THE DETERMINANTS OF KENYA'S EXTERNAL DEBT SUSTAINABILITY

BY

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DECLARATION

STUDENTS DECLARATION

This management research project is my own original work and has not been presented for a degree in any other University

Signature ..... **Date** 8/11/2012

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SUPERVISOR'S DECLARATION

This management research project has been submitted for examination with my approval as the candidate's university supervisor.

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To my loving wife Silvia, our beloved children Angel and Christian for the love and support they showed me throughout the entire course.

ABSTRACT

Many developing countries rely heavily on external debt and as a result a group of low income countries classified as Highly Indebted Poor Countries (HIPCs) have continued to experience difficulties in managing and servicing their huge stocks of external debt. Most of these countries including Kenya are in sub-Saharan Africa. The relatively high level of Kenya's external indebtedness and rising debt burden has serious implications on the country's development and debt sustainability. Kenya has relied much on foreign debt to finance its budgets. To date, this dependence on external resources has become entrenched in financing government projects and operations in the country which has led to an increase in the stock of external debt. This debt has been rising over the years and the question is, will it be sustainable? This paper therefore examines the determinants of Kenya's external debt sustainability.

The findings of the study indicate that Kenya's external debt sustainability is determined mainly by exports, GDP, domestic debt and external debt. External debt accumulation has been rising over the years with debt burden indicators increasing steadily in the early 1990s. Using time series data for the period 1967-2011, the empirical results indicated strong positive relationship between external debt sustainability, exports and GDP and the findings further reveals that there is a negative relationship between external debt sustainability ,domestic debt and external debt .

Some policy implications emerge from the study. To enhance Kenya's external debt sustainability the government must increase its GDP and exports as this will lead to increase in external debt sustainability.

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ABBREVIATIONS

ADF	Augmented Dickey–Fuller test
BOP	Balance Of Payments
CBK	Central Bank of Kenya
EU	European Union
FOREX	Foreign Exchange
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GNI	Gross National Income
GNP	Gross National Product
HIPC	Highly Indebted Poor Countries
IMF	International Monetary Fund
KNBS	Kenya National Bureau of Statistics
SD	Standard Deviation
SSA	Sub-Saharan Africa
UNDP	United Nations Development Program
USA	United States of America

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

1.1.1 Theoretical Background

External debt or borrowing refers to taking monetary aids from a foreign country or institution. It can be explained in many ways. By definition, external debt refers to the portion of a country's debt that was borrowed from foreign lenders including commercial banks, governments or international financial institutions (Arnone, Bandiera & Presbitero, 2005; Ajayi & Khan, 2000). These loans, including interest, must usually be paid in the currency in which the loan was made. In order to earn the needed currency, the borrowing country may sell and export goods to the lender's country (Obadan, 2004). According to Evgin (2000) external borrowing refers to the taking fiscal or real income of a government or government's institution from external sources. In other words, obtaining external credits of resident people or institutions in a country from resident people or institutions in abroad. Ucak (2006) explains external debt as transfer flows which are taken from foreign resources and during their repayments have booster effects on national income and are emanated from international relationships.

The issue of external debt sustainability has gained importance in 1980s. Because these years were defined as the "foreign debt crisis years" due to many developing countries experienced of foreign debt crisis while industrialized countries like USA and Germany experienced constant current account deficits (Özkan, 2006).

The concept of debt sustainability has been central to the discussions of the HIPC debt relief initiative. The IMF defines "debt sustainability" as "a situation in which a borrower is expected to be able to continue servicing its debts without an unrealistically large correction to the balance of income and expenditure" (IMF, Assessing Sustainability 2002). As Martin (2004), puts it debt sustainability incorporates several sub-components: solvency, liquidity and vulnerability. These are defined as follows:

Solvency is a situation in which the present discounted value of the government's current and future primary expenditure is no greater than the present discounted value of income, net of any initial indebtedness;

Liquidity is a situation in which the liquid assets and available financing are sufficient to meet or roll-over its maturing liabilities;

Vulnerability: the risk that solvency or liquidity is not possible.

Since the inception of multinational debt crisis in the early 1980s, African countries' external debt has remained unsustainable, with these countries sadly bearing the effects of unsustainable indebtedness (Cohen, 1993; Fosu, 1999; Iyoha, 1999; Gumisai, 2001; Boyce & Ndikumana, 2001; Ndikumana & Boyce, 2003; Ndikumana, 2004; Loser, 2004). While struggling with this burden, most of these countries have severally rescheduled their external debts which, in turn, worsened their external debt problems. In fact, Sub-Saharan African countries started rescheduling their debts as early as 1989. By 1989, the total amount of debt rescheduled was US$13.94 billion; by 2000 it had risen to US$22.63 billion. It declined to US$1.03 billion in 2007. On average, between 1989 and 2007, the region's total external debt rescheduled was US$5.14 billion.

Foreign debt sustainability refers to a country's ability to meet its foreign debt obligations. If the present value of a country's net future foreign earnings equals the current value of its foreign debt, its foreign debt is considered sustainable. In other words, foreign debt is considered sustainable if the country's intertemporal budget constraint is satisfied (Mohammadi, Cak & Cak, 2007). Debt and external debt sustainability is measured by some ratios or indicators too. For example, the ratio of total external debt to GDP is an important indicator. To achieve sustainability of debt the ratio of total external debt to GDP must be stabilized (Keating & Keating, 2003).

Whether external debt is sustainable or unsustainable depends on critical levels of some ratios. These ratios which are generally accepted for identifying of external debt sustainability by IMF and World Bank are those: total debt to GNP, total debt to export, debt service to export and finally interest service to export. When the country exceeds determined levels (for the ratio of total debt to GNP is %50, total debt to export is %275, debt service to export is %30 and interest service to export is %20) in the three of four ratios it is accepted heavily indebted country (Evgin, 2000).

From the foregoing, it is evident that the most commonly used indicators of indebtedness are the debt service ratio, debt to GDP ratio, international reserves to debt ratio, international reserves to debt service ratio, and interest payments to net export earnings. In view of the fact that most African countries are still battling with debt service problems even though they have achieved debt sustainability thresholds envisaged by the HIPC initiative, there is a need to identify thresholds that will lead to better debt management for them. Further, HIPC thresholds of indebtedness are too high given that

these countries are as well struggling with both weak macroeconomic and governance infrastructures. For example even though under the HIPC initiative a debt to GNP level of less than 250% is deemed sustainable, the poorer African countries like Zambia and Tanzania had achieved that threshold by 1995 when these countries were still struggling with heavy debt service problems and were asked to reschedule their debts. In fact, most sample countries had debt to GNP ratios of below 100%. Furthermore, the Sub-Saharan African countries and Latin American countries also have persistent current account deficits that threaten their external debt sustainability. It is therefore paramount that workable thresholds/determinants that can be used as benchmarks for effective debt borrowing and management are identified. Among other benefits, this paper contributes to the literature by computing workable debt sustainability thresholds/determinants for African countries and Kenya in particular.

1.1.2 Contextual Background

At end of the year 2009, nominal public external debt in Kenya was estimated at $7.1 billion (23¾ percent of GDP). About 60 percent of this debt was to multilateral creditors (including 47 percent owed to the World Bank) and 39 percent to bilateral creditors. A small share (under 2 percent), owed to commercial creditors, represents disputed arrears on security related contracts. (World Bank, 2012).

An analysis on debt sustainability done by a joint World Bank/ IMF Fund 2009 found the debt sustainability indicators to have deteriorated somewhat, reflecting a projected faster debt accumulation over the medium term.

Table 1 below shows that as at March 2012 total external debt declined by kshs. 50.7 billion and this is largely as a result of revaluations following the appreciation of the Kenyan shilling against the world's major currencies. (Central bank of Kenya, 2012).

TABLE 1: KENYA'S EXTERNAL DEBT (KSHS. BILLION)

External debt	June 2009	June 2010	June 2011	Sept 2011	Dec 2011	Jan 2012	Feb 2012	Mar 2012	Change 2011/2012
Bilateral	185.9	196.3	257.0	258.5	240.7	263.3	235.5	243.0	-13.94
Multilateral	327.6	348.6	445.3	514.7	422.9	419.7	410.7	417.1	-28.19
Supplier credits	23.8	20.5	25.0	26.6	22.0	22.2	16.6	16.5	-8.52
Total external debt	537.4	565.5	727.3	799.83	685.61	705.2	662.81	676.61	-50.7
As % of GDP	22.5	22.2	26.4	29.0	20.8	21.4	20.13	20.6	

Source: Central Bank of Kenya

External debt burden of developing countries continues to be one of the key barriers to economic and social progress. Therefore, fiscal policies, sustainability and solvency have become important research areas. In the closed economy, domestic debt was the only choice for financing an economy, but in the open economy, countries and their economic structures depend on each other so external debt has started to substitute domestic debt with the liberalization.

Ocampo, (2005) describes External debt as sustainable when there are no foreseeable major difficulties in meeting contracts in a timely and proper manner. However very few African countries known to have been characterized by unsustainable external debt have been released from this burden. This view is substantiated by Yang and Nyberg (2009) who show that long term debt sustainability remains a challenge for post completion point, highly indebted poor countries (HIPCs). This persistence of unsustainable

indebtedness despite the attainment of this "milestone" is attributable to structural vulnerabilities of these economies, such as a narrow export base, weak institutions and governance, poor domestic resource mobilization, and inadequate debt management capacity. The pertinent question, which is the primary concern in this study, is what are the specific determinants of external debt sustainability?

Earlier researchers like Claessens, 1990; Semmler and Sieveking, 2000; Easterly, 2002; Cassimon and Vaessen, 2007; Ferrarini, 2008, however provide evidence that external borrowing can aid economic growth and development when used productively and at sustainable levels. Examples of countries that have used debt in sustainable versus unsustainable ways can be found in South Korea versus Indonesia in East Asia, Chile and Brazil versus Argentina in South America, and Ghana versus Zambia in Africa. Further, recent evidence suggests that countries formerly characterized by unsustainable debt can overcome the burden and move their economy forward, as Indonesia appears to be doing. Different thresholds for external debt sustainability have so far been computed. The threshold for debt sustainability under the HIPC initiative is, for example, pegged at a debt to export ratio of 150% and a debt to GNI ratio of 250%. In their empirical study, Pattillo, Poirson, and Ricci (2002) compute debt thresholds by assuming that the HIPC initiative will halve countries' debt levels. They use year 2000's debt ratios as their benchmark values, and find that debt negatively affects per capita growth when debt-to-exports ratio is 160–170% and debt-to-GDP ratio is 35–40%.

In contrast to these preceding views on indicators of indebtedness, Caliari (2006) argues that these various indicators used to establish the debt thresholds are poor measures of how an economy is faring and, particularly, how well a government is meeting its revenue needs to achieve human development goals. He contends that the HIPC initiative has been heavily criticized for relying mainly on debt-to-export and debt-service to-export ratios as indicators for measuring sustainability of indebtedness. For instance, he finds that export revenue does not necessarily correlate with growth, poverty reduction rates or, more importantly, fiscal revenue. Furthermore, he notes that the chosen thresholds, being fixed numerical thresholds, are unable to capture the possible variation in a country's situations. Caliari (2006) recommends that human development imperatives take precedence over debt payments, with debt sustainability assessments geared towards ensuring that debtor countries are able to fulfill the financing requirements needed to meet both the human development and the millennium development goals.

1.2 Statement of the Problem

The period from independence 1963 to 1973 is a period when Kenya's economic growth was most rapid. It can be regarded as Kenya's 'golden economic period'. The Gross Domestic Product (GDP) grew at an average of 6.5% and per capita income remained positive despite high population growth rates. The balance of payments (BOP) position was healthy and the inflation rate was less than 3%. Exports grew at a commendable rate of 13% per annum, (Were, 2001). An examination of the commonly used debt burden indicators shows that the debt servicing ratio (debt service payments as a ratio of total

export of goods and services) in the early 1970s was too low to cause concern when compared with that of African countries as a whole which was over 10% in 1972. However the oil crisis of 1973/74 changed the picture. It created severe BOP problems. To meet the BOP crisis, the government resorted to heavy external borrowing. The external debt stock grew by 45.3% in 1973 from the previous year and increased interest rates on international loans raised the debt service charges substantially. This led to a decrease in net transfers on debt, being negative in 1981, 1984, and 1986 and has remained negative since 1991. This transfer of capital to foreign creditors poses serious implication (Were, 2001).

Aylward and Thorne (1998) investigated countries' repayment performance vis-à-vis the IMF, emphasizing the importance of countries' repayment histories and IMF financial variables in predicting the likelihood of arrears to the IMF. Detragiache and Spilimbergo (2001) studied the importance of liquidity factors such as short-term debt, debt service and the level of international reserves in predicting debt crises. They found that all three are important.

Manasse and Roubini (2009) in their study suggested that a fuller set of predictor variables for external debt management include, among others, the total external debt to GDP ratio, short-term debt to reserves ratio, real GDP growth, public external debt to fiscal revenue ratio, external financial requirements (current account balance plus short-term debt to foreign reserves ratio), exchange rate overvaluation, and exchange rate volatility. According to them, a relatively "debt safe" country type is described by a

handful of debt management prerequisites: low total external debt (below 49.7% of GDP); low short-term debt (below130% of reserves); low-public external debt (below214% of fiscal revenue); and an exchange rate that is not excessively appreciated (overvaluation below 48%).

Manundu (1984) looked at the debt management strategies for Kenya and attributed Kenya's debt burden to balance of payments, increased imports, low savings and loan capital.

GulamHussein (1987) looked at the external shocks, adjustment and debt problem in Kenya over the period 1974-1986; Ng'eno (1991) looked at the external debt problem of Kenya while Ochieng (1991) looked at the determinants of the external debt burden. Ochieng (1991) and Ng'eno (1991) found unexpected results about the effect of real interest rates and budget deficits on external debt burden. In Ng'eno's study, the effect of devaluations on the stock of debt was greater than the effect on exports while the effect of devaluation on exports was greater than the effect on debt burden in the study by Ochieng (1991). From the two studies, terms of trade and increase in real value of exports led to a fall in external debt burden while increase in the real value of imports and growth of industrial countries tend to raise the external debt burden.

Mutiso (2001) looked at the determinants of external debt in Kenya. However the researcher did not come across any study that had looked at the determinants of external debt sustainability in Kenya. This study therefore seeks to fill this research gap.

The study will seek to answer the following research questions; what are the determinants of Kenya's external debt sustainability?

Thus the study hypothesizes that; Kenya's external debt sustainability is determined by debt to GDP ratio, foreign debt to exports ratio, government debt to current fiscal revenue ratio, and share of foreign debt to total debt.

1.3 Objectives of the Study

The objective of this study is to establish the determinants of external debt sustainability in Kenya

1.4 Importance of the Study

The study will be used as an indicator of how well the Kenyan economy is faring and, particularly, how well the Kenyan government is meeting its revenue needs to achieve its development goals.

The Kenyan Government especially the Ministry of Finance and Planning will use the findings of this study to develop policy recommendations that will assist the policy makers in coming up with regulatory measures and guidelines of external borrowing.

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

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter explores the theoretical and empirical literature and the determinants of external debt sustainability. Section 2.2 presents the theoretical literature on external debt. Section 2.3 analyses the empirical evidence relating to external debt sustainability while section 2.4 examines the determinants of debt sustainability. Finally, section 2.5 is a summary of the literature review on the determinants of external debt sustainability.

2.2 Theoretical Literature

2.2.1 Debt Overhang Theory

The most well-known theory explaining the sustainability of external debts comes from the debt overhang theories developed by Krugman (1988) and Sachs (1989). The later (1988) defines the "debt overhang" as the presence of an existing inherited debt sufficiently large that creditors do not expect with confidence to be fully repaid. These theories show that if there is some likelihood that in the future debt will be larger than the country's repayment ability; expected debt-service costs will discourage further domestic and foreign investment. The existence of a potential debt overhang tax may affect the incentives of policymakers, but also those facing the private sector. As Sachs puts it (1998), a heavy foreign debt burden of a developing country government impedes economic growth through several channels. Higher debt tends to undermine macroeconomic stability by increasing budget deficits. If debt service is covered by higher taxes rather than by an increased budget deficit, the high rates of taxation tend to

undermine growth by introducing serious distortions in the economy, including heightened barriers to trade (via trade taxes), capital flight, tax evasion and reduced work effort.

Claessens and Diwan (1990) provide a typology of debt crises including the following categories:

Debt overhang: the burden of debt is so heavy that future growth in the economy is effectively compromised. The debtor country cannot invest, and so cannot meet future debt obligations without new loans as well as debt relief.

Weak debt overhang: outstanding debt is too large to be resolved merely by the provision of new money. However, if the country could use some commitment mechanism to indicate that it would use the new money for investment, then it could escape from the debt overhang. Claessens and Diwan (1990) define a commitment mechanism as an institution that creates an incentive for debtor countries to invest new money in productive activities, rather than using money for present consumption.

Strong debt overhang: the debt is so large that the country will not choose to invest new money until some debt is written off.

Liquidity trap: Outstanding debt is too large, and attractive investment opportunities go begging since the low level consumption does not allow further sacrifices of present consumption for future consumption. This liquidity effect is a failure of the capital market.

Another strand of the debt overhang theory emphasizes the point that large debt stocks increase expectations that debt service tends to be financed by distortionary measures

(inflation tax or cuts in public investment) as in Agenor and Montiel (1999). According these authors Agenor and Montiel (1999), the uncertainty about future taxes for private domestic agents may adversely affect the domestic economy, over and above any disincentive effects on policymakers. As long as there is a shortfall on the budget, the future tax rate in the economy is unknown. Irreversible private activities such as investing in physical capital and acquiring claims on the domestic financial system are likely to be postponed until the uncertainty is resolved.

In order to address this issue, several approaches to analyze external debt sustainability have been extensively discussed in both theoretical and empirical literature. The key determinants of such analyses include the prevalent stocks of external debt, the dynamics of fiscal and external repayment abilities that are linked to the economic growth and access to additional external financing. Two general approaches to debt sustainability analysis have been pursued beside other theoretical and empirical models. The first one focuses on the financial sustainability (a borrower based approach) in which a fiscal deficit is considered sustainable if it is being able to generate a constant debt-to-GDP ratio (Cuddington, 1996). The condition implies that it is possible to run a sustainable fiscal deficit as long as the growth rate of the economy is higher than the interest rate, which will in turn ensure the stability of debt-to-GDP ratio. The second approach evaluates if there is a present value borrowing constraint that could limit the quantities to borrow. Gupta (1992) presents a good review of the concept. This concept has been extensively used by the IMF and World Bank in the recent years. The concept has been outlined as a group of indicators with specified thresholds. The indicators and their

respective thresholds are based on the premise: "An entity's liability position is sustainable if it satisfies the present value budget constraint without the major correction in the balance of income and expenditure, given the costs of financing it faces in the market" (IMF, 2002). The concept has been derived from the work of Hamilton and Flavin (1986). Beside these two main approaches, more recently Meltem Ocal and Serhan Oksay (2011) have developed the concept of Solvency Ratio, normally used to assess the ability of a firm to pay its long-term loans, to monitor country's ability to meet its external debt obligations.

Other literature on debt sustainability attempted to find a discontinuity in the relationship between debt burden indicators for example the external debt-to-export ratio and the incidence of default or market based indicators of risk such as premium over benchmark interest rates on debt securities traded in the secondary market, Underwood (1991) and Cohen (1996). These papers found that above a threshold range of about 200-250 percent of the present value of debt-to-export ratio, the likelihood of debt default climbed rapidly. This range then became the benchmark adopted by the original HIPC Initiative in 1996, and was lowered in 1999 under the enhanced HIPC framework.

Reinhart, Rogoff, and Savastano (2003), looked at the historical determinants of "debt intolerance", a term used to describe the extreme duress which many emerging markets experience at debt levels that seem quite manageable by industrial standards. Their key finding was that the institutional investor magazine's sovereign risk ratings can be explained by a very small number of variables measuring the countries' repayment history, its external debt burden, and its history of macroeconomic stability.

2.3 Empirical Literature

Studies involving sustainability of public debt became an important issue in economic policy mainly after the 1980s, stimulated by the increasing US fiscal deficits as well as the debt crisis that affected Latin American countries. Recently this subject has come up again for Europe after the unification and for heavily indebted developing countries. For the latter, not only the external debt, but also the internal debts have stimulated applied macroeconomic studies.

The first concept of sustainable fiscal policy is due to the works of Domar (1944) and Harrod (1948). Minsky (1986) first pointed out the importance of taking care the financial sustainability of fiscal policy in order to avoid reaching a no sustainable structure coming from a Hedge position to finance. Eisner and Pieper (1984) also pointed out the importance in analyzing the question of the Federal debt and its long run sustainability for the United States.

From the work of Hamilton and Flavin (1986) several tests of sustainability were carried out by using similar methodology of them, or by including other tests. Hamilton and Flavin (1986) employs tests of stationarity over the discounted debt factor using Dickey-Fuller tests for unit roots as well as restricted and generalized Flood-Garber tests for stationarity. The basic idea is that any debt will be sustainable in the long run if its discounted factor is stationary. Applying these methodologies to the US data from 1960 to 1981, these authors have found that the US Budget balance presented a long run sustainable path, despite its systematic budget deficits.

Wilcox (1989) extended the work of Hamilton and Flavin (1986) in order to allow for stochastic real interest rates and for nonstationarity in the no interest surplus. His work has power against stochastic violations of the borrowing constraint, whereas at least two of the tests of Hamilton and Flavin assumed that any violation of the borrowing constraint would be stochastic.

Greiner and Semmler (1999) tested the sustainability of the public debt for Germany in order to find if the unification has caused any violation of the long run path of the public debt. Indeed, the unification had risen the debt to GDP ratio from 44% to 58% in 1995 and this behavior could bring some problems to the European Union (EU), since one important aspect of the EU was exactly warrant a balance fiscal policy. Their conclusions suggest that the public debt in Germany does not meet the requirements to warrant a sustainable fiscal policy in the long run.

These authors have taken annual data from 1955 to 1994 and used both Flood-Garber test, and ADF tests for unit root in the series of discounted net debt, showing that internal debt series were nonstationary. The restricted Flood-Garber tests confirm that outcome. After also testing the sustainability before and after the unification of the Germany the results suggest an unsustainable path started in 1989.

Sawada (1994) explored the case of external debt sustainability of heavily indebted countries using a different approach to that one used by Hamilton and Flavin (1986), and Greiner and Semmler (1999). While the latter have employed the discounted debt to test, the former tests use current account balance. Indeed, the methodology employed by

Sawada (1994) does not need to make a discounted debt. If the series employed have a unit root, the solvency condition is met whether the series are cointegrated. His results demonstrated that only the Asian countries (Korea, Indonesia, Malaysia and Thailand) have been solvent for the period 1955 to 1990. All of Latin American countries did not meet the solvency condition for the same period. Ponta (1996) using quarterly data from 1970 to 1992 has also found the unsustainability of the external debt in Brazil. Rocha and Bender (2000) made similar exercise testing Brazilian current account sustainability using annual data from 1947 to 1997 and also concluded that the current account deficits in Brazil do not meet the requirements to warrant a sustainable path in the long run. Both authors used cointegration. They have also performed unit root tests in the presence of structural break, although the equations they used were slightly different from each other. Ponta (1996) tested cointegration between net external debt and trade balance whereas Rocha and Bender (2000) used exports and imports of goods and services including net interest.

2.4 Determinants of Debt Sustainability

Following McFadden, Eckaus, Feder, Hajivassiliou and O'Connell, (1985). In Smith and Cuddington, (1985)), among others, generally a country is said to be in a debt repayment crisis situation if it has arrears on principal or interest, higher-tranche IMF arrangements, or rescheduling requests. McFadden, et al (1985, in Smith, et al (1985) summarize the broader group of factors, which I base my empirical analysis:

First are factors in the world economy. These are factors identified as beyond the help of developing countries that may to a great extent increase the likelihood of indebted countries to reschedule their contractual debt obligations. Following McFadden (1983) such factors may include but not limited to a price increase in " noncompressible" imports, the deterioration in the terms of trade of developing countries' major export items, recession in industrialized countries, and volatility in trade

Secondly are domestic factors. These are factors that are in the full control of indebted countries themselves. These may include shock to the productive capacity of developing nations as the result of economic or non-economic factors, poor economic management by the government of an indebted country (which may include all forms of economic distortions), poor investment strategies, where the returns of the investment are by far lower than the cost of foreign capital, unsustainable growth strategies, and speculation and capital flight. These factors may directly or indirectly disrupt production, decrease export revenues, and ultimately wipe out the repayment potential of indebted countries.

Lastly are factors that directly or indirectly affect the supply of credit to indebted countries. Such factors include: A rise in interest payments due to higher real interest rates in industrialized countries; an increase in amortization due to a decline in maturities and an increase in the ratio of the short term debt, an increase in competition from other developed and oil exporting countries, limited capacity of governments to guarantee debt, and erratic behavior of creditors induced by institutional rules on exposure, and distortion

in incentives of loan managers and panics are all believed to be detrimental to the repayment capacity of indebted nations.

There are obviously reverse causality issues across some of the factors that are just mentioned. For instance, among the external factors, the recession in industrialized countries may be the cause for the deterioration in the terms of trade of developing countries key export items. Similarly, this may also be the case that the fall in the terms of trade will force developing countries to reschedule rather than fully service their contractual debt obligation and demand for further borrowing, which may reduce the financial transfers to the industrialized countries. Under the assumption of substantially larger debtors, this may also cause economic slowdown in industrialized countries themselves. Moreover, it is always easy to precisely differentiate some of the domestic and external factors, as external factors may also impact on domestic ones. However, this gives a good general theoretical background to the empirical part of the analysis concerning the repayment difficulties of indebted countries in the past two decades.

2.5 Summary

External debt has increased steadily in the recent past in developing countries. External debt is considered a significant source of income in developing countries. In the 1950s, deficits in the current account were considered normal. Countries were encouraged to borrow abroad and create an environment conducive to foreign investment to boost their economic growth. As a result little attention was paid to the liabilities side of the current account deficit which increased the external indebtedness of these countries. Mexico declared in August 1982, that it could not service her debts even though it is an oil

exporter. Ever since, the issue of external debt and its servicing has assumed critical importance and introduced the 'debt crisis' debate (Were 2001).

Since the start of the debt crisis in 1982, a group of low income countries classified as heavily indebted poor countries (HIPCs) have continued to experience serious difficulties in managing the servicing of their relatively high stocks of external debt. Out of the 41 countries classified as HIPCs, 33 (or 80%) including Kenya are in Sub-Saharan Africa (SSA). The majority of these countries also fall under the existing classification of countries with low income (World Bank) and low human development (UNDP).

Since independence, Kenya has relied much on foreign debt to finance its budgets. To date, this dependence on external resources has become entrenched in financing government projects and operations in the country which has led to an increase in the stock of external debt (Were, 2001).

This study is therefore necessary because the existing literature and empirical evidence on this topic have not extensively covered debt sustainability.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology used in this study. Section 3.2 explains the research design that was applied in the study; section 3.3 covers the population of the study as well as the sample size and sampling techniques that was applied in the study, section 3.4 presents the data and data collection methods used. Finally section 3.5 outlines the data analysis methods and covers both the conceptual and empirical models.

3.2 Research Design

Research design refers to the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in the procedure (Babbie, 2002). Different research designs can be categorized as; exploratory research design, descriptive research design and hypothesis-testing research design.

This study used both descriptive and exploratory surveys. Descriptive survey was used in order to describe the characteristics of the variables of interest and also to understand the relationships between the variables. The variables in this study are the determinants of external debt sustainability in Kenya.

An exploratory survey was used so as to gather more information on this study. Churchill (1991) wrote that exploratory studies are important in increasing the researcher's familiarity with the problem, in gathering information about practical problems,

clarifying concepts, in formulating a problem for more precise investigation and establishing priority for further research. Exploratory research is characterized by its flexibility with respect to the way it is used to gain insight and develop hypothesis. The method will therefore be used since it allows for the much needed flexibility required to obtain useful data for analysis and interpretation.

3.3 Population and Sample

The study used secondary data obtained from the Central Bank of Kenya and the Kenya National Bureau of Statistics databases. This data was also supplemented from IMF and the World Bank. The population of the study was drawn from yearly level of Kenya's External debt for the period from Kenya's independence in 1963 to 2011.

The sample population of the study constituted the yearly mean level of external debt for the period under study. The sample period is between January 1967 to December 2011.

3.4 Data and Data Collection

This study used secondary data as the main source of information. According to Kimani (2007), secondary data is data originated for purpose other than that of the research at hand. This is data already existing in records and originated for other purposes.

The data collected in this study include the factors that determine debt sustainability and these include the following; GDP, exports, domestic debt and external debt. These data was obtained from the CBK and KNBS databases and this was done by way of

exploratory survey and data mining the databases. The data was also supplemented from the World Bank and IMF

3.5 Data Analysis

Data analysis techniques applied are both quantitative and qualitative using the Statistical Programme for Social Sciences (SPSS) version 20 and MS Excel 2007 for simple data analysis so as to analyze data using tables. This was applied to examine and compare the impact of the independent variables on the dependent variable.

Data was analyzed using correlation and simple linear regression analysis to determine the relationship between the determinants of the external debt and its sustainability.

Measures of central tendency was calculated, percentages, graphical presentations, frequencies and tables that describe the phenomena under investigation was applied.

Time series and trend series analysis was also used to examine the determinants of Kenya's external debt sustainability over the period under review. Time series analysis concerns the analysis of data collected over time; weekly values, monthly values, quarterly values, yearly values, etc. Usually the intent is to establish whether there is some pattern in the values collected to date, with the intention of short term forecasting.

3.5.1 Conceptual Model

The conceptual model defines the relationship between the dependent variable and independent variables. The dependent variable is debt sustainability while the independent variables are GDP, Exports, Domestic debt and External debt. The literature

review shows that there is a positive relationship between GDP, Exports and Debt sustainability and a negative relationship between Domestic debt, External debt and Debt sustainability.

The following function shows the mathematical relation of dependent and independent variable

DS=f (GDP, X, DD, ED,)..... (1)

Where:

DS = Debt Sustainability

GDP = Gross Domestic Product

X = Exports

DD = Domestic Debt

ED = External Debt

The data used in this model was obtained from the CBK and KNBS and will cover the period under study that is 1967 to 2011.

The World Bank and the IMF hold that "a country can be said to achieve external debt sustainability if it can meet its current and future external debt service obligations in full, without recourse to debt rescheduling or the accumulation of arrears and without compromising growth.". Therefore DS was measured by the debt service of Kenya's external debt. That is the increased repayment of external loans, and Kenya's ability to generate resources to repay the outstanding balances, and the country is able to meet its current and future debt service obligations in full, without recourse to further debt relief

or rescheduling, avoiding accumulation of arrears, while allowing an acceptable level of economic growth. (UNCTAD/UNDP, 1996)

GDP was measured by the value of output during a given year using the prices prevailing during that year. It is also the market value of all officially recognized final goods and services produced within a country in a given period normally a year.

X was measured by the total value of goods and services that are produced in the Kenyan economy and purchased by the foreign countries.

DD consists of liabilities that a country owes. For example, the Kenya's domestic debt includes Treasury notes, bonds and bills issued by the government to the Kenyan public. Therefore DD will be measured by the total value of treasury bills and government bonds issued locally.

ED is debt in a country that is owed to creditors outside the country. The debt includes money owed to private commercial banks, other governments, or international financial institutions such as the International Monetary Fund (IMF) and World Bank. ED will therefore be measured by the amount of loan received from IMF, World Bank and Other governments and also including the accrued interest.

The expected relationships between the variables in this model are positive for both GDP and X implying that as the country's GDP and Exports increases, debt sustainability also improves. However the relationship is negative for Domestic Debt and External Debt implying that as the level of domestic debt and external debt increases, debt is no longer sustainable and vice versa.

3.5.2 Empirical Model

This study used an empirical model to determine the relative significance of each of the four main determinants of Kenya's debt sustainability. The empirical model is as follows:

$$DS = a_0 + a_1 GDP + a_2 X - a_3 DD - a_4 ED + et \quad \text{..... (2)}$$

The data to be used for this model will cover the years 1967 to 2011.

In this model a_0 is a constant while (a_1 -a_4) are coefficients of respective variables while et is the random error term.

The strength of the relationships between the variables will be measured by coefficient of correlation (r). Its numerical value ranges from +1.0 to –1.0. In general, $r > 0$ indicates positive relationship, $r < 0$ indicates negative relationship while $r = 0$ indicates no relationship or that the variables are independent and not related. When $r = +1.0$ describes a perfect positive correlation and $r = -1.0$ describes a perfect negative correlation.

The higher the value of DS the higher the rate of external debt sustainability implying a higher rate of GDP for the Kenyan economy, higher percentage of Kenya's exports, lower levels of domestic debt and lower level of external debt in the country. The strength will be determined by the coefficient of each variable ranging from 0 to 1. The close the coefficient to 1, the stronger the variable is a determinant of debt sustainability and vice versa.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis interpretations and discussions of the research findings. The study was conducted on data on four main determinants of external debt sustainability in Kenya from the years 1967 to 2011. The chapter is organized as follows; section 4.2 covers summary statistics of data used, section 4.3 presents the determinants of Kenya's external debt sustainability by examining the empirical model and presents both the correlation and regression analysis. Section 4.4 looks at the discussions of the results and section 4.5 gives summary of the whole chapter.

4.2 Summary Statistics

The data was obtained from CBK and KNBS and was used to calculate the measures of central tendency as shown in the table below.

Table 2: Summary Statistics

	DS (Us$ Million)	GDP (Us$ Million)	EXPORTS (Us$ Million)	D/DEBT (Us$ Million)	E/DEBT (Us$ Million)
Mean	455.09	10,505.56	1,808.40	7,557.47	4,710.36
SD	256.31	8,730.70	1,313.55	6,862.64	2,689.98
Median	485.01	7,970.82	1,192.71	6,348.64	5,808.99
Minimum	27.12	1,232.56	585.64	360.78	406.85
Maximum	904.41	33,620.68	5,262.77	30,311.73	8,667.24
Range	877.29	32,388.12	4,677.13	29,950.95	8,260.38
Variance	6.569	7.62	1.73	4.71	7.24

Source: Author's computation

From the table above DS which is measured by the annual repayment of external debt from the year 1967 to 2011 has a mean of Us$ 455.09 million. In that period Kenya's GDP averaged Us$ 10,505.56 million while Kenya's Exports had an average of Us$ 1,808.40 million. During the same period also the Kenya's domestic debt and external debt had a mean of Us$ 7,557.47 million and Us$ 4,710.36 million respectively.

The data was subjected to standard deviation so as to measure its dispersion from the mean. From the above table DS has a standard deviation of Us$ 256.31 million, GDP has a standard deviation of Us$ 8,730.70 million. Standard deviation for Exports is Us$ 1,313.55 million, for domestic debt is Us$ 6,862.64 million while for external debt is 2,689.98. Generally all the standard deviation is close to the mean indicating a low variation from the mean.

The median reveals that 50% of DS is above us$ 485.01 million, 50% of GDP is above us$ 7,970.82 million, 50% of exports is more than us$ 1,192.71 million, 50% of domestic debt is greater than us$ 6,348.64 million, while 50% of external debt is more than us$ 5,808.99 million.

The data was also used to calculate the minimum and maximum number and thus resulting in a range of us$ 877.29 million for DS, us$ 32,388.12 million for GDP, us$ 4,677.13 million for exports, us$ 29,950.95 million for domestic debt and us$ 8,260.38 million for external debt.

4.3 The Determinants of Kenya's External Debt Sustainability

4.3.1 Correlation Analysis

In order to test the strength of the relationship between external debt sustainability of Kenya and gross domestic products, exports, domestic debt and external debts, Pearson product moment correlation was done using SPSS version 20 and results presented in the table below.

Table 3: Correlations

		Debt sustainability	Gross domestic product	Exports	Domesitic debt	External debt
Debt sustainability	Pearson Correlation	1	.773	.556	-.611	-.656
	Sig. (2-tailed)		.623	.707	.735	.707
	N	44	44	44	44	44
Gross domestic product	Pearson Correlation	.773	1	.311*	.713	.311
	Sig. (2-tailed)	.623		.031	.000	.031
	N	44	44	44	44	44
Exports	Pearson Correlation	.556	.311*	1	.628	1.000*
	Sig. (2-tailed)	.707	.031		.000	.000
	N	44	44	44	44	44
Domesitic debt	Pearson Correlation	-.611	.713**	.628**	1	.628**
	Sig. (2-tailed)	.735	.000	.000		.000
	N	44	44	44	44	44
External debt	Pearson Correlation	-.656	.311*	.012*	.628	1*
	Sig. (2-tailed)	.707	.031	.000	.000	
	N	44	44	44	44	44

Source: Author's computation

From the findings in the table above , the study found that there was a strong positive relationship between external debt sustainability and gross domestic product as shown by a correlation factor of 0.773, the study also found strong positive correlation between external debt sustainability and countries exports as shown by correlation coefficient of 0.556, association between external debt sustainability and domestic debt was found to have a strong negative relationship as shown by correlation coefficient of - 0.611, external debt sustainability and external debt was found to a have strong negative correlation with a correlation coefficient of -0.656. This clearly shows that there is strong positive relationship between external debt sustainability, exports and gross domestic product and the study further revealed that there is a negative realationship between external debt sustainability ,domestic debt and external debt .

4.3.2 Regression Analysis

Regression analysis was used in analyzing the data to show the relationship between external debt sustainability and its determinants.

Table. 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.886[a]	.785	.752	.632

Source: Author's computation

Adjusted R squared is coefficient of determination which tell us the variation in the dependent variable due to changes in the independent variables, from the findings in the above table the value of adjusted R squared was 0.752 an indication that there was variation of 75.2% on the external debt sustainability of Kenya due to changes in the

independent variables which are GDP, exports, domestic debt and external debts at 95% confidence interval. This shows that 75.2% changes in external debt sustainability in Kenya could be accounted for by GDP, exports, domestic debt and external debts. 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 external debt sustainability in Kenya and GDP, exports, domestic debt and external debts as shown by 0.886.

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	Constant	.327	.534		.727	.000
	Gross Domestic Product	.118	.077	.164	1.519	.013
	Exports	.198	.099	.237	2.011	.048
	Domestic Debt	-.271	.130	-.278	-2.083	.040
	External Debt	-.335	.124	-.036	-2.685	.016

Source: Author's computation 95% significance level

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

DS = 0.327 + 0.118 GDP + 0.198 X - 0.271 DD - 0.335 ED

From the above regression equation it was revealed that holding GDP, exports, domestic debt and external debts to a constant zero , external debt sustainability in Kenya would stand at 0.327 , a unit increase in GDP would lead to increase in Kenyan external debt sustainability by a factor of 0.118, unit increase in Kenya's exports would lead to increase in Kenya's external debt sustainability by factors of 0.198 , unit increase in

Kenya's domestic debt would lead to decrease in debt sustainability by a factor of 0.271 further a unit increase in Kenya's external debt would lead to a decrease in Kenyan debt sustainability by a factor of 0.335. This is a clear indication that there is a positive relationship between debt sustainability, GDP and countries exports, this means that if the country increases its exports and gross domestic product it would lead to increase in debt sustainability. The study also revealed that there exists negative relationships between debt sustainability, domestic debts and external debt, this depicts that if a country wants to increase their debt sustainability they must reduce the external and domestic debts.

4.4 Discussion

The sustainability of Kenya's external debt depends on macroeconomic performance and a prudent borrowing strategy. The projected investment in infrastructure coupled with the vision 2030 and the proposed improvement on investment in climate would be crucial in sustaining strong exports and GDP growth. In addition, Kenya's success in avoiding unsustainable debt levels to date reflects good management, but also limited willingness on the part of creditors to provide finance at times due to governance concerns. According to IMF, Kenya's public debt which currently stands at more than Sh1.4 trillion should be reduced. The figure means that each Kenyan currently owes donors and external lenders more than KSh 22,000.

Kenya's public debt accounts for more than 47 per cent of the GDP and this should be reduced to manageable levels of less than 35 percent of the GDP. In the past, both the

IMF and the World Bank have carried out joint-debt sustainability and reassured that Kenya's debt was within manageable levels as it hovers around 45 per cent.

However Kenya's debt level is significantly lower than many rich countries including Italy, Greece, USA and Japan whose debt levels are over 100 per cent of GDP. Kenya has also not received debt relief like other sub-Saharan countries like Nigeria and Malawi. The IMF and the World Bank have recently said that once the economic stimulus ended and spending for the new constitution slows, Kenya should begin to reduce its debt.

Kenya has managed its debt relatively well and has regularly met its obligations, except for some disputed commercial arrears. The disputed commercial arrears estimated at US$ 242 million are a subject of on-going investigations and litigations.

Limited external borrowing has left Kenya with manageable debt ratios than most of the low-income countries. Kenya benefited from the Paris Club Rescheduling but did not qualify for the HIPC debt relief as its debt indicators have been below the HIPC initiative thresholds.

4.5 Summary

The aim of carrying out this study was to establish the determinants of Kenya's external debt sustainability. The study exclusively depended on secondary data to achieve the objective. The data was collected from CBK, KNBS, World Bank and IMF and it covered the period from 1967 to 2011. Descriptive statistics was the statistical method used to

analyze the data and findings are presented in the form of frequency tables and graphs for easier interpretation.

The tables and graphs show that external debt was sustainable when exports and GDP were higher and vice versa. This implies that external debt sustainability can be achieved by increasing exports and GDP. The study also revealed that there exists negative relationships between debt sustainability, domestic debts and external debt, and this implies that if a country wants to increase their debt sustainability they must reduce the external and domestic debts.

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1 Introduction

This chapter covers the summary of the study, conclusion and recommendation for further studies. Section 5.2 covers the summary of the study, section 5.3 presents the conclusions, section 5.4 analyzes the limitations of the study and section 5.5 gives recommendation for further study.

5.2 Summary of the Study

There has been an increase on the reliance on external debt by developing countries. The purpose of the study was to establish the determinants of Kenya's external debt sustainability. This was an analytical study that used time series or longitudinal approach, supplemented by cross-sectional comparisons. The study used data for the period from 1967 to 2011. The data was exposed to sensitivity analysis using regression analysis.

The study found that multiple regression equation for the period 1967 to 2011 related Kenya's debt sustainability to exports, GDP, external debt and domestic debt. From the regression model for the sampled period, the study found that there are four main determinants of Kenya's external debt sustainability which are GDP, exports, external debt and domestic debt. These four variables either influenced debt sustainability positively or negatively.

5.3 Conclusion

From the findings the following conclusions and policy implications can be drawn;

First the study concludes that exports, GDP, domestic debt and external debt are the main determinants of Kenya's external debt sustainability. However these accounts for only 75% and therefore the other determinants like foreign exchange, interest payments, imports, fiscal revenue, terms of trade, inflation, recession in industrialized countries, volatility in trade, poor economic management by the Kenyan government, poor investment strategies etc which accounts for 25% should also be taken into consideration.

Secondly, the study found that external debt and domestic debt negatively affects external debt sustainability in Kenya, it further revealed that GDP and exports positively influence the external debt sustainability in Kenya.

Lastly, debt sustainability is crucial for macroeconomic stability of Kenya and should therefore be addressed in an appropriate way. The reduction in debt stocks can only help to attain debt sustainability at a point in time, but long-term debt sustainability depends crucially on GDP and Exports performance and on the amounts and terms of new financing. As Gunter (2003) puts it "debt reduction alone is not enough to get development in the poorest countries back on rails", debt relief will provide long-term debt sustainability only if a country pursues sound economic, social and structural policies that stimulate economic growth and help attract increased investment especially from private sources.

5.4 Limitations of the Study

The study only considered four determinants of Kenya's external debt sustainability yet there are other factors that determine debt sustainability. This could have given different results. The other determinants of external debt sustainability not covered in this study include; foreign exchange, interest payments, imports, fiscal revenue, terms of trade, inflation, recession in industrialized countries, volatility in trade, poor economic management by the Kenyan government, poor investment strategies, unsustainable growth strategies, speculation and capital flights, increase in amortization due to a decline in maturities and erratic behavior of creditors as a result of institutional rules on exposure.

There were challenges encountered during the study. Data collection was the main challenge as the data was not readily available. The researcher did a lot of data mining so as to come up with the needed data. Secondary data was collected from the government data from various government agencies like KNBS and Central Bank. The study was also limited to the degree of precision of the data obtained from the secondary source. However the data was verifiable since it came from the Central Bank and KNBS publications and was also supplemented from data by IMF and the World Bank.

The study was limited to establishing the determinants of external debt sustainability in Kenya. The study was based on a 45 year study period from the year 1967 to 2011. This duration of the study captured periods of various economic significances such as booms and recessions and even political instability. This could therefore have influenced the results.

5.5 Recommendations for Further Research

Further research should be carried out on the determinants of external debt sustainability in Kenya to include the other variables not studied in this research. This should include foreign exchange, interest payments, imports, fiscal revenue, terms of trade, inflation, recession in industrialized countries, volatility in trade, poor economic management by the Kenyan government, poor investment strategies, unsustainable growth strategies, speculation and capital flights, increase in amortization due to a decline in maturities and erratic behavior of creditors as a result of institutional rules on exposure.

Since the study established that GDP and exports have a positive relationship with debt sustainability, then more resources should be geared towards increasing the percentage Kenya's exports and also improve on the country's GDP level. This will be useful in sustaining any external debt in Kenya.

REFERENCES

Agenor, P. R. & Montiel P. (1996). Development Macroeconomics, Princeton, New Jersey: Princeton University Press.

Ajayi, I. (1997). An analysis of external debt and capital flight in the severely indebted low income countries in Sub-Saharan Africa. IMF Working Paper No. 97/68.

Akyüz, Y. (2007). Debt sustainability in emerging markets: a critical appraisal. DESA Working Paper No. 61.

Alyward, L. & Thorne, R. (1998). An Econometric Analysis of Countries. Repayment to the International Monetary Fund. IMF Working Paper No. 98/32

Asiedu, E. (2006). Foreign direct investment in Africa: the role of natural resources, market size, government policy, institutions and political stability. World Economy 29 (1), 63–77.

Babbie, E. (2002). The basics of social research. Belmont CA: Wadsworth publishing.

Boyce, J.K. (1992). The revolving door? External debt and capital flight: a Philippine case study. World Development 20 (3), 335–345.

Boyce, J. & Ndikumana, L. (2001). Is Africa a net creditor? New estimates of capital flight from severely indebted Sub-Saharan African countries, 1970–1996. Journal of Development Studies 38 (2), 27–56.

Caliari, A. (2006). The new World Bank/IMF debt sustainability framework: a human development assessment. A CIDSE Background Paper.

Cassimon, D., & Vaessen, J. (2007). Theory, practice and potential of debt for development swaps in the Asian and Pacific Region. Economic Systems 31, 12–34.

Chauvin, N., & Kraay, A. (2005). What has 100 billion dollars worth of debt relief done for low–income countries? <http://papers.ssrn.com/sol3/papers.cfm?abstract id=818504&download=yes>.

Churchill, C. F. (1991). Moving Microfinance Forward: Ownership, Competition and Control of Microfinance Institutions. MicroFinance Network, 733 15th St. NW, Suite 700, Washington, D.C. 20005.

Claessens, E. (1990). The debt Laffer curve: some estimates. World Development 18 (12), 1671–1677.

Claessens E. & Diwan I. (1989). Liquidity, Debt Relief and Conditionality: in Dealing with the Debt Crisis, (Washington: World Bank).

Claessens, E., Detragiache, R. K., & Peter W. (2000). Analytical Aspects of Debt Problems, in External Finance for Low-Income Countries (Washington: International Monetary Fund).

Clements, B., Bhattacharya, R., & Nguyen, T.Q. (2003). External debt, public investment, and growth in low-income countries. IMF Working Paper, 03/249.

Cohen, D. (1993). Low investment and large LDC debt in the 1980s. American Economic Review 83 (3), 437–449.

Cohen, D. (1996). The Sustainability of African Debt. World Bank Policy Research Department Working Paper No. 1691

Cuddington, J.C. (1996). Analyzing the sustainability of fiscal deficits in developing countries.

Detragiache, E. & Spilimbergo, A. (2001). Crises and Liquidity: Evidence and Interpretation. IMF Working Paper No. 01/2.

Easterly, W., (2002). How did heavily indebted poor countries become heavily indebted?

Reviewing two decades of debt relief. World Development 30 (10), 1677–1696.

Easterly, W., (2005). What did structural adjustments adjust? The association of policies and growth with repeated IMF and World Bank adjustment loans. Journal of Development Economics 76, 1–22.

Eisner, R. & Paul J. P. (1984). A new view of the Federal Debt and Budget Deficits. American Economic Review, 74(1): 11-29.

Ferrarini, B. (2008). Proposal for a contingency debt sustainability framework. World Development 36 (2), 2547–2565.

Fosu, A. (1999). The external debt burden and economic growth in the 1980s: evidence from Sub-Saharan Africa. Canadian Journal of Development Studies 20 (2), 307–318.

GulamHussein, M. J. (1987). External shocks, adjustment and debt problem in Kenya, 1974-1986. A Research paper for the degree of Masters of Arts in Economics: University of Nairobi.

Gumisai, M. (2001). Whither the debt? Despite HIPC, African countries still struggle with heavy debt payments. Africa Recovery 15 (3), October.

Gunter, B.G., (2003). Achieving Long-Term Debt Sustainability in All Heavily Indebted Poor Countries (HIPCs), Discussion Paper for the G-24 XVI Technical Group Meeting, Trinidad and Tobago, February 13-14, 2003.

Gupta, K. L. (1992). Budget deficits and economic activity in Asia, USA and Canada: Ed. Routdledge

Greiner, A. & Semmler W. (1999). An Inquiry into the Sustainability of German Fiscal Policy: Some Time-Series Tests. Public Finance Review, 27(2): 220-36.

Hamilton, J.D. & Flavin, M.A. (1986). "On the Limitations of Government Borrowing: A Framework for Empirical Testing", The American Economic Review, 76 (4), 808-19.

IMF (2000). Debt- and reserve-related indicators of external vulnerability. http://www.imf.org/external/np/pdr/debtres/debtres.pdf>.

IMF (2002). Assessing Sustainability. SM/02/06. May 28. International Monetary Fund, Washington, DC.

IMF, World Bank, (2006). Applying debt sustainability framework for low-income countries post debt relief. <http://www.imf.org/external/np/pp/eng/2006/110606.pdf>.

Iyoha, M. (1999). External debt and economic growth in Sub-Saharan African countries: an econometric study. African Economic Research Consortium Research Paper 90.

Judson, R.A., & Owen, A.L., (1999). Estimating dynamic panel data models: a guide for macroeconomists. Economic Letters 65, 9–15.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2008). Governance matters VIII: aggregate and individual governance indicators 1996–2008. World Bank Policy Research Working Paper, 4978.

Loser, C.M. (2004). External debt sustainability: guidelines for low- and middle income countries. G-24 Discussion Paper Series. <http://www.unctad.org/en/docs/gdsmdpbg2420042 en.pdf>.

Manasse, P., Roubini, N. (2009). Rules of thumb for sovereign debt crises. Journal of International Economics 78, 192–205.

Manasse, P., Roubini, N., & Schimmelpfennig, S. (2003). Predicting sovereign debt crises. <http://www.vfs.ca/papers/schimmelpfennig.pdf>.

Manundu, M. (1984). Debt Management Strategies for Kenya: Summary of findings of a workshop organised by Friedreich Ebert Foundation in November.

Martin, M. (2004). Has debt relief made low-income countries' debt sustainable? Debt relief international; conference on debt relief and global governance, Rotterdam

Meltem U., & Serhan O. (2011). The Solvency Ratio of External Debt (SRED) as an Indicator of Debt Crisis: The Case of Turkey Int. J. Eco. Res., 2(1), 166-172

McFadden, D., Eckaus, R., Feder, G., Hajivassiliou A., V., & O'Connell, S. (1985). Is There Life after Debt. An Econometric Analysis of the Creditworthiness of Developing Countries. In Smith, G. W. & Cuddington, J. T. (1985). editors, International Debt and the Developing Countries.

Minsky, H. (1986). Stabilizing an Unstable Economy. New Haven, CT: Yale University Press.

Muhanji, S., & Ojah, K. (2011). External shocks and persistence of external debt in open vulnerable economies: the case of Africa. Economic Modelling 28,1615–1628.

Mutiso, C. M. (2001). "Determinants of External Debt in Kenya" A Dissertation paper for the degree of Masters of Arts in Economics: University of Makerere.

Mwega, F., & Rwegasira, D. (2003). Public debt and macroeconomic management in Sub-Saharan Africa, United Nations.

Ndikumana, L. (2004). Additionality of debt relief and debt forgiveness, and implications for future volumes of official assistance. International Review of Economics and Finance 13, 325–340.

Ndikumana, L., & Boyce, J. (1998). Congo's odious debt: external borrowing and capital flight in Zaire. Development and Change 29 (2), 195–215.

Ndikumana, L., & Boyce, J. (2003. Public debts and private assets: explaining capital flight from Sub-Saharan African countries. World Development 31(1), 107–130.

Ng'eno, N. K. (1991), "The external debt problem of Kenya" A paper presented at the AERC Workshop in Nairobi, in May.

Ocampo, J.A. (2005), Beyond Reforms: Structural dynamics and macroeconomic vulnerability. Stanford university press.

Ochieng, J. S. (1991), "Determinants of the external debt burden: An analysis of Kenya, 1970- 1989". A Research paper for the degree of Masters in Economics: University of Nairobi.

Pattillo, C., Poirson, H., & Ricci, L. (2002). External debt and growth. IMF. <http://www.wider.unu.edu/conference/conference 2001 2/parallel%20papers/2 / pattillo.pdf>.

Ponta, A.F. (1996). A sustentabilidade-da endividamento externo no Brasil: uma análise de co-integração. Pesquisa e Planejamento Econômico. 26(3): 399-416. Rio de Janeiro.

Reinhart,C., Rogoff, K., & Savastano, M. (2003). "Debt Intolerance". Brookings Papers on Economic Activity, forthcoming.

Rocha, F. & Sigfried, B.(2000). Present Value Tests of the Brazilian Current Account. Revista de Economia Aplicada São Paulo.

Sachs, J. (1989). The Debt Overhang of Development Countries, in Debt Stabilization

and Development: Essays in Memory of Carlos Diaz Alejandro (Basic Blackwell: Oxford).

Sachs, J. (2002). Resolving the Debt Crisis of Low-Income Countries, Brookings Papers on Economic Activity, 1: 2002 (Harvard University).

Sachs, J., & Williamson, J. (1985). External debt and macroeconomic performance in Latin America and East Asia. Brookings Papers on Economic Activity 2,523–573.

Sawada, Y. (1994). Are The Heavily Indebted Countries Solvent? Tests Of Intertemporal Borrowing Constraints. Journal of Development Economics. 45(2): 325-37.

Semmler, W., & Sieveking, M. (2000). Critical debt and debt dynamics. Journal of Economic

Senhadji, A. (1997). Sources of debt accumulation in a small open economy. IMF Working Paper, 97/146.

Senhadji, A. (2003). External shocks and debt accumulation in a small open economy. Review of Economic Dynamics 6, 207–239.

UNCTAD/UNDP, (1996).Trade and development report. Geneva, United Nations.

Underwood (1990). "The Sustainability of International Debt". Manuscript, The World Bank.

Wooldridge, J. (2002). Econometric analysis of cross section and panel data. The MIT Press Cambridge, MA, London, England.

Yang, J., & Nyberg, D. (2009). External debt sustainability in HIPC completion point countries: an update. IMF Working Paper, 09/128.

APPENDIX I

1967-2011 DATA ON DEBT SUSTAINABILITY, GDP, EXPORTS, EXTERNAL DEBT AND DOMESTIC DEBT

YEAR	Debt sustainability (us$)	GDP (US$)	Exports (US$)	External debt (US$)	Domestic debt (us$)
1967	27,116,000.00	1,232,559,507.00	585,638,718.60	429,876,000.00	360,779,855.60
1968	29,772,000.00	1,353,295,459.00	604,562,587.40	406,853,000.00	362,179,855.20
1969	32,084,000.00	1,458,379,417.00	635,665,789.60	455,687,000.00	387,275,405.30
1970	50,016,000.00	1,603,447,359.00	659,847,675.20	477,531,000.00	505,430,598.00
1971	52,445,000.00	1,778,391,289.00	666,567,945.60	497,896,000.00	663,852,434.60
1972	48,347,000.00	2,107,279,157.00	671,414,532.40	581,162,000.00	770,040,292.00
1973	65,210,000.00	2,502,143,759.00	678,946,451.30	844,708,000.00	1,223,338,196.00
1974	97,589,000.00	2,969,958,812.00	680,794,309.00	1,152,689,000.00	1,485,664,426.00
1975	151,026,000.00	3,259,346,415.00	687,984,065.20	1,290,223,000.00	1,741,950,569.00
1976	169,273,000.00	3,474,544,468.00	811,387,874.90	1,493,329,000.00	1,826,459,435.00
1977	325,968,000.00	4,494,379,307.00	1,222,488,447.00	1,658,884,000.00	2,358,469,895.00
1978	215,713,000.00	5,303,737,169.00	1,056,358,528.00	2,173,736,000.00	3,426,878,521.00
1979	299,348,000.00	6,234,390,279.00	1,120,221,226.00	2,720,996,000.00	4,058,973,987.00
1980	433,462,000.00	7,265,312,883.00	1,430,691,610.00	3,386,807,000.00	4,969,619,809.00
1981	485,008,000.00	6,854,490,191.00	1,192,705,387.00	3,228,163,000.00	4,945,833,912.00
1982	496,869,000.00	6,431,594,078.00	1,045,748,044.00	3,367,820,000.00	5,086,420,048.00
1983	515,004,000.00	5,979,205,950.00	983,960,004.60	3,628,281,000.00	4,518,921,564.00
1984	578,690,000.00	6,191,426,332.00	1,081,735,481.00	3,511,512,000.00	4,872,337,027.00
1985	621,201,000.00	6,135,040,561.00	991,047,004.50	4,180,581,000.00	4,928,468,430.00
1986	677,334,000.00	7,239,145,307.00	1,219,358,745.00	4,602,807,000.00	5,873,057,519.00
1987	691,354,000.00	7,970,816,494.00	962,533,533.10	5,782,937,000.00	6,348,636,882.00
1988	737,579,000.00	8,355,380,879.00	1,072,738,645.00	5,808,995,000.00	6,622,152,857.00
1989	708,780,000.00	8,271,729,986.00	1,001,484,184.00	5,888,725,000.00	6,470,140,759.00
1990	790,807,000.00	8,590,574,252.00	1,090,170,385.00	7,055,136,000.00	7,220,544,957.00
1991	719,326,000.00	8,152,105,054.00	1,185,348,191.00	7,453,132,000.00	7,092,343,818.00
1992	670,214,000.00	8,220,718,083.00	1,108,488,833.00	6,897,911,000.00	7,169,170,726.00
1993	631,955,000.00	5,751,786,610.00	2,340,662,549.00	7,111,365,000.00	4,269,340,149.00
1994	881,287,000.00	7,148,143,144.00	2,651,035,355.00	7,124,215,000.00	5,751,342,205.00
1995	904,406,000.00	9,046,331,923.00	1,912,302,269.00	7,309,044,000.00	7,896,196,303.00
1996	837,692,000.00	12,045,836,992.00	2,069,857,935.00	6,813,620,000.00	8,037,807,863.00

1997	656,756,000.00	13,115,729,422.00	2,061,269,604.00	6,465,076,000.00	9,088,927,958.00
1998	662,621,000.00	14,093,228,425.00	2,017,022,299.00	6,823,973,000.00	9,563,141,516.00
1999	692,609,000.00	12,896,050,252.00	1,764,109,686.00	6,474,842,000.00	9,063,209,587.00
2000	590,745,000.00	12,691,278,914.00	1,782,219,670.00	6,140,753,000.00	8,587,722,754.00
2001	482,628,000.00	12,986,519,857.00	1,891,369,820.00	5,515,448,000.00	8,151,137,689.00
2002	529,551,000.00	13,149,263,399.00	2,161,949,875.00	6,122,458,000.00	8,705,176,970.00
2003	578,983,000.00	14,903,634,448.00	2,412,218,824.00	6,862,989,000.00	9,600,084,489.00
2004	356,011,000.00	16,096,109,637.00	2,725,957,989.00	6,916,331,000.00	10,786,969,987.00
2005	538,130,000.00	18,737,922,545.00	3,462,129,881.00	6,427,522,000.00	12,055,361,548.00
2006	427,863,000.00	22,504,084,548.00	3,516,244,020.00	6,622,076,000.00	14,413,420,174.00
2007	453,361,000.00	27,236,739,896.00	4,132,199,788.00	7,461,880,000.00	17,477,994,049.00
2008	411,050,000.00	30,519,165,009.00	5,039,785,012.00	7,548,944,000.00	21,279,765,994.00
2009	385,449,000.00	30,580,367,979.00	4,502,281,578.00	8,181,960,000.00	22,434,504,600.00
2010	398,795,000.00	32,198,151,217.00	5,224,735,999.00	8,400,360,000.00	27,323,513,498.00
2011	369,827,000.00	33,620,684,016.00	5,262,768,745.00	8,667,236,000.00	30,311,727,053.00