be lower, which will unlikely to be the case as consumers expect an increase in future taxes following deficit finance in the present.

In an empirical study on how budget deficit affects the economy, Martin and Fardmanesh (1990) examined the impact of several fiscal variables such as taxes, expenditures and deficits simultaneously on a cross section of developed and developing countries by using a reduced form formula. The authors pointed out that the partial focus of previous studies on either taxes or government expenditures alone and its impact on economic performance could be misleading if the impact of budget deficit was not considered together. By considering these fiscal variables simultaneously, this approach could

circumvent the conceptual flaw on the partial focus of existing studies and provide a more comprehensive empirical basis for policy analysis. Besides that, the authors also attempted to put the irrelevance of the budget deficit as explained by the Ricardian equivalence to test.

Contrary to the Keynesian explanation of budget deficit on growth, Martin and Fardmanesh (1990) found empirical evidence that budget deficit negatively affects growth after controlling for taxes and expenditures. Furthermore, the authors found that by separating the sample countries based on their level of development and running the regression again resulted in significant differences as compared to the results when all the countries are aggregated. The magnitude of budget deficit for low-income countries became unimportant when regression is done on low-income countries only. Besides that, the negative impact of the budget deficit appeared to affect middle-income the most, overwhelming the direct effect of taxes and expenditures more strongly as in the aggregate results. High-income countries, however, showed no significant relationship between budget deficit and growth. The authors thus pointed out that country-specific factor may be crucial in determining the impact of budget deficits on growth and therefore, general policy recommendations for all countries should be avoided.

Cebula (1995) also carried out an empirical analysis on the impact of the federal budget deficit and other fiscal variables on the economic growth of the US. The author based his model to some extent on the study of Martin and Fardmanesh (1990) and provided an Instrumental Variable (IV) that indicates the impact of budget deficits and other fiscal

variables on the economy. Instead of using cross-sectional data on many countries like what was done by Martin and Fardmanesh (1990), quarterly time series of the US was used in the study of Cebula (1995). Besides that, the author also measured economic growth in per capita terms to allow for population size to be taken into consideration. Empirical results of Cebula (1995) showed that budget deficit also had a negative and statistically significant impact on per capita real GNP growth. Besides that, similar results were also found when various linearly weighted averages of the budget deficit variable were used, thus confirming the findings of Martin and Fardmanesh (1990) on a country-specific basis.

1.1.4 Budget Deficit and Economic Growth in Kenya

The impressive economic performance that Kenya experienced after independence (1963) has not been sustained, with external and internal shocks creating macro imbalances. During the first decade GDP growth rate averaged 6.6%, with inflation of 3%. However, the oil crisis resulted in increased inflation, recording 19.1% in 1975 and 22.3% in 1982. In an effort to contain the external shocks on balance of payments and inflationary pressure, various control measures were introduced. They comprised selective restrictions on bank lending, licensing of foreign exchange transactions, restrictions on most imports and price controls on goods. The controls were lifted with the implementation of structural adjustment programmes, however. The deteriorating economic performance squeezed the government's resources, with shortfalls in revenue relatively higher than expenditure (RoK, 2010).

The situation worsened in the early 1980s with the overall deficit recording 8.9% of GDP in 1981, compared with less than 3% in the 1 960s. Budget rationalization introduced in 1985 aimed at cutting government expenditure. Although the aim was to revitalize the growth of the economy, the achievements were minimal. Inflation dropped marginally during the second phase, but more than doubled in the third phase, recording 46% in 1993. Government attributed the accelerated increase in the rate of inflation to several factors: increased money supply in excess of the targeted level, depreciation of the Kenya shilling, erratic weather conditions, price decontrols, and the activities of the multi-party election in 1992 (Were, 2001).

Government deficit also worsened during the third phase despite the tight fiscal policy. The re-emerging deficit was attributed to the significant proportion of the government budget spent during the 1992/93 multi-party elections, public management of the famine drought relief, efforts and the administrative and security costs of managing the influx of refugees fleeing from civil wars in some neighboring countries. The other major factor was domestic borrowing that saw the placement of government securities at increasing interest rates resulting in domestic payment growing by nearly twice as fast as the domestic debt.

1.2 Research Problem

It is important to determine the relationship between debt and economic growth empirically in order to examine how debt contributes to economic growth, whether positively or negatively, and the significance of its contribution. This is crucial because

debt obligation of a country somehow has to be fulfilled in the medium or long term, with the future generations of the country inheriting the debt of the country and bearing the costs of borrowing.

The relationship of debt and growth as a negative one is widely accepted because high level of debt creates uncertainties on the repayment ability of the debtor and thus affecting its ability to secure new borrowings to service existing debt and fund new investments. For the effect of budget deficit on growth, however, there is still room for debate as each school of thought offers a different explanation on how budget deficit affects growth and empirical evidence may vary across the sample of countries studied. Therefore, the empirical findings will give a clear picture on how debt actually affects growth.

The widening budget deficit in Kenya has also become a major concern because increasingly more debt is needed to finance the government's budget deficit should it continue to widen, (Were, 2001). As governments normally run deficits to sustain economic growth or provide stimulus for economic recovery, the effectiveness of a deficit budget needs to be determined so that the appropriate government budget positions can be maintained to best suit the economic condition of the country, be it positive growth or recession. This is also to avoid the danger of a government running excessive deficits that might destabilize the economy, (Were, 2001).

The empirical findings of Deshpande (1995), Kaminsky and Pereira (1996), Sen, Kasibhatla and Stewart (2006) and Hameed, Ashraf and Chaudhary (2008) are consistent with the debt overhang hypothesis discussed in earlier studies by Krugman (1988) and Sachs (1989) that debt negatively affects growth. Based on the empirical findings in the literature, there is sufficient evidence to establish a negative relationship between debt and growth for a country. On the other hand, empirical findings of Martin and Fardmanesh (1990), Cebula (1995) and Adam and Bevan (2005) on budget deficit and growth also show consistent results of a negative relationship between budget deficit and growth, resembling the explanation of the neoclassical school. Empirical Studies have found mixed results on the nature of the relationship between budget deficit and economic growth, this study seek to fill the existing research gap by answering the following research question, what is relationship between budget deficit and economic growth in Kenya?

1.3 Objective of the study

To establish the relationship between budget deficit and economic growth in Kenya.

1.4 Value of the Study

This empirical research aims to contribute to the literature by examining the relationship between budget deficit and economic growth on a country- specific level that is Kenya. By empirically determining the relationship between budget deficit and economic growth, the findings of this study will help answer some of the stated problems surrounding the topic of research. Besides that, policymakers will have a better

understanding of the issues relating to the study and this will help them in tackling issues of rising debt level and widening budget deficit.

The understanding of the relationship between budget deficit and growth is crucial for policymakers in formulating policies because excessive debt poses great threat to economic stability. Therefore, this study aims to aid policymakers in their decision making by providing a clear reference of how debt affects growth as well as to determine the threshold level for debt, exceeding which would become detrimental to economic growth and pose great risk of insolvency. This will ensure that economic objectives are achieved without compromising on debt sustainability.

Besides that, this study aims to provide an answer to how budget deficit affects growth in the long-run, whether or not it actually translates into economic well-being. It is important to determine this because for the case of Kenya, budget deficits are normally financed by debt and seldom financed through increased taxation in the following periods. An ineffective budget deficit not only fails to achieve the objective of stimulating growth, but also further burdens the country's debt level. The findings of this study will aid policymakers in budget decision makings, and the threshold level found will serve as a guideline for policymakers to maintain the budget deficits at levels that will not be detrimental to growth.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter brings up relevant literature required to find answers and connect to our research objective. First, a review of theories that guide this study will be presented to give the research a firm theoretical base. Then, empirical studies done on this research topic will be looked at which will make it easier to understand the research area.

2.2 Theoretical Review

Three major strands of argument regarding the effectiveness of fiscal deficits in fostering economic growth and development exist in theory. They are the Keynesian Theory, the Monetarist Theory and the Ricardian Equivalence Theory. These arguments, with regard to output, private investments and the external sector, diversely hold that a budget deficit has the potential for a non-effect, positive or even a counter-productive effect on the performance of the economy.

2.2.1 The Keynesian Theory

Keynesian economics, according to Okpanachi and Abimiku (2007), teaches that an increase in government spending enhances domestic output. Deficit spending by the government stimulates the economy in the short-run by making households feel wealthier (Okpanachi and Abimiku, 2007), thus raising total private and public consumption expenditure. Through the resulting increase in the aggregate demand, budget deficit has a

positive effect on macroeconomic activity, thereby stimulating savings and capital formation (Chakraborty and Chakraborty, 2006). Government purchases in an underemployed economy add to aggregate demand at prevailing prices and interest rates with no arithmetic necessity for private households to offset (displace or crowd-out) their own buying as long as public goods are not close substitutes for private goods .

The resulting faster growth of nominal GDP would automatically produce faster growth of real GDP and demand would thus create its own supply, in stark contrast to Say's Law (Reynolds, 2001). The Keynesians recognize the possibilities of government spending crowding-out private (investment) spending through increased cost of credit (interest rate). Hence the recommendation by Musgrave (Okpanachi and Abimiku, 2007) that fiscal deficit should be implemented only during a depression when interest rates are likely to be unresponsive in order to avoid the dampening effect of rising interest rates on private investment expenditure.

The Keynesians further posit that fiscal deficits could have a negative impact on the external sector, reflected through trade deficit, but only if the domestic economy is unable to absorb the additional liquidity through an expansion in output. Hence, if the supply of output does not expand in response to the deficit, the surplus expenditure would only increase the level of imports, thereby resulting in a trade deficit and subsequent decline in the exchange rate: the „twin-deficits‟ hypothesis (Neaime, 2008; Okpanachi and Abimiku, 2007).

2.2.3 The Ricardian Equivalence Theory

The Ricardian equivalence theory holds that fiscal deficits, notwithstanding how financed would have no effect on private consumption, and interest rates would depend on some assumptions. The assumptions are that: an individual's internalize both the government's budget constraint and the utility of their offspring; the capital market is efficient, in which

the interest rate is the same for borrowers and lenders; and there are no distorting taxes (Frish, 2003).

Gray and Stone, (2005) stated that "Ricardian equivalence implies that taxpayers do not view government bonds as net wealth; hence, its acquisition by individuals does not alter their consumption behaviour." Thus, Gray and Stone (2005: 1) conclude that "correspondingly, the effects of government spending in a closed economy will be invariant to tax versus bond financing."

Fiscal deficit therefore simply represents a transfer of expenditure resources from the private to the public sector and "variation in budget deficit is neutral to economic activity" (Chakraborty and Chakraborty, 2006). Budget deficit, according to the Ricardian equivalence theory, also has no effect on private investment. Accordingly, a reduction in taxes, which is accompanied by an increase in budget deficit, does not trigger growth of consumption, and hence does not have any expansionary effect as households tend to increase savings in anticipation of higher taxes in the future, which are necessary to redeem the debt (Okpanachi and Abimiku, 2007). Similarly, the Ricardian equivalence theory holds that debt- or tax-financed government deficits do not have any effect on the trade balance and the real exchange rate and hence the absence of a relationship between budget deficit and current account deficit (Okpanachi and Abimiku, 2007).

2.2.2 The Monetarist Theory

To the monetarists, government deficits, financed by domestic debt, constitute merely a transfer of resources from the private sector to the public sector with little or no effect on output. But, since in the view of the monetarists, the private sector is more efficient than the government, such a transfer could have a negative effect on output. To the contrary however, the monetarists argue that increased government expenditure financed by monetary expansion has a strong stimulative effect on the economy, and as such raises aggregate demand (Mitchell, 1974 in Okpanachi and Abimiku, 2007).

An increase in government expenditure financed through bonds raises interest rates, which leads to a crowding-out of private investments. The increased supply of bonds has a negative influence on investment as the growth of interest rates contributes to a substantial decrease in investment demand (Krajewski and Mackiewicz, n.d.; Chakraborty and Chakraborty, 2006). On the external sector, government deficits to the monetarists cause a rising demand for imported foreign goods and assets, resulting in unfavorable balance of trade. This is the result of the excess money supply brought about by the debt instruments drawn on the central bank (Okpanachi and Abimiku, 2007).

2.3 Determinants of Economic Growth

Determinants of economic growth have been debated by economists for decades. Easterly and Schmidt-Hebbel (1994) estimated the relationship between inflation and fiscal deficits. Across countries, the decision to print money to finance deficits would depend on the extent to which other means of financing are available. In their cross section estimation, they found no simple relationship between fiscal deficits leading to inflation. For case studies using time series data, revenue-maximizing inflation rates seem to rise with actual average inflation. In addition, money demand and inflation are nonlinearly related. It was found that money demand has decreasing semi-elasticity with respect to inflation. This implies that as inflation rises, money demand becomes less semielastic. They concluded that seignorage is unimportant as a steady state phenomenon, but it can be important as a temporary source of revenue in times of crisis. Furthermore, large surges of money creation are not closely linked to accelerated inflation. Though Easterly and Schmidt-Hebbel (1994) looked at how budget deficits affect inflation via seignorage, the opposite direction of this study, it is evident that the relationship of inflation and fiscal stance is not a simple one. The effect of inflation may be through various routes, thus making the actual relationship dependent on empirical evidence.

The level of development of the financial market is also believed to be related to fiscal performance. A more developed financial market would have more readily available forms of money to buy goods and services without incurring costs. The World Bank suggests that a more developed financial sector has increased flexibility in adjusting to macroeconomic shocks to prevent banking or financial crises. A measure of financial depth used by the World Bank is the ratio of liquid liabilities to GDP. Another aspect of a financially deep economy is the link between banking openness and economic growth. Bayraktar and Wang (2006) found empirical evidence that banking sector openness may directly affect growth by improving the access to financial services and indirectly by improving the efficiency of financial intermediaries, both of which reduce the cost of financing and in turn, stimulate capital accumulation. Increased investments lead to economic growth and an improved fiscal performance, implying a positive relationship.

The literature on financial openness has also hinted at a positive relationship between financial depth and fiscal balance. Financial repression, as indicated by a less liquid banking sector, is practised by government either to finance its budget deficits or to direct its access of cheap credit to select industries, or both. Restrictive financial policy can be implemented in various ways: imposing high nominal interest rate ceilings; money creation and (imposing high reserve requirements. Denizer, Desai and Gueorguiev (1998) found evidence that the post-Communist governments in their study inhibit the development of financial institutions to ensure adequate flows of external capital to enterprise sectors rather than to finance deficits.

Other empirical evidence, however, has shown a negative relationship between fiscal deficit and financial market development. Woo (2001) examined the effect of financial depth on consolidated public sector deficit in developing countries. He found that an increase in financial depth is negatively associated with fiscal stance. He explained that a more liquid banking system can more easily finance fiscal deficits by issuing bonds without having to resort to inflationary finance.

Aizenman and Noy (2003) found similar evidence that a budget surplus has a negative impact on financial openness for developing countries. That is, a bigger budget deficit will increase *de facto* financial openness. This was explained by evidence that developing economy engage in procyclical, rather than counter-cyclical, policy. In developing economies, financial crises tend to lead to recessions that in turn result in lower budget deficits because government reduces its spending. In addition, if the tax system is relatively inelastic to economic activity, an economic recession would lead to relatively higher tax revenues.

Turning to the open economy, most of the literature and studies about fiscal deficits and exchange rates have used fiscal stance as the independent variable. Easterly and Schimdt-Hebbel (1994) found robust relationships between the fiscal deficit, the trade deficit, and the real exchange rate. The fiscal deficit and the real exchange rate have a two-step relationship: the fiscal deficit and other determinants of investment and saving behaviour determine the external deficit, which then determines the real exchange rate consistent with clearing of the domestic goods market.

Long-term interest rate. A high interest rate worsens the overall budget balance via increasing interest expenditure on newly issued debt and on rolling debt. On the other hand, higher interest rates signal higher opportunity costs of bond market financing, possibly urging governments to improve the fiscal balance. Overall, however, the first effect is expected to dominate, thus producing a negative correlation between interest rates and budget balances. An alternative measure could be interest expenditures as a percentage of GDP, on the ground that effects of high interest rates on fiscal policies depend on the prevailing debt level (Volkerink and De Haan, 2001 and Eschenbach and Schuknecht, 2002).

Short-term interest rate; in setting fiscal policy, the monetary policy stance may be an argument. The expected reaction, however, is ambiguous. High short-term interest rates to reduce inflationary pressures could be supported by fiscal policy or it could be

countered, depending on policy preferences, views on the operation of the economy, and the allocation of tasks among policymakers. Modeling monetary policy by an interest rate, moreover, may capture other elements such as the cost of government financing, as described above when discussing long-term interest rates. This may be of particular importance in case of predominantly short-term financing or in case there is a strong link between short-term and long-term interest rates.

2.4 Empirical Review

Barro (1979) explored a positive and significant impact of budget deficit on the growth. This impact is due to the positive relationship between the budget deficit and the inflation. There is a positive impact of the budget deficit and the interest rate. This impact is because of the high prices of the bonds.

Manundu (1984) looked at the debt management strategies for Kenya. Gulam (1987) looked at the external shocks, adjustment and debt problem in Kenya over the period 1974-1986.

There is a strong, significant and positive relationship between the budget deficit and the long-term nominal rate of interest in a study conducted for the period 1971 to 1984 on United States of America (Cebula, 1988).

Martin and Fardmanesh (1990) found empirical evidence that budget deficit negatively affects growth after controlling for taxes and expenditures. With the model of Martin and Fardmanesh (1990) as reference, Cebula (1995) conducted a country-specific research on the US and also found that budget deficit had a negative and statistically significant impact on per capita real GNP growth, consistent with the cross-country research by Martin and Fardmanesh (1990). Ochieng (1991) looked at the determinants of the external debt burden. Ng'eno (1991) looked at the external debt problem of Kenya.

According to Al-Khedar (1996) interest rates increases in short run due to budget deficit, but in long run there is not impact explored. He studied taking VAR model by selecting data of G-7 countries for the period 1964-1993. He also explored that the deficit negatively affects the trade balance. However the budget deficit has a positive and significant impact on the economic growth of the country. Hakkio (1996) collected data of USA, Finland, Sweden and Germany for the period of 1979-1995, but could not explore any empirical association between the economies of United States of America (USA) and Germany. However, by applying simple regression technique and considering data from Sweden and Finland he was successful in exploring negative relationship between the budget deficit and the exchange rate.

However, according to Ghali and Al-shamsi (1997) an increase in investment leads to increase in the economic growth of the country. The results were explored by taking quarterly data from oil producing country i.e. United Arab Emirates (UAE) for the period of 1973 to 1995. In a study conducted by Bahmani (1999), with the help of Johansen Juselius co integration technique, the association between the budget deficit and investment while using quarterly data for the period of 1947-1992. There is a crowding in impact of the budget deficit on the real investment, which is validation of the arguments of Keynesian regarding the expansionary effect of the budget deficit on the investment.

Ahmed and Miller (2000) in a cross-sectional study of thirty nine states considering the data for period of 1975-1984, while using Ordinary Least Squares model (OLS), fixed effect and random effect methods apprised that government spending can be segregated into two parts. First is the spending on social security and welfare of its people and due to which it reduces the investment. Secondly, the spending on communication sector, including transport, increases investment by the private sector less developed countries (LDCs). He suggested that reduction in investment leads to less revenue generation hence causing deficit, and vice-versa when spending in transport and communication.

Mutiso (2001) looked at the determinants of external debt in Kenya. Saleh (2003) on the basis of previous researches, which are conducted by economists regarding the impact of budget deficit on different economic variables, concluded that budget deficit has diverse impact on different economic variables. The diversity in the impact varied from country to country but could not ascertain the true impact on the economic growth. He used IS-LM model, while exploring the impact of budget deficit on different variables; interest rate using simultaneous equations model for trade deficit and used simple equation model in to assess the impact on the GDP. Sill (2005) also adopted the methodology of Saleh (2003) by taking sample of 94 countries and explored a positive relationship between the budget deficit and inflation. A study was conducted considering period of 1973 to 1996 to explore the relationship between the budget deficit and real interest rate, while using error correction model (Cebula, 2003).

According to a study conducted by Vit (2004) the budget deficit resulted in some hurdles inflation, deficit in current account and subsequently these hurdles impeded the economy. The results were based on the quarterly data collected from Czech Republic's economy for the period of 1995 to 2002.

Gulcan and Bilman (2005) used co-integration method and causality test and applied ADF, PP and RPSS unit root test to investigate the stationarity of the individual time series. They considered data of Turkey for the period 1960 to 2003 and proved there is a strong impact of budget deficit on the real exchange rate. The study shows that the role of the budget deficit to maintain the real exchange rate is very crucial. They suggested that government must focus to stable the budget because the trade balance is significantly affected by the real exchange rates.

Adam and Bevan (2005) found empirical evidence of a negative relationship between budget deficit and growth with a threshold level of 1.5 percent and a reduction in deficits to this level results in a payoff in growth. In another study of Adam and Bevan (2005), the relation between fiscal deficits and growth was studied on a panel of developing

countries which includes Malaysia. The authors pointed out that most studies in the literature tend to assume that relation between deficits and growth was linear, but such linear representation might conceal masks important and policy-relevant non-linearities, especially at low levels of the fiscal deficit. Therefore, the authors' study was aimed at examining the relation between deficit and growth without assuming it linear in the first place. Based on the government budget constraint, the authors found empirical evidence of a threshold effect at a level of the deficit around 1.5 percent of GDP. For values of the budget deficit less than or equal to the threshold, a marginal increase in deficit in positive to growth but when budget deficit at levels above the threshold the effect on growth becomes negative. Furthermore, the authors also found that reducing deficits to the threshold level results in a payoff in growth but this effect disappears or reverses itself if further fiscal contraction is continued. Other than that, the authors also found evidence of interaction effects between deficits and debt stocks, with high debt stocks exacerbating the negative effects of high deficits on growth.

Huynh (2007) conducted his study while collecting data from the developing Asian Countries for the period of 1990 to 2006. He concluded that there is negative impact of the budget deficit on the GDP growth of the country while simply analyzing the trends in Vietnam. Furthermore, he concluded the crowding-out effect surfaces as the budget deficit burden increases. Aisen and Hauner (2008) explored that the budget deficit negatively affecting the interest rate. The results were taken from the study of the period 1985-1994 for different countries. However, the effect is positive after the year 1995. They further argued that there is a positive effect of budget deficit on interest rate, which the effect varies from state to state.

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.

2.5 Summary of the Literature

The relationship of debt and growth as a negative one is widely accepted because high level of debt creates uncertainties on the repayment ability of the debtor and thus affecting its ability to secure new borrowings to service existing debt and fund new investments. For the effect of budget deficit on growth, however, there is still room for debate as each school of thought offers a different explanation on how budget deficit affects growth and empirical evidence may vary across the sample of countries studied.

Empirical findings of Deshpande (1995), Kaminsky and Pereira (1996), Sen, Kasibhatla and Stewart (2006) and Hameed, Ashraf and Chaudhary (2008) are consistent with the debt overhang hypothesis discussed in earlier studies by Krugman (1988) and Sachs (1989) that debt negatively affects growth. Based on the empirical findings in the literature, there is sufficient evidence to establish a negative relationship between debt and growth for a country. On the other hand, empirical findings of Martin and Fardmanesh (1990), Cebula (1995) and Adam and Bevan (2005) on budget deficit and growth also show consistent results of a negative relationship between budget deficit and growth.

CHAPTER THREE:
RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that were followed in completing the study. It involved a blueprint for the collection, measurement and analysis of data. Specifically the following subsections that were included; research design, target population, data collection instruments, data collection procedures and finally data analysis.

3.2 Research Design

Creswell (2003) defines a research design as the scheme, outline or plan that is used to generate answers to research problems. Dooley (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 study adopted a descriptive cross-sectional research design, which according to Kothari (2004), is used when the problem has been defined specifically and where the researcher has certain issue to be described by the respondents about the problem. Survey designs have also been found to be accurate in descriptive studies and generalizations of results (Ngechu, 2004). Cross-sectional survey designs survey a single group of respondents at a single point in time. It aimed to explore the relationship between budget deficit and economic growth in Kenya and the empirical evidences that help answer the research objective.

3.3 Data Collection

Secondary data from central bank for a 10 year period from where secondary data will be selected. Data was collected for the period starting from 2003 to 2012 from Central Bank of Kenya. The data that was collected in the study was quantitative in nature.

According to Ngechu (2004) a study population is a well-defined or specified set of people, group of things, households, firms, services, elements or events which are being investigated. Thus the population should fit a certain specification, which the researcher was studying and the population should be homogenous. Keya (1989) states that

individuals or things or elements that fit a researcher specification. The population can be divided into sets, population or strata and which are mutually exclusive. The study sampled a period of 10 years starting from year 2003 to year 2012.

3.4 Data Analysis

Regression analysis was used to analyze the data and find out whether there exists a relationship between budget deficit and economic growth in Kenya. In this research a dynamic econometric model was employed to assess the joint relationship between budget deficit and economic growth in Kenya.

3.4.1 Analytical Model

To establish this relationship the study formulated the following regression equation. Model developed by Shojai (1999) is used in this paper to assess the effects of budget deficit on the economic growth (GDP) and Ordinary Least Square (OLS) was employed to ensure the fulfillment of the assumptions thereof. These assumptions include, linearity of the model, its non-stochastic characteristic, having mean value of 0, and distribution with equal variance etc. The model used by the study did not use the natural log of GDP, inflation and Real Interest Rate as their absolute value are small compared to other aspects of the model. The mathematical expression of the model is as follow:

$$GDP = \beta0 + \beta1\ INF + \beta2\ \ln(EXCH) + \beta3\ RIR + \ln \beta4\ (BD) + \ln \beta5\ (GI) + u$$

Where,

GDP = Gross Domestic Product (GDP)

INFL = Inflation

EXCH = Real Exchange Rate

RIR = Real Interest Rate

BD = Budget Deficit

GI = Gross investment

u = Stochastic Error Terms

Where, β0, β1, β2, β3, β4, β5 are the respective parameters.

Analysis of Variance (ANOVA)-According to Tredoux & Durrheim (2002), "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 budget deficit and economic growth in Kenya in order to test for significance at 95% confidence level and 5% level of significance.

Operation definition of variables

Variables	Definition	Measurement
GDP	GDP is the Country Gross Domestic Product	**GDP;** will be measured using the country GDP values obtained from Central bank and KNBS, in this study GDP will be measured using GDP values
INFL	INFLT is the country inflation	**Inflation;** will be measured using the inflation values obtained from Central bank and KNBS, the study will use inflation values as obtained from CBK
EXCH	EXCH is the Real Exchange Rate	**Real Exchange Rate ;** will be measured using the values of Real Exchange Rates obtained from Central Bank , the study will use the natural log of real exchange rate
RIR	RIR is the Real Interest Rate	**Real Interest Rate;** will be measured using the values of Real Interest Rate obtained from Central Bank, in this study real interest rate will be measured using its absolute value obtained from

		CBK
BD	BD is the country's budget deficit	**Budget Deficit ;** will be measured using the country budget deficit values obtained from Central Bank and Kenya National Bureau Of Statistics , the study will use the natural log of budget deficit
GI	GI is the country value of gross investment in the country	**Gross investment;** will be measured using the values of gross investment obtained from Central Bank and Kenya National Bureau Of Statistics, the study will use the natural log of gross investment

CHAPTER FOUR:

DATA ANALYSIS , FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter presents the research findings on to the relationship between budget deficit and economic growth in Kenya. The study was conducted on 10 years period where secondary data from the period of 2003 to 2012 was used in the analysis. Regression analysis was used in analysis the data.

4.2 Findings

4.2.1 Regression Analysis

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 4.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.691(a)	.653	. 645	.19440

Source : Research Findings

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 in the above table the value of adjusted R squared was 0.643 an indication that there was

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variation of 64.5% on economic growth of the country dues to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment at 95% confidence interval . This shows that 64.5% changes in economic growth of the country could be accounted to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.691.

Table 4.2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.744	2	0.372	3.131	.048[b]
	Residual	2.632	8	0.329		
	Total	3.376	10			

Source : Research Findings

From the ANOVA statics in table above, the processed data, which is the population parameters, had a significance level of 4.8% 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%. The F critical at 5% level of significance was 3.131 since F calculated is greater than the F critical (value = 2.262), this shows that the overall model was significant. This is an indication that inflation rate, exchange rate, interest rate, budget deficit and gross investment influence changes in the economic growth of the country.

Table 4.3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Constant	.298	.453		2.165	.006
	Inflation rate	-.237	.160	-.198	-1.479	.012
	Exchange rate	-.231	.126	-.245	-1.834	.016
	Interests rate	-.239	.145	-.008	-.065	.023
	Budget deficit	-.281	.114	-.031	-.246	.001
	Gross investment	.276	.185	.183	1.488	.042

Source : Research Findings

From the data in the above table the established regression equation was

$Y = 0.298 - 0.237 X_1 - 0.231 X_2 - 0.239 X_3 - 0.281 X_4 + 0.276 X_5$

From the above regression equation it was revealed that holding inflation rate, exchange rate, interest rate, budget deficit and gross investment to a constant zero , economic growth of Kenya would be at 0.298 , a unit increase in inflation rate would lead to decrease in the economic growth of Kenya by a factors of 0.237, unit increase in exchange rate would lead to decrease in economic growth of Kenya by factors of 0.231, a unit increase in interest rate would lead to decrease in economic growth of Kenya by a factor of 0.239 , unit increase in budget deficit strategies would lead to decrease in economic growth of Kenya by a factors of 0.28 1 and further unit increase in gross investment would lead to increase in economic growth in Kenya by a factors of 0.276. At 5% level of significance and 95% level of confidence, gross investment had 0.042 level

of significance, interest rate had a 0.023 level of significance; budget deficit showed a 0.016 level of significance, inflation rate had a 0.012 level of significance while budget deficit 0.001 level of significance hence the most significant factor is budget deficit. Overall budget deficit had the greatest effect on economic growth in Kenya, followed by inflation rate, followed by exchange rate then interest rate while gross investment had the least effect to the economic growth in Kenya. All the variables were significant ($p<0.05$).

4.2.2 Correlation Analysis
Table 4.4: Correlations coefficient

		Economic growth	Inflation rate	Exchange rate	Interest rate	Budget deficit	Gross invermsnet
Economic growth	Pearson Correlation	1	-.364	-.434	-.572	-.673	.402
	Sig. (2-tailed)		.302	.926	.634	.842	.249
	N	10	10	10	10	10	10
Inflation rate	Pearson Correlation	-.364	1	.594	.148	.396	.178
	Sig. (2-tailed)	.302		.070	.683	.257	.623
	N	10	10	10	10	10	10
Exchange rate	Pearson Correlation	-.434	.594	1	.361	.276	.444
	Sig. (2-tailed)	.926	.070		.305	.440	.198
	N	10	10	10	10	10	10
Interest rate	Pearson Correlation	-.572	.148	.361	1	.264	.213
	Sig. (2-tailed)	.634	.683	.305		.461	.555
	N	10	10	10	10	10	10
Budget deficit	Pearson Correlation	-.673	.396	.276	.264	1	.610
	Sig. (2-tailed)	.842	.257	.440	.461		.061
	N	10	10	10	10	10	10
Gross	Pearson	-.402	.178	.444	.213	.610	1

invest ment	Correlation						
	Sig. (2-tailed)	.249	.623	.198	.555	.061	
	N	10	10	10	10	10	10

Source : Research Findings

From the findings on the correlation analysis, the researcher conducted a Pearson Product Moment correlation. From the findings on the correlation analysis between economic growth and gross investment was found to be positive as shown by correlation coefficient factor of 0.402, the study also found a negative correlation between economic growth and budget deficit as shown by correlation coefficient of -0.673, association between economic growth and interest rate was found to have negative relationship as shown by correlation coefficient of -0.572 , economic growth and exchange rate were found to have negative correlation as shown by correlation coefficient of -0.434, economic growth and inflation rate were found to have negative correlation with a correlation coefficient of -0.364. This is an indication that there was positive relationship between economic growth and gross investment and negative relationship between economic growth and budget deficit, interest rate, exchange rate and inflation rate.

4.3 Interpretation of Findings

From the findings on the Adjusted R squared the study found that there was variation of 64.5% on economic growth of the country dues to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment. The study further revealed that there was a strong positive relation between the study variables. From the findings on the ANOVA the study found that inflation rate, exchange rate, interest rate, budget deficit and gross investment influence changes in the economic growth of the country.

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From the regression analysis, the study found that there was a negative relationship between economic growth and inflation rate, exchange rate, interest rate and budget deficit. The study further revealed that there was a positive relationship between gross investment and economic growth in the country. At 5% level of significance and 95% level of confidence, budget deficit had the greatest effect on economic growth in Kenya, followed by inflation rate, followed by exchange rate then interest rate while gross investment had the least effect to the economic growth in Kenya.

From the findings on the correlation analysis, the study found that there was a strong positive correlation between economic growth and gross investment. The study further revealed that there was negative relationship between economic growth and budget deficit, interest rate, exchange rate and inflation rate.

The effect of inflation may be through various routes, thus making the actual relationship dependent on empirical evidence. Increased investments lead to economic growth and an improved fiscal performance, implying a positive relationship. A high interest rate worsens the overall budget balance via increasing interest expenditure on newly issued debt and on rolling debt. On the other hand, higher interest rates signal higher opportunity costs of bond market financing, possibly urging governments to improve the fiscal balance. An alternative measure could be interest expenditures as a percentage of GDP, on the ground that effects of high interest rates on fiscal policies depend on the prevailing debt level. This impact is due to the positive relationship between the budget deficit and the inflation. There is a positive impact of the budget deficit and the interest rate. They

suggested that government must focus to stable the budget because the trade balance is significantly affected by the real exchange rates. That there is negative impact of the budget deficit on the GDP growth of the country while simply analyzing the trends. Furthermore, he concluded the crowding-out effect surfaces as the budget deficit burden increases. There is a strong, significant and positive relationship between the budget deficit and the long-term nominal rate of interest.

CHAPTER FIVE:

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

From the analysis and data collected, the following discussions, conclusion and recommendations were made. The responses were based on the objectives of the study. The researcher had intended to establish the relationship between budget deficit and economic growth in Kenya.

5.2 Summary of findings

The objective of the study was to establish the relationship between budget deficit and economic growth in Kenya. Secondary Data was collected from Central Bank and multiple regression analysis used in the data analysis. From the findings on the Adjusted R squared the study found that there was variation of 64.5% on economic growth of the country due to changes in inflation rate, exchange rate, interest rate, budget deficit and gross investment. The study further revealed that there was a strong positive relation between the study variables. From the findings on the ANOVA, the study found that that inflation rate, exchange rate, interest rate, budget deficit and gross investment influence changes in the economic growth of the country.

From the regression analysis, the study found that there was a negative relationship between economic growth and inflation rate, exchange rate, interest rate and budget deficit. The study further revealed that there was a positive relationship between gross investment and economic growth in the country. At 5% level of significance and 95%

level of confidence, budget deficit had the greatest effect on economic growth in Kenya, followed by inflation rate, followed by exchange rate then interest rate while gross investment had the least effect to the economic growth in Kenya.

From the findings on the correlation analysis, the stduy found that there was a strong positive correlation between economic growth and gross investment. The study further revealed that there was negative relationship between economic growth and budget deficit, interest rate, exchange rate and inflation rate.

5.3 Conclusion

From the findings the study concludes that budget deficit negatively affect the economic growth in the country, as it was found from the regression and correlation analsis that there was a negative relationship between economic growth and budget deficit. The study also concludes that gross invetsmnet in the country positively influence the country economic growth as it was revealed that increase in gross investment positively influence the country economic growth .

The study further revealed that increase in inflation rate, exchange rate and interest rate, negatively influence the country economic growth. Increase in inflation rate scare away investor as it reduces the currency purchasing power thus decreasing the economic growth in the country. Increase in exchange rate reduce the foreign direct investment in the country which negatively affect the economic growth in the country and reduced interest rate increase borrowing which spurs economic growth through investment .

5.4 Recommendations for the study

From the findings and conclusion, the study recommends that there is need for the government to control the country budget deficit as it was found that budget deficits negatively affect the economic growth of the country.

The study further recommends that there is need for the government to control the country inflation rate through various fiscal policies, as it was revealed that unit increase inflation rate negatively affects economic growth in the country.

There is need for the for the government to control exchange rate and interest rate as their decrease will stimulate investment in the country which positively affect the economic growth in the country as it was found that increase in gross investment positively affect economic growth in the country .

5.5 Limitations of the Study

This study was not without limitations. In attaining its objective the study was limited to 10 years period starting form year 2003 to year 2012. Secondary data was collected from the Kenya National Bureau of statistic and Central banks of Kenya. 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 CBK and KNBS publications, it nonetheless could still be prone to these shortcomings.

The study was limited to establishing the relationship between budget deficit and economic growth in Kenya. The study was based on 10 year study period from the year 2003 to 2012. A longer duration of the study will 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.

Availability of the respondent also proved to be quite a challenge, sometimes the respondents will be not available requiring to visit many times in order to meet them.

When accessing some data some bureaucracy was involved and this led to much time being spend on obtaining data.

5.6 Areas For Further Research

The study sought to establish the relationship between budget deficit and economic growth in Kenya, the study recommends a study to be done on the relationship between budget deficit and foreign direct investment in Kenya.

There is need to conduct a study on the relationship between budget deficit and interest rate in Kenya

The study recommends that a study should be done on the effects of inflations rate on budget deficit in Kenya

The study recommends that there is need for a study on the relationship between budget deficit and domestic borrowing.

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APPENDICES

Appendix I: Introductory Letter

From: Harrison M. Musyoka

To: Respondent

Dear, Respondent

RE: Data collection

I am a student at University of Nairobi pursuing Masters of Business Administration. I am carrying out a study on the **RELATIONSHIP BETWEEN BUDGET DEFICIT AND ECONOMIC GROWTH IN KENYA.**

You are kindly requested you to complete the attached data collection sheet to enable me accomplish the study. Please, note that all the information given shall be treated purely and used for academic purposes and shall be treated as confidential. Thank you for taking your time to complete the questionnaire and for your time and cooperation.

Yours sincerely

Harrison M Musyoka

Student UoN Kenya

Appendix II : Data Collection sheet

YEAR	GDP Rate	Inflation Rate	Gross investment	Budget deficit	FX Rate	Real Interest Rate
2003						
2004						
2005						
2006						
2007						
2008						
2009						
2010						
2011						
2012						

Appendix III: Data

YEAR	GDP Rate	Inflation Rate	Gross Investment	Budget Deficit	FX Rate	Real Interest Rate
2003	2.7	2.80%	8705	6122	81.4208	13.91
2004	4.6	4.60%	9600	6862	81.5611	13.90
2005	5.9	6%	10786	6916	83.7514	14.13
2006	6.3	6.30%	12055	6427	85.8292	14.32
2007	6.9	2.6	14413	6622	87.0422	14.79
2008	1.5	16.9	17477	7461	96.2694	15.21
2009	2.6	10.6	21279	7548	96.5222	18.51
2010	4.9	4.1	22434	8181	99.7783	19.54
2011	5.5	14.0	27323	8397	99.8319	20.04
2012	4.2	10.6	30311	8667	105.961	20.27

Source: Central Bank of Kenya and Kenya National Bureau of Statistics