Long Term Sustainability of Kenya's Debt under Different Scenarios

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Research Paper 406

Bringing Rigour and Evidence to Economic Policy Making in Africa

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Abstract

The fast-paced accumulation of debt today, at least from the Kenya government's standpoint, is justified by the returns of the debt-financed investments. The rising rate of debt accumulation and debt service triggers the fear that the debt ratios could exceed the set sustainability thresholds under economic stress, raising the probability of explosive debt dynamics, loss of market access, refinancing problems, and possible debt distress. This study undertook to identify the likely effect of economic shocks, such as depressed long-term growth, contraction of export earnings, rising borrowing costs and elevated primary balance on sustainability of debt. Using a Debt Sustainability Framework, the study found that persistently low economic growth, including negative shock to exports, poses the greatest risk to sustainability of external debt. Rising debt service on external debt and domestic debt could strain foreign exchange earnings and local revenues in the medium to long term. Suggested solutions include raising growth, moderating debt accumulation and reducing the current account deficit through investment in the exports sector.

1.0 Introduction

1.1 OVERVIEW

A growing concern in the world today is the rising indebtedness of low-income countries, which continues to raise critical questions on debt sustainability. Several African countries, such as Kenya, are facing mounting debts due to reliance on debt financing to jolt weak or less-than-satisfactory growth rates. Governments with low levels of income and limited revenue collections face difficult choices if they need to undertake deficit financing to increase economic growth. The most common sources of deficit financing are domestic borrowing, concessional borrowing and limited amounts of commercial borrowing. Ghana and Kenya, for example, have issued sovereign bonds, reflecting improved access to international debt markets but also growing enthusiasm about their fast-changing economic performance.

However, for some of the countries, economic conditions have unexpectedly changed, underscoring palpable debt solvency issues, which underlines the need to address the debt sustainability issues. The primary concern is whether a country can repay its debt at a certain point in future without upsetting the future structure of income and revenue. The implication of debt sustainability is that keeping debt-financed fiscal deficits for long periods could require corrective fiscal adjustment, a rise in interest rates, reduced investment and decline in economic output. In extreme cases, unsustainable debts could fuel self-propelling debt dynamics, and particularly investor confidence erosion, a rise in risk premium and borrowing interest rates, reduced investment, and lower output. This suggests that fiscal authorities should ensure that debt is sustainable or that the current market value of debt stock is equal to the discounted sum of expected future surpluses, and that the country is able to service maturing debt obligations (Wilcox, 1989; Hamilton and Flavin, 1986).

It is noteworthy that Kenya's rate of debt accumulation has accelerated, driving the nominal total debt-to-GDP ratio to 53% by 2014, equivalent to Ksh 2.844 trillion (Government of Kenya, 2015b). Additionally, relative to historical debt trends prior to 2012, four general properties can be identified on Kenya's current debt stock. One, the share of external commercial debt is rising, implying substitution, at least from the governments standpoint, of costly domestic debt for cheaper external commercial loans to finance high-return public infrastructure. Two, debt service requirements

are rising; for example, interest payments on external debt have doubled on account of the two 5-year and 10-year sovereign bonds, with a total value of US$ 2.75 billion (Government of Kenya, 2015b). Three, the cost of domestic borrowing has risen apparently as a result of monetary tightening in mid-2015. Four, according to the 2015 Budget Summary, fiscal deficit has risen to 8.7% to GDP and could persist (Government of Kenya, 2015d).

All these factors, including the size of Kenya's debt and falling fiscal space, strongly suggest borderline debt vulnerabilities for Kenya. Substantial risks to debt sustainability could arise from current account deficit and real growth shocks. The rising rate of debt accumulation and debt service triggers the fear that debt ratios could exceed the set sustainability thresholds, raising the probability of explosive debt dynamics, loss of market access, refinancing problems and possible debt distress. This paper undertakes to identify the likely debt stress points by simulating a set of sensitivity tests comprising long-term low growth, contraction of export earnings, and rising borrowing costs. Such an exercise, denoted Debt Sustainability Assessment (DSA), provides an empirical correspondence providing a government with tools to design any needed fiscal adjustment.

Debt sustainability can be evaluated through historical time series tests of theoretical inter-temporal budget constraint pioneered by Hamilton and Flavin (1986) and through forward-looking debt sustainability assessments. Debt sustainability assessments involve computation of forward-looking present value of debt ratios, and present value of debt service ratios, which are evaluated against predetermined debt threshold indicators (Chuhan, 2005; Burnside, 2005a, b; IMF, 2013). Relative to the historical analysis, forward-looking debt sustainability assessments provide the advantage that the forward debt and macroeconomic forecasts and computed debt ratios can be used to design appropriate borrowing and debt service policies.

Thus, debt sustainability assessments are quite useful for fiscal management and have regularly been applied to assess Kenya's debt.[1] The study uses the IMF/World Bank Debt Sustainability Framework to assess the sustainability of the projected debt profile. Several debt sustainability indicators, such as the present value of debt-to-GDP ratio, are computed and examined against pre-determined threshold indicators for Kenya to determine if the country could face debt distress in future or not.[2] The analysis also involves stress tests or simulation of negative shocks to the macroeconomic and debt profile. The analysis is done both for the external debt and

1 Most notable analyses of fiscal sustainability in Kenya are the standard debt sustainability assessments (DSA) carried out by the International Monetary Fund (IDA/IMF, 2008; IDA/IMF, 2009a; Government of Kenya, 2010). We use the IMF/World Bank DSA template to conduct assessment of debt sustainability under sound assumptions of future economic performance, and restrained by historical performance and presence of negative shocks.

2 The thresholds are based on World Bank CPIA. According to Reinhart et al. (2003), many standard debt thresholds do not accurately provide the correspondence between the ratios and solvency, which is the ability of a country to generate adequate primary surpluses or trade surpluses in future to repay debt. Thus, countries could actually default at lower ratios than predicted by the thresholds.

the total public debt, which includes domestic debt, owing to the fact that excessive domestic debt can drastically affect servicing of external debt obligations.

The following section states the justification, research questions, as well as the objectives of this study. This is followed by a presentation of the macroeconomic and fiscal issues. Section 2 presents the literature review while section 3 discusses the methodology, providing a critique of the proposed methodology and its implications for the results. Section 4 outlines the data sources and projections, while section 5 presents the results. Section 6 provides the conclusion and recommendations.

1.2 Justification and Research Questions

Since 2003, the government's fiscal trends mirror its relentless effort to finance inflexible and growing expenditures with limited internal revenues and external flows. The economic recovery of 2003-2007 was marked by government investment in public infrastructure to spur growth, create employment and reduce poverty. However, the 2008 electoral violence, followed by the global financial crisis was quite disruptive to the envisaged growth path. Consequently, fiscal expansion in the period 2008-2010 to overcome the negative effects of the 2008 electoral disturbances and the global financial crisis was paid for through debt and monetary expansion.

By 2013, the Vision 2030 growth target of 10% (Government of Kenya, 2007) had already been missed. Thus, accelerated borrowing and investment in infrastructure since 2013 was fairly consistent with the need to nudge higher economic growth. It is noteworthy that Kenya's rate of debt accumulation has accelerated, driving the nominal total debt-to-GDP ratio to 53% by 2014 (Government of Kenya, 2015b). Even though the government's latest debt sustainability assessment rules out any risk of debt distress, some fiscal trends are quite worrying. First, interest rate payments on external debt have doubled on account of debt service on US$ 2.75 billion sovereign debt, and costly domestic borrowing (Government of Kenya, 2015a). Second, potent wage pressures, rising infrastructure spending, and county spending demands, could sustain fiscal deficit close to 9% of GDP. Third, the trade deficit equivalent to 31% of GDP will likely not fade away soon, as growth in exports has stagnated. Fourth, the current government policy contains inadequate policy commitment to curb the growing fiscal deficit and narrowing 'fiscal space'.

The fourth point, which implies limited enforceable commitment to generate fiscal surpluses in the foreseeable future, is quite telling for sustainability. Instead, the current fiscal posture presumes that the growth effects of debt-financed infrastructure investment will somehow lead to sustainable debts. But there is no certainty that the growth effects will raise enough revenue and foreign exchange earnings to help service debt obligations. Thus, rising debt and weak macroeconomic fiscal environment strongly suggests borderline debt vulnerabilities for Kenya.

The purpose of this study is to assess whether current government debt accumulation and debt service programme is sustainable in the long term when subjected to a variety of potential adverse economic shocks. The study specifically seeks to answer the following questions: firstly, what is the effect on external debt

sustainability of low economic growth combined with worsening current account? Secondly, does a combination of low growth and worsening terms of borrowing increase the risk of external debt distress? Thirdly, is the total public debt, including domestic debt, sustainable under adverse economic shock? Only a few studies have attempted these questions, and the few that do, do not apply the new government debt policy on future debt dynamics and sustainability. The study will be useful for practical public debt management policy advice.

1.3 Objectives

The accelerating rate of debt accumulation and debt service raises the fear that debt ratios could exceed the set thresholds and the probability of explosive debt dynamics and debt distress. Using a debt accumulation and service programme premised on the 2015 medium term debt strategy, denoted as the baseline scenario, the study seeks to identify the effect on sustainability of certain extreme shocks to growth, and borrowing costs. In particular, the study:

(a) Examines the effect of low long-term real GDP growth and persistent adverse borrowing terms on debt ratios;

(b) sssesses the impact of a combination of low growth and worsening export growth on debt ratios; and

(c) evaluates sustainability of combined total public debt, including domestic debt.

1.4   Public Debt Profile

1.4.1 Public debt trends

Kenya experienced low growth but with a few periods of high economic growth in the mid-1960s and early 1970s. Between 1964 and 1972, the economy grew at an average rate of about 7%, but growth decelerated in the mid-1970s as a result of the global oil shocks (World Bank, 1975). Economic growth remained reticent in the 1980s and then declined steeply in 1993-94 owing to mismanagement, triggered by the hotly contested multi-party elections in 1992 (Oyugi, 1997). In the background, the execution of the destabilizing Goldenberg corruption scandal was already underway, leading to erosion of macroeconomic stability as seen in the unprecedented rise in inflation. Interest rates soared in this period relative to the 1980s. Growth of exports was quite erratic and the current account deficit deteriorated in the period 1991-2000, rising to 9.3% of GDP relative to 5% of GDP in 1980-1990. Economic growth averaged 4.2% in the 1980s but declined to about 1.9% in 1991-2000.

     The period 1990-1995 represented marked risk of debt distress for Kenya. Following the 1992 elections, debt exceeded GDP in 1993. The country negotiated debt rescheduling in 1994, but the pressure on debt could hardly go away as the country's economy further contracted in late 90s to early 2000. The ratios of debt-to-

GDP for the period 2000-2005 were strikingly high as shown in Table 1. Even though Kenya did not qualify for the Highly Indebted Poor Countries debt relief initiative, the country in 2000 and 2004 rescheduled US$ 650 million under Paris Club terms, effectively earning the country substantial debt relief. Other sources of debt relief for Kenya in post-1998 period include a few debt cancellations and bilateral debt swaps (such as from Italy).

To address the economic turmoil in the 1990s, various economic reforms were put in place to bring macroeconomic stability and debt sustainability. With most structural reforms either underway or bearing fruit, the new government in 2003 initiated gradual fiscal expansion under the Economic Recovery Strategy. Part of the strategy was to improve tax collections. Reforms in tax administration improved tax collections. Indeed, the period 2003-2007 saw stable revenue-to-GDP ratios of about 20%. Alongside rising revenue effort, government expenditure as a share of GDP has changed since early 2000 relative to the last five years. Indeed, expenditure has risen from 21.40% of GDP in 2011 to 29.15% in 2014. As a result, fiscal deficit has risen over the years, for example from 5.48% in 2011 to 8.58% in 2014. This particular rise, as noted above, is attributable to elevated fiscal expansion to counter the negative growth effects of the 2008 electoral violence, the global financial crisis, and to support higher economic growth.

Since about 2012, rising expenditure demands have fuelled growth of public debt. Total debt grew by 9.1% in 2012, further rising to 16.7% in 2013. From June 2013 to June 2014, total debt rose by 28%. By end of June 2015, Kenya's public debt amounted to Ksh 2.844 trillion, comprising of Ksh 1.420 trillion domestic debt and Ksh 1.423 trillion external borrowing (Government of Kenya, 2015a, b). External debt has grown by an average 30% in the last three financial years, while domestic debt grew by 16%. Commercial debt rose by 298% between June 2013 and June 2014, from Ksh 58.928 billion (largely on account of US$ 600 million syndicate loan) to Ksh 234.799 billion in June 2014 (Government of Kenya, 2015a). Data from the government shows that cumulative commercial borrowing amounted to Ksh 276.937 billion by June 2015[3] (Government of Kenya, 2015b).

1.4.2 Structure of Kenya's debt

Domestic and external debts are the primary components of Kenya's debt. Total debt may embrace public guarantees and realized contingent liabilities. Domestic debt consists of government securities such as 91-day, 182-day, 364-day Treasury bills and benchmark and infrastructure bonds, longer tenor bonds, recapitalization bonds, payments arrears and overdraft facilities with the Central Bank of Kenya, and contingent liabilities. Long term debt contributes the largest proportion of domestic debt, equivalent to about 75%, while short term debt contributes about 24.7% of

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3 The government floated its first sovereign bond in June 2014 in two batches, a 10-year US$ 2 billion bond and a 5-year US$ 500 million bond. The five year bond was later increased to US$ 750 million by the end-of placement period in November 2014.

total outstanding domestic debt. According to the latest debt report (Government of Kenya, 2014b), domestic bonds with 10-30 year tenor accounted to Ksh 426.231 billion or 35.1% of the total outstanding domestic debt, while those with shorter tenor than 10 years contributed 65.9% of total domestic debt.

Domestic debt includes special bonds, mainly benchmark and infrastructure bonds issued since 2009. By 2014, the share of benchmark and infrastructure bonds together was 50% of the outstanding government bonds (Government of Kenya, 2014b). The combined effect of the benchmark and infrastructure bonds and more active reform of the bond issuance have helped flip the ratios of Treasury bills to Treasury bonds from 70:30 in 2001 to 25:75 by June 2014, and equally boosted secondary trading of government bonds and the yield curve (Government of Kenya, 2014b).

Additional characteristics of domestic debt include: domestic interest payments comprise about 12-13% of revenue, 9.2% of total government expenditure, and about 2.6% of GDP; bonds are actively traded at the Nairobi Securities Exchange, with average turnover of Ksh 35 billion per month since early 2013; more than half of all outstanding bonds have maturities of at least 6 years; and bonds maturity above 10 years comprise above 30% of total outstanding domestic debt by end-2014.

Table 1: Public debt stock (Ksh billion)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Domestic Debt	349.3	382.0	418.7	474.9	589.4	712.2	811.5	954.7	1,167.4	1352.386
Total External Debt	433.5	418.5	423.7	491.9	555.0	646.0	743.4	792.0	979.3	1280.879
Bilateral	154.5	148.3	147.5	169.6	191.1	226.7	250.3	249.4	272.6	367.486
Multilateral	257.5	249.4	257.2	301.1	341.7	396.6	448.0	472.8	544.0	640.986
Commercial Debt	1.5	0.9	0.3	0.0	0.0	0.0	25.3	54.7	146.9	255.868
Export Credits	20.0	19.9	18.8	21.2	22.1	22.7	19.9	15.0	15.8	16.340
Total Public Debt	782.8	800.5	842.3	966.8	1144.4	1358.3	1555.0	1727.1	2,092.0	2633.264
Mean Exchange Rates	75.55	72.10	67.32	69.18	77.35	79.23	88.90283	84.71	85.71	90.40

Source: Government of Kenya (2015a, c); Government of Kenya, (2014b).

External debt consists of debt from official and multilateral lenders, foreign commercial debt, and export credit. Most of the multilateral and bilateral debt has long maturity, significant grace periods, and low interest rates. Thus, Kenya's external debt is highly concessional.[4] The main multilateral creditors are the International Development Association (IDA), which holds 43.6% of all external debt, followed by the African Development Bank (16.6% of total external debt) and then IMF with about 7.9% of total external debt. Among the bilateral creditors, China holds 12.5% of total external debt. Japan and France hold about 7%, followed by Germany with lent funds to government accounting for about 2.6% of total external debt (Government of Kenya, 2015a). By June 2014, multilateral debt contributed 52.1% of total external debt, bilateral 21.8%, commercial debt 20.6%, and the rest in form of export and supplier credit.

Contingent liabilities mainly take the form of loan guarantees to state corporations or private entities, and debt issued by state corporations. The stock of explicitly guaranteed debt rose from Ksh 43.537 billion in June 2013 to Ksh 45.221 billion by June 2014. Some of the guarantees relate to old debt taken in early 1990s. The government, so far, has paid to creditors Ksh 34 billion in interest and principal on behalf of defaulting public institutions since 1991. Some of the institutions have made reimbursements to the government amounting to Ksh 6.823 billion by June 2014. Contingent liabilities arose through 'public-private partnership' agreements in the infrastructure sector, such as the energy sectors.

Involvement of risk management institutions, such as the World Bank by offering partial risk guarantees for payments on large energy projects, have helped reduce the full amount of guarantees, in some cases down to 25% of the total guarantees (Government of Kenya, 2015a). The most likely source of direct guarantees in the medium to long-term will include borrowing by county governments, for which the National Government should always guarantee. Apart from explicit guarantees, pension liabilities and wage liabilities could put unexpected strain on public finances.

1.4.3   Government's debt strategy and terms of public debt

The changing proportions of public debt stock illustrates how government borrowing policy has changed since 2010. For example, around the years 2010 and 2011, the government favoured domestic borrowing relative to other sources of financing, borrowing about 70% in domestic borrowing (Government of Kenya, 2011). Concessional loans were similarly the largest component of external borrowing, contributing about 70%, with bilateral loans taking up the largest part of the remaining 30%. Since then, the most consistent change is the decline in concessional loans as a share of total debt, from 43.8% in June 2011 to 34.8% by June 2014. Another major development is the increased reliance on government-to-government type of debt mainly on non-concessional or commercial terms. Some portion of the Standard Gauge Railway loans is sourced from the Exim Bank of China (Government of Kenya, 2015a).

4 Concessional loans are those loans with a minimum grant element of at least 35%.

The 2015 government's debt strategy favours low-interest external commercial borrowing compared to concessional debt from official and international institutions or domestic borrowing (Government of Kenya, 2015a). According to the 2015 Medium Term Debt Strategy, external commercial borrowing would be applied to only projects with high rates of return, where alternative concessional borrowing is absent or domestic financing is costly.[5] The current debt strategy also identifies potential rise in debt-creating government guarantees from joint investment ventures with private firms. Other sources of contingent liabilities include the unfunded civil service pension liabilities. This debt plan excludes the provisions for loan guarantees to county governments. In sum, the current borrowing posture can be summarized as follows: that the government will seek external borrowing on concessional terms, prudent domestic borrowing to minimize crowding out effects, and cautious issuance of external loan guarantees so as to minimize contingent liabilities.

The latest terms of debt and risk characteristics are summarized in Table 2. External debt has longer maturities averaging 12.8 years, even though still lower than 18.1 years maturity reported in June 2014, or 33.7 years by June 2013. Longer maturities are associated with lower refinancing risk. Rising commercial loans are associated with declining average grace periods. For instance, average grace period has declined from 8 years in 2013 to 6.2 years by June 2014. Average interest rate on external loans has also increased from 1.2% by June 2013 to slightly above 2% in June 2015. Additionally, though most interest rate payments of the composite 2.2% of GDP was largely due to domestic interest payments, interest payments on external loans has doubled between 2014 to 2015 on account of payments on the sovereign bond. Interest payments on the US$ 2.75 billion sovereign bond will average about Ksh 17 billion in the medium term government forecasts, a little more than half of total external interest payments.

Interest rate risks are minimal, given that most of the debt is contracted on fixed interest rate terms. However, refinancing risks for most domestic debt and foreign exchange risks still remain for about 47% of foreign debt. Refinancing risk could arise owing to redemptions of treasury bills, infrastructure bonds, sovereign bonds with bullet payment, and concessional bonds if the repayment profile is not well structured. In sum, the most potent risks to Kenya's debt is foreign exchange risk, absolute amount of debt service, and negative economic shocks.

Preliminary information shows that the government will borrow at least US$ 1.1 billion externally every year. The concessional loans will be priced at 0.75% fixed interest rate, with 40 year tenor and a grace period of 10 years. Some type of bilateral loans and supplier credits will feature a fixed 2.5% interest rate, 20 year maturity, and a grace period of 5 years.

Table 2: Risk and cost characteristics of debt (2015)

5 Government's own assessment shows that country debt will be sustainable in the medium to long term.

	External debt	Domestic debt	Total Public Debt
Cost of debt			
Interest payments (% of GDP)	0.4	1.8	2.2
Weighted average interest rate	2.6	6.2	4.2
Average time to maturity (years)	12.8	5	8.4
Refinancing risk			
Debt maturing in 1 year (% GDP)	0.5	3.9	4.4
Average time to re-fixing	12.8	5	8.4
Interest rate Risk			
Debt re-fixing in 1 year (% of total)	2.4	13.4	8.6
Fixed rate debt	100	100	100
Foreign exchange risk			
Foreign debt (% of total)	47	0	47

Source: Government of Kenya (2015a)

1.4.4 Political economy and fiscal management

It is possible to link Kenya's fiscal and debt profile with fairly discernible political economy events. Interestingly, political events since independence have defined the levels of expenditure and fiscal deficit, but had limited effect on revenue trends. Four general political and economic episodes can be identified. Kenya's fiscal profile in early post-independence period through 1972 was largely influenced by the desired attainment of three economic goals, namely rapid economic growth; equitable distribution of development benefits, and the transfer of control over productive resources fully to Africans (World Bank, 1975). During this first discernible episode, and supported by fairly prudent fiscal management and favourable economic growth, the country achieved fiscal surpluses in some years, increased development expenditure about seven times and reduced reliance on foreign aid and external debt in 1960s and 1970s. But, there was an exception in 1970 when the Government sought to overtly expand its expenditure in order to deal with unemployment and poverty. This was characteristically Keynesian approach to economic management.

Despite the buoyant economic performance, in hindsight, various challenges stood in the way of future sustained economic development. These include the government's temptation to combat unemployment through inflationary measures; the risks embedded in the "Kenyanization" programme and import substitution; and the insidious and unforeseen external shocks. The initial period of fiscal tranquillity was quickly followed by rising budget deficit and inflationary pressures amid intensifying balance of payment problems triggered by the 1979 oil shocks and the collapse of commodity prices (Kiptui, 2005; Muriithi and Moyi, 2003; World Bank, 1975). Thus, the second major episode was marked by the introduction of

structural adjustment programmes, growing political repression triggered by the 1982 coup, and the agitation for multiparty politics in the late 1980s and early 1990s. The 1990s are particularly remembered for the most excessive mismanagement of the economy since independence. In a bid to win the 1992 elections, the ruling party resulted to printing money to finance its campaigns due to the formidable threat of the opposition. The ruling party won, but the economic implications in terms of runaway inflation, cost of borrowing, and breakdown in donor relations nearly caused a total collapse of the economy. Incipient large scale corruption further depleted or misallocated scarce resources, which further placed a negative premium on growth and revenues.

The country's leverage soared as debt-to-GDP ratio peaked at 161% between 1992 and 1993 (Wagacha, 1999). In the shadow of governance weaknesses, inflexible expenditures, volatile revenues and limited external flows, economic growth declined from 4.3% in 1980-1989 to 2.2% in 1990-2000. This degraded stability of important economic indicators such as the real interest rates and real exchange rates. The government also sought external debt rescheduling in 1994 and again in 2004, clearly pointing to the country's underlying debt risk (Government of Kenya, 2008). Extensive fiscal adjustment measures were implemented to correct the problem and to bring the economy back on a sustainable path (Government of Kenya, 1996). These reforms included debt rescheduling, tax reforms, and public sector reforms marked by retrenchment of public sector workers. The government also spent valuable resources in consolidating and restructuring the weak banking sector.

The third episode coincides with the coming to power of the new government following the 2002 elections. The Government adopted the Economic Recovery Strategy, which involved ambitious fiscal expansion to restore economic growth. The spending also included increased social spending for health and education (for example, the Free Primary Education programme), and continued reforms of the financial sector and privatization. The 2007 election brought additional spending, which grew the fiscal balance. Nevertheless, economic growth peaked at 7.1%, leading to soaring expectations of good times ahead. But the 2008 post-election violence disrupted the 2007 growth trajectory. In 2008, the government frantically raised its spending and borrowing to deal with the effects of the election violence and to reverse the economic downturn.

The fourth episode incorporates the first part of the Vision 2030 plan, resolution of the electoral disturbances in 2008 through a coalition government and the coming into place of a new constitutional order in 2010. Formation of the Grand Coalition government further made it hard for the fiscal authorities to stick to budget rules. This placed pressure on government spending on a scale without precedent in Kenya. For example, the number of government ministries nearly doubled, and many government agencies were created to lead political reforms. The Vision 2030 plan on its part requires enormous resources to achieve its grand 10% economic growth goal through increased public investment spending. As a result, since 2008, the government has maintained substantial fiscal deficits, financed mainly through local revenues,

domestic borrowing, and concessional aid and grants. After August 2010, an important driver in Kenya's long term government spending, economic performance and debt management is the new Constitution. The new system of government will require that at least 15% of national revenue is allocated to county governments. Apart from these direct entitlements, the county governments will also impose taxes on some items such as property rates and entertainment.

The new Constitution further provides slightly new opportunities for contracting new debts. This is an implicit entitlement in form of the provision that county governments can borrow from external sources under guarantees from the national government. Arising from the constitutional provision that county governments can procure debt with direct guarantees from the national government, it is feared that the level of contingent liabilities could rise drastically and probably harm sustainability of debt. In spite of this, the Public Financial Management Act (2012) attempts to offset this risk by restricting county borrowing through guarantees of the national government. According to the financial management law, loan guarantees require the approval of the Kenya Parliament, and new loan guarantees are subject to the prevailing levels of contingent liabilities of the national government.

1.4.5 How debt is managed in Kenya

The Public Finance Management Act sets out the regulations and conditions for borrowing by the national government, county governments and agencies. Parliament has power to set debt limits, approve loan guarantees, and oversight over borrowing. Debt management functions are carried out by the National Treasury through several departments, including the Debt Management Office. Other organizations with varying levels of debt responsibilities include the Central Bank of Kenya, Attorney General, Auditor General, and Parliament. National Treasury negotiates, contracts, and monitors disbursement of external loans. The Central Bank of Kenya, on the other hand, manages domestic debt, particularly by contracting domestic debt on behalf of the State, and making debt service payments on behalf of Treasury. Legal work associated with borrowing is made by the Office of the Attorney General.

The core of debt management reforms in the law is the need to maintain debt sustainability, minimize the cost of loans, and ensure openness and predictability of debt programmes. Consequently, the government regularly prepares medium term debt strategies that provide a framework for new borrowing and debt service in the medium term. The government also prepares annual debt reports as part of public information documents. Further amendments to the Public Finance Management Act in 2014 provided for loan proceeds to be paid directly to a foreign supplier in the case of official bilateral loans. This has enabled some bilateral financing of large infrastructure projects such as the Standard Gauge Railway by China.

2.0 Review of Theoretical and Empirical Literature

2.1 Fiscal Policy and Debt Financing

Many governments actively finance fiscal expansion through debt and taxes to achieve various fiscal policy targets. The general implications of deficit financing, through debt or taxation, can be judged on the impact of fiscal policy on aggregate demand and economic growth. But the fundamental diversity of views in the literature encompasses the role of fiscal policy on growth and the contrasting effects of debt and tax financing. Fiscal policy tends to be most effective in raising aggregate demand and output under liquidity constraints or during recessions (Blanchard and Fischer, 1989). But this effect varies under various transmission channels, which sometimes limit the effectiveness of fiscal policies growth. For example, the growth effect of fiscal expansion may depend on the extent to which public spending replaces private consumption.

An early study by Aschauer (1985) on the fiscal policy of the United States found that government spending is a weak substitute for private consumption if temporary increases in government spending result in temporary fall in private consumption. Thus, government policy may not replace private spending. But, why is deficit financing effects on growth so weak? Some economic theories, including infinite horizons model and the overlapping generations model, tend to suggest output neutrality of some of the common debt and tax financing. For instance, debt financing tends to induce expectations of higher future taxes, which forces households to save, offsetting the dis-saving of government. Alternatively, government spending tends to reduce equilibrium consumption and anticipated future interest rates, resulting in reduced capital accumulation (Blanchard and Fischer, 1989).

Further, Romer (2006) notes several political economy arguments for fiscal expansion, which include: one, that government spending may vary with election cycles; two, that budget rules and institutions could explain observed fiscal balances, that is government spending could rise during the election years, and fall thereafter; and three, public ignorance of the consequences of expenditure expansion and fiscal illusion could increase debt tolerance.

From the above review, some of the foremost views on effectiveness of fiscal

policy include: one, that expansionary fiscal policy is essential to stimulate growth during recessions or under liquidity constraints; and two, that fiscal expansion may have limited effect on growth due to changes in interest rates, reduction in capital accumulation, and due to expectations. With regard to the first point, fiscal expansion backed by monetary policy was used widely across the world to boost aggregate demand and output during the global financial crisis

But, given possible output-neutrality of fiscal expansion, the mode of financing could affect the outcome of any fiscal injection. If the financing mechanism is through debt, then the implications are not trivial. Solvency and liquidity risks are critical consideration if governments choose the debt option for financing budget deficits. The theoretical criterion is that a government cannot run debt financed fiscal deficits indefinitely without sharp fiscal adjustment at some time in future. A government is said to be meeting its inter-temporal budget constraint, or solvency, if the present value of the stream of future primary surpluses are equal or greater than the current market value of debt stock (Wilcox, 1989; Hamilton and Flavin, 1986; Corsetti and Roubini, 1991, and IMF, 2013).[6] This criterion implies that the external debt will be sustainable if a country can run current account surpluses equivalent to the present value of current debt stock (Roubini, 2001). Equivalently, a country needs to run primary budget surpluses in future equivalent to the present value of public debt. These criterion, as argued below, indicate how a sustainable fiscal process should look like in practice.

2.2 Debt Ratios and Debt Sustainability

There are several methodologies to assess the sustainability of prevailing fiscal policies, including: the debt indicator approaches, which are based on the present value constraint condition; assessment of debt dynamics (Chuhan, 2005; Burnside, 2005a); and, analysis of historical fiscal and macroeconomic time series data. However, historical time series analysis has little practical or predictive value. That approach cannot answer whether future debt profile is sustainable or not, or even serve as a benchmark for assessing solvency and liquidity of debt. Given the limitations of the theoretical approach, together with the time series based studies in the 1990s, practical debt sustainability assessments sought to provide benchmarks through computations of debt ratios.

The more practical equivalent construct for the inter-temporal debt constraint was the determination of the required future surpluses relative to current fiscal (or current account balance) required to stabilize a given debt ratio or indicator. A debt profile is sustainable under this construct if debt ratios are non-increasing over time, subject to the growth rate of the economy being lower than the interest rate. This criterion is assessed by comparing evolution of future debt ratio with given thresholds

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6 Equivalently, show that a budget process is sustainable if the discounted value of future debt approaches zero (Trehan and Walsh, 1988).

to assess liquidity and solvency of debt. The DSA approach integrates debt forecasts, debt dynamics and computation of debt ratios.

The most relevant debt ratios are identified given their closeness to the potential for defaults and debt crisis. Liquidity ratios are based on scale factors such as GDP, export value, revenue values, so as to gauge ability to service debt. For solvency, it is critical to see the ability of a country to generate adequate primary surpluses or trade surpluses in future. Thus, the ratios are based on the long term ability of a country to generate resources to stabilize the debt ratios. The higher the current debt, the higher the required future surplus to make the debt sustainable. Many times, this is unachievable politically and structurally if attainment of surpluses involve major tax raises or expenditure cuts. A declining debt ratio, or non-explosive debt ratio, is an indicator of satisfaction of the inter-temporal budget constraint.

However, computation of debt ratios is inadequate in predicting whether a country will face illiquidity, insolvency or debt criteria. Instead, the ratios require plausible single benchmark or an interval of benchmarks within which sustainability is postulated. The standard IMF/World Bank DSA has developed debt thresholds to assess liquidity and solvency risks. The thresholds were constructed from econometric estimates of pre-crisis debt ratios in a cross section of countries that had defaulted. Empirically, debt crisis, defaults and near defaults were positively correlated with higher debt ratios (external or public debt ratios). Thus, the empirical debt thresholds are an estimated benchmark strongly related with the estimated probability of a debt crisis. The debt ratios, and thresholds, are supplemented with several scenarios or stress tests (IMF, 2003).

However, the practice of setting thresholds, for example, does not take into account misleading assessments of high debt intolerant[7] countries (Reinhart et al. 2003). Emerging economies and low income countries may therefore experience debt stress at lower levels of debt ratios than developed low-debt intolerant countries. Debt intolerance or the ability of a government to service its debt can be predicted from its past fiscal management, presence of past defaults, and the debt-to-GDP ratios. Reinhart et al. (2003) note that between 1970 and 2001, 13% of countries with external debt-to-GDP ratio below 40% defaulted on their debts, and 40% of those with 41-60% debt ratio defaulted. In addition, Ghosh et al. (2003) indicates that various countries could default under modest external shocks despite the estimated "default" thresholds, especially for countries with limited fiscal space to address adverse debt dynamics, which could be triggered autonomously through shocks to the economy.

The DSA approaches do not assess the likelihood that the debt problem can emerge outside the framework. Thus, stress tests would likely not capture drastic exogenous shocks to the economy. The analysis could erroneously interpret improving debt ratios due to rising output relative to interest rates as implying that a country is reducing its debt. A debt-intolerant country with favourable debt ratios could suddenly face

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7 Debt intolerance is influenced by a country's past debt defaults, the indebtedness level measured by the ratio of debt-to-GDP, macroeconomic stability and an index of default risk (e.g. risk ratings issued by sovereign credit rating agencies).

adverse debt problems. The trigger for unsustainable debts could be exogenous, either through economic shocks such as the global financial crisis, or political upheavals and conflict. Thus, sustainability of debt requires a careful balance of repayment, potential repayment resources in the uncertain future, and possible debt dynamics caused by changes in interest rates, risk profile, and refinancing.

This is why stress tests are essential; they help model such potential crisis and see what happens to the ratios, to the debt dynamics, and the required fiscal surpluses to stabilize the debt ratios. Nevertheless, DSA is considered a practical tool for economic management which, with reasonable sensitivity analysis, can help chart a long term forecast of debt accumulation and repayment profiles alongside critical macroeconomic variables.

2.3 Fiscal and Debt Analysis Studies in Kenya

Empirical studies of sustainability in Kenya include the forward-looking DSA assessments conducted by the IMF in 2002 and 2008 (IMF, 2002; IDA/IMF, 2008; IDA/IMF, 2009a). The 2009 DSA (IDA/IMF, 2009a) was based on reduced growth in years after the post-election disturbances of 2008 and global financial crisis. Thus, growth does not exceed 7% in the period 2009 to 2029. The study assumed 7% inflation, an improvement in the current account in the long term, and constant exchange rates. New external borrowing was assumed to grow by about 2.5% in 2009-14, and declines to about 1.5% in the period 2015 to 2029. The borrowing includes modest multilateral and bilateral borrowing, but also included a US$ 500 million sovereign bond annually from 2015 to 2029. No substantial debt relief was assumed in that analysis. As noted above, the analysis found that Kenya had low risk for external debt distress, though there were weaknesses when total public debt under a low growth shock was considered.

The studies found that Kenya's debt was sustainable, but the 2008 DSA found some risks under the assumption of a major negative shock on economic growth. The 2009 DSA notes that Kenya faces a low risk of external debt distress under the assumption of improved macroeconomic conditions and reduced reliance on external debt. However, adverse shocks to GDP growth were found to deteriorate the present value of public debt-to-GDP ratio, present value of debt-to-revenue ratio, and the ratio of debt service-to-revenue. Other studies look at specific effects of fiscal policies. For example, Muriithi and Moyi (2003) sought to determine whether the tax reforms implemented starting in 1986 enhanced the productivity of tax and how the reforms affected fiscal imbalances in Kenya. Kiptui (2005) examined Kenya's fiscal process and its effect on private investment. Noting the crowding-out argument of deficit financing and using an econometric technique, Kiptui (2005) found that budget deficit, amount of debt stock, and tax burden tend to reduce private investment, and fiscal restraint had beneficial lagged effects on private investment.

Political economy aspects of fiscal policy are also important in understanding past and prevailing debt policies and are indispensable in fiscal or debt sustainability

assessments. The relevance of these arguments for Kenya may include electoral cycles view, Keynesian expansionary argument, budgetary rules and institutions arguments, and perhaps the converse of debt tolerance that is 'debt intolerance'. In line with this, the fiscal policies adopted in the early years of Kenya's independence were largely expansionary. Similarly, fiscal policies underlying the 2003 Economic Recovery Strategy, the whole public investment programme for Vision 2030, and also the targeted fiscal stimulus in the period 2008-2010 were partly expansionary, with elements of relaxation of budgetary rules and weak institutions. Indeed, for the period 2008 to 2010, growth was sustained due to countercyclical monetary and fiscal policies. But subsequent fiscal episodes resonate with either the election cycles or weak budgetary rules and weak institutions. As noted above, fiscal crisis and macroeconomic upheavals of early 1990s could be traced to the 1992 election cycle and weak institutions.

3.0 Methodology

3.1 Fiscal and External Sustainability

From the discussion in the preceding section, non-increasing debt ratios are essential to guarantee sustainability of debt, or solvency of government. Often, the condition is that the government should be able to raise sufficient primary surpluses (or current account surpluses) to pay down its debt over time. These concepts, known as the non-Ponzi condition, and the inter-temporal government budget constraint, are essential elements for constructing the analysis of sustainability. The debt ratios are derived from the formulation of the government's budget constraint, starting from the typical equation relating the evolution of debt; that current debt is equal to initial debt stock plus debt interest payments less the primary balance including any non-debt creating items. Other debt-creating flows include any identified contingent liabilities and bank recapitalization expenditures. Assuming that non-debt creating flows are equal to zero for simplicity, then the government budget constraint formula is written as:

$$D_t = (1 + i_t)D_{t-1} - PB_t \qquad (1)$$

Where D_t denotes the stock of debt in Kenya shillings, i_t is the nominal interest rate and PB_t is the primary balance. Let the growth rate of GDP deflator be given by π_t, the growth rate of nominal GDP by Y_t and the growth rate of real GDP be given by g_t, then:

$$\pi_t = \frac{(1+Y_t)}{(1+g_t)} - 1 \qquad (2)$$

Thus, $(1 + Y_t) = (\pi_t + 1)(g_t + 1)$ implying that $Y_t = (\pi_t + 1)(g_t + 1) - 1$. Dividing (1) by the nominal GDP, and deducting d_{t-1} from both sides of the equation yields an equation relating the evolution of the ratio of debt-to-nominal GDP, d_t, impact of nominal interest rate, nominal growth rate, and ratio of primary balance to nominal GDP(pb_t) on the change in the debt ratio:

$$d_t - d_{t-1} = \frac{(i_t - Y_t)}{(1+Y_t)}d_{t-1} - pb_t \qquad (3)$$

Further, given that $(1 + \gamma_t) = (\pi_t + 1)(g_t + 1)$, then above equation can be simplified as:

$$d_t - d_{t-1} = \frac{(i_t - (\pi_t+1)(g_t+1))-1)}{(1+\gamma_t)} d_{t-1} - pb_t$$

$$= \frac{(i_t - (\pi_t + g_t + \pi_t g_t))}{(1 + \gamma_t)} d_{t-1} - pb_t$$

$$= \frac{(i_t - \pi_t + g_t(1+\pi_t))}{(1+\gamma_t)} d_{t-1} - pb_t = \frac{(i_t - \pi_t)}{(1+\gamma_t)} d_{t-1} - \frac{g_t}{(1+g_t)} d_{t-1} - pb_t \tag{4}$$

This implies that the ratio changes with real growth, and real interest rates and

the rate of change of nominal GDP. More explicitly, $(1 + \gamma_t) = (\pi_t + 1)(g_t + 1)$

and given the real interest rate formula $r = (1 + i_t)/(\pi_t + 1)$ the change in the

$$d_t - d_{t-1} = \frac{r}{(1+g_t)} d_{t-1} - \frac{g_t}{(1+g_t)} d_{t-1} - pb_t$$

$$= \frac{r-g}{(1+g_t)} d_{t-1} - pb_t \tag{5}$$

The dynamics of this formula, and particularly $\frac{r-g}{(1+g_t)}$ has implications on the definition of sustainability, the non-ponzi condition, and governments inter-temporal budget constraint. In particular, from equation 5 above:

$$d_t = \frac{1+r}{(1+g_t)} d_{t-1} - pb_t \tag{6}$$

For $t = 1$ and using time invariant rate of real interest and real growth of the GDP, equation (6) can be written as:

$$d_1 = \frac{1+r}{(1+g)} d_0 - pb_1 \tag{7}$$

Further iterations and substitution and solving for d_0 at $t = n$ yields the following initial debt ratio equation:

$$d_0 = [\frac{1+r}{(1+g)}]^{-n} d_n - \sum_{t=1}^{n} [\frac{1+r}{(1+g)}]^{-t} pb_t \tag{8}$$

Equation (8) shows that $\left[\frac{1+r}{(1+g)}\right]^{-n}$ decays towards zero for large n. The second term corresponds to the government budget constraint. Taking limits as $n \to \infty$ the first term and the second term in equation (8) correspond to the non-ponzi condition for government borrowing and the inter-temporal budget constraint.

$$\lim_{n\to\infty}\left[\frac{1+r}{(1+g)}\right]^{-n}d_n = 0 \text{ and, } d_0 = \sum_{t=1}^{\infty}\left[\frac{1+r}{(1+g)}\right]^{-t}pb_t \text{ (Escolano, 2010).}$$

Clearly, this holds for rr greater than gg. The implication of these conditions is that the debt ratios should be non-increasing and the government's present value of future primary surpluses should equal the current value of debt stock (Corsetti and Roubini, 1991; Burnside, 2005a, b; Escolano, 2010, IMF, 2013). Practically, primary surpluses should be generated in finite time to obtain some budget balance, and that the debt ratio could assume explosive path if debt ratios are rising.

The debt sustainability framework adopted by IMF/World Bank simulates these conditions in finite time to test for solvency and liquidity risks. Debt sustainability analysis infers the presence of a 'benchmark' indicator for sustainability, such as a debt ratio indicator, level of primary balance or current account balance. The DSA decomposes the debt ratio into the effects of interest rates, growth, exchange rates, primary balances (or current account balances) and non-debt creating components. External debt is influenced by exchange rate changes, while public debt is affected by exchange rate movements.

Since total public debt contains foreign debt, then i_t is the average interest rate, which combines the weighted average interest rates of foreign and domestic debt and the effect of exchange rate changes. Let δ be the proportion of foreign debt in the total debt, and let i_t^* denote the foreign interest rates, i^d the nominal interest rates on domestic debt, and $\varepsilon_t\varepsilon_t$ the rate of nominal exchange rate changes. Then the weighted nominal interest rate may be written as: $i_t = (\delta(i_t^* + \varepsilon_t i_t^*) + (1-\delta)i_t^d)$. Thus, the decomposition of the debt ratios

$$d_t - d_{t-1} = \frac{\left((\delta(i_t^* + \varepsilon_t i_t^*) + (1-\delta)i_t^d) - \pi_t\right)}{(1+\gamma_t)}d_{t-1} - \frac{g_t}{(1+g_t)}d_{t-1} - pb_t \tag{9}$$

Using equation (9) and the definition of the real interest rate, then:

$$d_t - d_{t-1} = \frac{\left((\delta(i_t^* + \varepsilon_t i_t^*) + (1-\delta)i_t^d) - \pi_t\right)}{(1+g_t)(1+\pi_t)}d_{t-1} - \frac{g_t}{(1+g_t)}d_{t-1} - pb_t$$

$$= \frac{\left((\delta(i_t^*) + (1-\delta)i_t^d) + \varepsilon_t\delta i_t^* - \pi_t(1+g_t) - g_t\right)}{(1+g_t)(1+\pi_t)}d_{t-1} - pb_t \tag{10}$$

Where $(\delta i_t^* + (1-\delta)i_t^d)$ is the weighted average interest rate,

$\frac{\left(\left(\delta i_t{}^* + (1-\delta)i_t{}^d\right) - \pi_t(1+g_t)\right)}{(1+g_t)(1+\pi_t)} d_{t-1}$ is the contribution of the average real interest rates

to the change in debt-to-GDP ratio, $\frac{g_t}{(1+g_t)(1+\pi_t)} d_{t-1}$ is the contribution of real

growth rate, and $\frac{\varepsilon_t \delta i_t{}^*}{(1+g_t)(1+\pi_t)} d_{t-1}$, is the contribution of exchange rate to the

changes in the public debt-to-GDP ratio.

Equation (10) simulates the path of debt-to-GDP ratio (and the present values of debt-to-GDP ratios) over time given assumptions on the nominal interest rate, inflation, real growth, primary balance, exchange rates and other debt creating flows. The ratios are compared with predetermined debt thresholds to make a judgment about sustainability of the debt profile.

Similarly, external debt dynamics and sustainability are derived in a similar way as the total debt sustainability above. The external debt budget constraint is given by:

$$D_t^E = \left(1 + i_t^f\right)D_{t-1}^E - (CA_t + DF_t)D_t^E = \left(1 + i_t^f\right)D_{t-1}^E - (CA_t + DF_t) \qquad (11)$$

Where D_t^E is the stock of external debt, i_t^f is interest rate on external debt, CA_t is the non-interest current account deficit, and DF_t are the non-debt creating flows such as FDI. Dividing (11) by nominal GDP in US dollars and subtracting previous year's external debt-to-GDP ratio d_{t-1}^E from both sides, the change in debt-to-GDP ratio for external debt is given by:

$$\Delta d_t^E = \frac{i_t^f - \pi_t(1+g_t) + \varepsilon_t\left(i_t^f\right) - g_t}{(1+g_t)(1+\pi_t)} d_{t-1}^E - (ca_t + dt_t) \qquad (12)$$

Where ε_t represents the rate of change of the nominal exchange rate changes (Chuhan, 2005) π_t, is change in the GDP deflator in foreign currency (US dollar) terms, and is growth rate of real GDP. Thus, changes in the debt-to-GDP ratio for external debt depend on the current account, non-debt creating flows, and debt dynamics from changes in real GDP growth, price and exchange rate changes, and changes in the effective interest rates on external debt. The present value of the debt ratios are compared with the predetermined debt thresholds to determine if the debt is sustainable or not.

3.2 The Bank-Fund Low Income Country DSAs

One of the primary aims of the DSAs is to help low income countries to maintain sustainable debts in their growth process. The DSA is a tool that can help a country find a sustainable borrowing strategy that avoids debt distress and helps achieve economic objectives (IDA/IMF, 2009b). The DSA in this study integrates both external

debt sustainability and total public debt sustainability. The debt data used includes public external debt and publicly guaranteed external debt, private external debt, and domestic debt. Debt ratios and other indicators computed under baseline scenario and alternative scenarios are compared with standard debt-burden thresholds to assess a country's vulnerability to debt risk. Repayment ability is commonly measured by the amount of export flows relative to amount of debt and debt repayments in the case of external debt, and the amount of revenue relative to total debt and debt repayment in the case of total public debt.

The external debt thresholds are associated with a country's quality of institutions measured by the World Bank's Country Policy and Institutional Assessment (CPIA) index.8 According to World Banks CPIA, Kenya is a strong performer in policies and its debt thresholds are therefore modest. Accordingly, the net present value of external public debt-to-GDP is 50, net present value of external public debt-to-exports is 200, and net present value of external debt-to-revenue is equal to 300 (IMF, 2013). The external debt service-to-exports ratio threshold is 25% and debt service-to-revenue is 22%. For the total public debt, external public and domestic debt, the critical ratio or benchmark for sustainability concerns is set at 74% to the GDP for a strong CPIA performer such as Kenya.

Calculated debt indicators are used to assess a country's ability to repay its debt or its ability to incur additional debt without needing a major correction to its future spending profile. The calculated values in the simulations should not exceed these if the expected debt profile is sustainable. For instance, a large debt-to-GDP ratio may put a strain on a country's ability to use its annual income to service debt over time, and perhaps affect solvency. Alternatively, a large external debt position could amplify the risk of sudden reversal of market sentiment and interest rate premiums, which could result in larger interest repayment obligations and increased potential for debt distress.

The DSA incorporates various scenarios or alternative assumptions about the macroeconomic variables, debt profile and borrowing terms. The basic scenario is called the "baseline", while the others are known as "alternative" scenarios. If the baseline scenario shows consistently no risk of debt distress, then the counterfactual is to see if a more aggressive borrowing plan, or inclusion of adverse shocks to the growth, current account, primary balance and borrowing terms could harm sustainability. No doubt the government could seek to aggressively take measures such as increasing its borrowing to meet certain growth or expenditure goals, but the analysis being fairly linear may not pick out insidious effects such as inflationary pressures and unfavourable interest rates. Thus, the DSA should be used with caution to avoid excessive borrowing.

The DSA produces a baseline scenario based on assumptions about future evolution of debt accumulation, repayments and macroeconomic factors. This is supplemented

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8 The index incorporates scoring on indicators on quality of public financial management and economic management, quality of institutions, and social policies (IMF, 2013).

by integrated shocks to the baseline, one comprising shocks based on historical performance, another based on assumptions about increased borrowing, and for the total public debt, scenarios that assume a small fiscal balance.

A critical observation about excessive accumulation of debt today, for example in Kenya, justified by the 'returns of such investment' is weighed upon by some 'stylized facts' such as outlined in IMF (2013): that growth acceleration may not occur persistently for very long (The Vision 2030 strategy targets a 10% growth for more than 10 years); debt financed public investment versus private investment is a complex issue given that the 'growth' returns of major public investments in infrastructure are not necessarily very large relative to private investment.

The framework is deterministic, and designed to affect the ability to pay (by changing the debt service components such as exports and revenue) or the size of debt itself. The rise in size of debt itself triggers own debt dynamics, whereby the requirement for more financing is coupled with increased demand for resources to amortize the debt and pay down the interest. For instance, shocks to the current account, or a shock that worsens this also fuels more need for external borrowing to meet the deficit. The tests include a shock to the GDP, current account (either assuming that these return to the 10 year average historical trends), which in turn affects revenue, exports and indebtedness.

The DSF currently assumes no structural breaks such as civil problems during the 10 year period in constructing the stress test, which may bias the analysis towards the shock event. This also tends to assume that past debt and macro-indicators are worse than expected in future, but if the past was better, then it will have limited value for sensitivity analysis and identification of debt distress. To resolve this, the framework also provides 'customized scenarios' where the assumptions on macroeconomic indicators can be constructed. These are more likely realistic than the standard stress tests for this kind of study. According to IMF (2013), the likely simulations could entail integrating the effect of the realization of contingent liabilities, low growth, low exports, and heavy borrowing or a combination of depreciation and lower growth. For the domestic debt, it is important to look at maturity profiles, composition of debt, and interest rate profile. These should be used to better capture the risk of debt distress rather than for mere risk rating through the standardized approaches.

More importantly for some LDCs such as Kenya is the risk from sovereign bonds or lending from external commercial creditors. The problem with this kind of debt stems from interest rate risk (due to debt service burden) and exchange rate risk. No doubt this type of debt is prone to trigger the self-propelling debt dynamics discussed above, hence great caution when dealing with it. Further, it is critical to look at guaranteed debt with government corporations, which directly pose a risk of contingent liabilities, and also

consider the rate of debt accumulation and forecast debt accumulation.

The DSF also includes scenarios that incorporate the probability of a debt distress to complement the standard scenarios. The IMF/World Bank suggest using probability of debt distress analysis for countries whose actual debt ratios fall within 10% bands of the respective threshold under any scenario (IMF, 2013). A country may be considered for this analysis under CPIA category "strong" if the external debt to GDP ratio is between 47.5% and 52.5%. Finally, the role of remittances in Kenya is limited, relative to countries where remittances account for about 10% of GDP, and thus are not considered separately in the DSA analysis.

4.0 Data and Projections for the DSA

4.1 Assumptions for Macroeconomic and Debt Projections

Forecasts about future evolution of macroeconomic variables, fiscal deficit and new debt accumulation greatly affect sustainability assessments. Ordinarily, baseline macroeconomic and debt forecasts principally tend to integrate current and existing debt policies contained in government debt policy. Kenya's foremost debt policies are contained in the medium-term debt strategies (for example, Government of Kenya, 2015a). A typical medium-term debt strategy may adjust or change during implementation to accommodate financing pressures from unexpected increase in public spending, changes in growth or interest rate environment. Nevertheless, prevailing stock of debt, the size of expected new borrowing, average terms of new borrowing and the composition of the new borrowing and the policies are important in making debt forecasts.

Thus, some of the considerations in the debt forecasts, which could weigh in on sustainability, include the macroeconomic environment, particularly growth rate of the economy, inflation, movements in domestic and international interest rates, and movements in the current and capital account. As discussed in the following sections, the baseline scenario assumes a strong accumulation of commercial debt relative to concessional or domestic debt linked to government policy of shifting towards external commercial borrowing in place of expensive domestic debt. This debt position is likely to increase interest payments on external debt, but government investments could have positive effect on growth and, therefore, overall long term debt sustainability.

The fiscal profile, in contrast, is influenced by the government's expected expansionary fiscal stance in the medium term. Expenditure includes increased amortization of public debt, a rise in government development spending, and increased spending pressures associated with the new Constitution and devolved governments. Government spending in the medium term will also be influenced by inflexible redemption of infrastructure and other domestic bonds issued in the past.

4.2 Macroeconomic Forecasts

Baseline macroeconomic projections in the medium term incorporate assumptions of not-so-profound growth given past performance of Kenya's economy, persistently large current account deficit, and vulnerability to external capital account shocks, volatile weather conditions, and cost of production. Persistence of global risks, including slowing of growth in China, growth stagnation in the Euro area, and growth slow-down in other emerging markets such as Russia, Brazil, South Africa and India could affect Kenya's medium term growth.

Precluding lag effects, large public sector investments in road construction, geothermal power production, wind power and railway construction may yield some growth effects.[9] Potentially, oil production could change future growth performance dramatically, but current depressed prices of oil and expectations from futures markets of oil prices could mean reduced oil revenues in the future. Other drivers of medium term growth include investment and consumption in the county governments, and strong private sector investment, growth in financial sector and technology, including growth in mobile payment systems.

Real GDP growth is, therefore, forecast to rise to 6% in 2015 to 2017. The growth is expected to taper off to 5% in the long term (Table 3). Long term growth will be buttressed by low inflation, a stable and dynamic financial sector, including healthy growth of credit to the private sector and stable interest rates. Real interest rates have risen dramatically due to tight liquidity in the financial markets amidst low inflation. The risk of inflation is largely restrained by interest rate hikes associated with the fall in the value of the Kenya shilling. Given that inflationary pressures have been low since mid-2014, the Central Bank of Kenya interest rate hikes in June 2015 could further dampen any resurgence of double digit inflation. But since some important drivers of inflation such as food shortages, and high energy prices are unlikely to change drastically, inflationary pressure may persist despite the effort to fight it through monetary tightening, at least in the first three years of the forecast period. The GDP deflator is assumed to average 5% in the medium to long term.

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9 The June 2015 budget, for instance, has approved expenditure of Ksh 118.1 billion on the foreign financed Standard Gauge Railway (SGR) construction (Government of Kenya, 2015c). On energy, geo-thermal power projects were allocated Ksh 13.2 billion, and Ksh 36 billion is committed for power transmission and rural electrification. In the roads sector, more than Ksh 127 billion will be spent on road construction, and road maintenance.

Table 3: Macroeconomic and debt projections (% of GDP)

	2012	2013	2014	2015	2016	2017	2018-2022	2023-2030
Public expenditure	25.13	27.37	29.15	31.88	31.77	30.03	31.00	31.00
Public revenue	18.08	20.54	20.56	21.51	23.18	24.03	23.40	25.50
Grants	1.69	0.53	0.55	0.90	1.05	0.87	0.64	0.37
Fiscal deficit (excluding grants)	-7.05	-6.83	-8.58	-10.16	-8.59	-6.00	-7.60	-5.50
Nominal Public Debt	43.38	50.19	54.44	56.94	57.77	57.03	61.32	59.92
Export	12.61	11.26	10.86	10.43	10.38	10.32	10.96	13.40
Import	33.25	31.84	32.00	31.60	31.50	31.40	32.54	32.92
Trade deficit	-20.65	-20.58	-21.14	-21.18	-21.13	-21.08	-21.58	-19.52
Current account deficit	-14.90	-14.50	-14.50	-14.63	-14.61	-14.59	-14.71	-11.35
Real GDP growth (%)	4.55	5.69	5.33	6.00	6.00	6.00	5.84	5.00

Source: Government of Kenya (2015a,b,c), Government of Kenya (2014a, b), DSA forecasts.

The external sector projections are based on developments in the exchange rate and the effects of the global economic factors. With little planned changes in the exportable goods sector, the current account deficit will either worsen or persist. The share of imports to nominal GDP reached 32% in 2014, which is fairly within the average share of GDP in the past five years (Table 3), thus the share of imports to GDP is forecast to remain within the 31-32% range in the medium term and long term. Exports are expected to grow at about 13% through 2030. The share of exports to GDP remained quite stable at about 12% in the past five years, but is projected to rise to about 13% of GDP after 2017. The trade deficit will remain largely within 20-21% range. The exchange rate will remain under pressure, at least in the medium term, due to high demand for foreign exchange to finance a rising import bill of machinery and transport equipment, oil imports, and slow growth in exports. A favourable current account position in the long-term could only occur through a partial reversal of import growth, structural changes to the exports sector, or substantial exports of mineral, oil and gas resources. The current assessment of oil prices, fiscal pressures, and the exportable sector does not yield a very optimistic long term view of the current account.

Based on increased fiscal expansion for infrastructure and county spending, total government expenditure (including county spending) will rise from 29.15% of GDP in 2014 to 31.88% of GDP in 2015 and remain at that proportion in the medium term. Expenditure share to GDP may rise to about 33% of GDP towards the end of forecast period in line with rising expenditure on social services (Table 3). Revenue performance is lethargic in the medium term and is forecasted to rise to 21.52% of GDP in 2015 from 20.56% of GDP in 2014, but revenue collections could rise to slightly

above 23% of GDP by 2016. In the long-term, there is high possibility that revenue effort could average 24.5% of GDP on account of improvements in administration and broadening of the tax net.

The fiscal deficit (excluding grants) reached 7.05% of GDP in 2012, fell slightly in 2013 before accelerating to 8.6% of GDP in 2014 (Table 3). The deficit is forecast to average 8.3% in the medium term to long term as the government tries to restore fiscal stability. The long term debt sustainability target is to reduce fiscal deficit to below 5% of GDP which, given the current pressures and expected future spending pressures, will only materialize if the government resets its expenditure profile gradually from about 2017 to 2025 and thereafter (Table 3). Thus, given the size of Kenya's domestic debt and the latent risk that it could soar uncontrollably due to spending pressures, the initial projections are based on a more stable fiscal profile.

4.2 Debt Forecasts

Debt forecasts are based on the evolution of the fiscal deficit, growth, inflation and interest rates, and the government's medium and long term debt strategies. Baseline debt forecasts, therefore, use a mix of the government's official debt strategy, initial conditions such as the fact that Kenya has already adopted commercial borrowing, including the US$ 2.750 billion sovereign bond issued in 2014. The strategy also incorporates a modest growth of loan guarantees due to county borrowing, public-private borrowing and contingent liabilities.[10]

Table 4: Debt projections (% of GDP)

	2011	2012	2013	2014	2015	2016	2017	2018-2022	2023-2030
Nominal public debt	40.67	43.38	50.19	54.45	56.94	57.77	57.03	61.32	59.92
External interest payments	0.22	0.26	0.27	0.45	0.55	0.52	0.51	0.62	0.62
Domestic interest	1.81	2.20	2.58	2.59	2.60	2.36	1.89	2.71	2.90
Total interest	2.03	2.46	2.85	3.04	3.15	2.88	2.40	3.33	3.52
External debt	19.81	20.29	23.89	25.63	29.21	30.40	30.34	30.87	31.25
Domestic debt	20.85	23.10	26.30	27.06	27.72	27.38	26.68	28.57	30.49

Source: Government of Kenya (2015a,b,c), Government of Kenya (2014b), DSA forecasts.

External debt accumulation depends on yearly government financing needs, whereby foreign financing typically contributes 47% of required budget financing every year. These debt accumulation trends are benign: the proportion of total cumulative

10 Kenya signed a 3-year programme with the IMF for a total US$ 508 million (enhanced to US$ 760 million). Already US$ 312 million was released by December 2011. Initial projections take into account government plans to borrow US$ 600 million commercial loan to replace planned domestic borrowing.

external debt to GDP will rise from 26% in 2014 to 29% in 2015, reflecting quite ambitious accumulation of commercial debt in the first four years of the forecast (Table 4). The nominal external debt ratio will then rise to about 30% in 2016 and 2017, and then settle at an average of 30.87% in 2018-2022 and 31.25% in the outer years. The rise in the ratios captures persistent rise in commercial debt, supplier credits, county government guarantees, and borrowing by private sector institutions with government guarantees.

The proportion of commercial debt will contribute about 30% of total external debt. This type of debt is expected to grow briskly at near real GDP growth rate over the long-term. In the medium term forecasts, multilateral debt constitutes about 53% of total external debt, which mirrors historical share of this type of debt. Bilateral debt is expected to rise over time, and possibly mask multilateral debt as certain type of debts such as government-to-government type loans take prominence. In the medium to long-term, bilateral debt will comprise about 15% of total external debt.

The average interest rate on concessional debt is about 0.75% with a maturity period of 40 years. Commercial debt is procured with a 6-year maturity period, one year grace period, and 8% average interest rate. Interest rates on domestic debt are higher in the medium term, but are projected to decline in later years under the baseline scenario. Interest rates, as observed, remain high for government securities, and the assumptions are that the mean interest rate on domestic debt is 12% for long term bonds, and about 8% to 9% on short term government securities. The average nominal interest rates on domestic debt will be about 7.8% in the long term, which is lower than historical average rates.

Consequently, debt service assumptions in the baseline are by far optimistic. The proportion of interest payments are not expected to shift drastically, even though amortization trends contain substantial spikes in 2019 and 2024, which are the dates when the two batches of the sovereign debt mature. Further, despite increased commercial borrowings in the medium term and long term, the amortization structure is smoothed through the forecast period to capture forecast uncertainties.

5.0 Debt Sustainability Computations

5.1 External Debt Sustainability

The nominal external debt accumulation is driven by changes in interest rates, the size of the non-interest current account, the size of debt-creating flows such as official lending, commercial lending and trade credits, and the components of non-debt-creating flows such as foreign direct investment and official current transfers. These factors equally influence the present value of the sustainability ratios. Table 5 presents different sustainability indicators computed under three different assumptions or scenarios. The baseline scenario is the reference for the two alternative scenarios, upon which shocks to various economic and debt variables are made. As discussed above, the baseline incorporates a modest forward looking forecast of macroeconomic variables and debt accumulation profile. The baseline takes a non-remarkable view of the economy, amidst spirited debt accumulation and borrowing terms.

The first alternative scenario combines several shocks to the economy. One is a long-term shock equivalent to historical real GDP growth rate minus one standard deviation. This means that the economy grows at a lacklustre 4.8% in the long-term. Secondly, exports grow at their historical values minus one standard deviation, equivalent to 4.7% in the medium term. Apart from these main shocks, the scenario also includes ancillary effects of the two shocks on the exchange rate and financial flows. The exchange rate suffers some depreciation, representing the large or growing current account deficit and external factors. The analysis incorporates some foreign investment shocks a few years after the shock, which would well correlate with dampening of investment climate or expectations due to low growth and worsening current account.

The 4.8% growth outcome is not unlikely given Kenya's vulnerability to droughts and natural disasters, and remarkably the effect of the persistent current account deficit. The less than expected slowdown in growth may also be driven by disinvestment owing to high costs of production in manufacturing and agriculture, and possible deceleration in some growth sub-sectors. Since debt repayments largely draw from national income (revenue and export earnings), it is expected that the country's repayment capacity may decline and, therefore, the sustainability ratios could deteriorate. It is assumed that the growth shock will affect debt dynamics and is not necessarily persistent.

The second scenario introduces alternative vulnerabilities to the economy by integrating the long term growth shock in scenario one and marked deterioration of borrowing terms on new debt. The average interest rates on new debt rise by 0.5% per year, but average maturity and grace period of new debt and discount rate remain similar to that in the baseline. The changes in interest rates reflect a profound change in the risk profile of Kenya in the international debt markets. Given Kenya's substantial exposure to commercial debt, this scenario could escalate debt dynamics, leading to unfavourable debt ratios.

Table 5: External debt sustainability ratios

	2014	2015	2016	2017	2018	2019	2020	2021-2030
PV of debt-to GDP ratio								
Baseline	16.55	18.80	20.01	20.09	19.74	19.23	18.74	14.31
Low GDP, Exports	16.55	18.80	23.76	23.61	24.31	24.67	25.27	18.88
Adverse Financing	16.55	18.80	20.65	21.16	21.36	21.22	21.12	17.72
Threshold	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
PV of debt-to-exports ratio								
Baseline	152.35	178.51	194.03	199.02	192.49	183.28	174.85	116.11
Low GDP, Exports	152.35	178.51	194.06	204.53	218.00	229.12	242.98	155.66
Adverse Financing	152.35	178.51	200.29	209.64	208.20	202.30	197.00	143.18
Threshold	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
PV of debt-to-revenue ratio								
Baseline	80.46	87.40	86.32	83.60	85.84	83.60	78.10	56.82
Low GDP, Exports	80.46	87.40	102.50	98.26	105.69	107.28	105.30	75.09
Adverse Financing	80.46	87.40	89.11	88.06	92.85	92.28	87.99	70.30
Threshold	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00

Source: DSA computations.

The shocks drive the endogenous debt dynamics through changes in real GDP, nominal interest rates and non-interest current account deficit. A sharp fall in GDP tends to reduce the contribution of real GDP to debt creation, but the net effect of

all the shocks may lead to a rise or fall in debt-to-GDP ratios. Table 5 and 6 present a comparative view of the evolution of external debt sustainability ratios for the three scenarios. Table 5 shows that the present value of debt-to-GDP ratios is way below the 50% threshold for Kenya in all the three scenarios. The baseline ratio rises from 18.80% of GDP in 2015 to 20.01% in 2016. The ratios improve further towards 2030, averaging 14.31% in 2021-2030. The two alternative scenarios provide elevated debt ratios, even though still far from the threshold. The present value of debt-to-GDP ratio is markedly higher in the first alternative scenario, which combines a long term growth shock, lower exports, exchange rate and FDI shock. For example, relative to the baseline, external debt to GDP ratio rises to 23.76% in 2016 and peaks at 25.27% in 2020, representing some deterioration of the ratio on account of growth and external sector shocks. The second scenario, which incorporates low growth and rising borrowing terms, similarly does not breach the threshold either.

It is notable that the indicators tend to worsen over time, through the medium term, but decline thereafter. All the indicators for the three scenarios remain short of the threshold of 50%. Similarly, the external debt profile is benign when checked against the present value of debt-to-revenue ratios for the three scenarios (Table 5). Relative to a threshold of 300 for Kenya, the most extreme scenario combining lower long-term growth and shocks to the external sector peaks at 106.2% as a ratio of external debt to revenue in 2019. Thus, Kenya is likely to remain solvent with regard to external borrowing, based on the debt to GDP and debt to revenue ratios.

However, the external debt profile is no longer sustainable when checked against exports ratios. Whereas the baseline merely scrapes the 200% debt-exports ratio threshold, the two alternative scenarios breach the threshold 8 times between 2017 and 2020, corresponding to periods of low real GDP growth and markedly low export growth (Table 5, and Figure A2). The computed debt-to-exports ratio for the far extreme scenario generates a ratio of 204.53% of exports in 2017, which further rise to 242.98% of exports in 2020. This poses substantial foreign exchange risks, which could fuel debt distress. Even the moderate scenario with low growth and weak borrowing terms also poses a risk to sustainability. In both shock scenarios, the debt to exports ratios improve rapidly, reflecting the dissipation of initial debt stress. But the problem is that once the signs of debt distress become palpable, self-propelling debt dynamics could rapidly cause serious debt repayment problems and possible default. Thus, the spike in the ratios in those years requires caution in external debt accumulation, or alternatively requires action to invest in the exportable goods and services sector.

A further assessment of debt service capacity of Kenya from domestic revenue and export earnings presents mixed results as shown in Table 6. While the external debt service to revenue ratio is sustainable, the debt service-to-exports ratios for the baseline and the two shock scenario breach the threshold for Kenya in 2024. The debt repayment-to-exports ratio rises to 34.59% in the low growth and external sector shock scenario, and 30.36% in the low growth and adverse borrowing terms scenario, relative to 22% threshold. This corresponds to the bullet repayment of the ten-year sovereign bond. In one other occasion corresponding to the principal repayment

of the five year bond in 2019, the sustainability ratios come close to breaching the threshold. Even though the repayment profile in present value terms is favourable when measured against revenues (Table 6), it is important to assess the associated foreign exchange risk, which is clearly shown in the exports ratio.

Table 6: Present value of external debt service ratios.

Debt service-to-exports ratio	2014	2015	2016	2017	2018	2019	2020	2024	2021-2030
Baseline	18.95	13.99	7.68	10.21	15.16	17.95	13.96	25.75	13.58
Low GDP, Exports	18.95	13.99	8.07	10.86	17.27	22.29	18.77	34.59	18.37
Adverse Financing	18.95	13.99	7.68	13.16	19.06	22.33	18.61	30.36	17.40
Threshold	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Debt service-to-revenue ratio									
Baseline	6.85	3.42	4.29	6.76	8.19	6.24	6.60	6.80	6.51
Low GDP, Exports	10.01	6.85	4.26	5.22	8.37	10.44	8.13	16.38	8.93
Adverse Financing	10.01	6.85	3.42	5.53	8.50	10.19	8.31	14.55	8.53
Threshold	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00

Source: DSA computations

From the above analysis, external debt may be considered sustainable when measured against two solvency metrics, namely the debt-to-GDP ratio, and debt-to-revenue ratio. Similarly, the computed ratios for debt service-to-revenue ratio are below thresholds (Table 5 and 6), which strongly suggests reduced liquidity risk. But, persistently low exports growth, including any negative shock to exports, poses great risk to sustainability in either baseline or the two shock scenarios (Table 5 and 6). All through, the low growth and export shock poses the greatest risk to debt sustainability, which for most part should require policy caution on the government's part and in future debt accumulation. Thus, despite modest debt accumulation rate, adverse growth shocks, exchange rate depreciation, and export contraction could easily send the country into liquidity risks four years from the first forecast year.

5.2 Public Debt Sustainability Analysis

Public debt sustainability analysis assesses the overall risk to government from the combined external and domestic debt stocks. Introducing domestic debt introduces refinancing risk, but equally moderates some risks entirely coming from the external side. Risks to sustainability could come from either the external debt side or in some cases due to excessive accumulation of domestic liabilities. The combined analysis further integrates the interest rate and debt service effects of government's substitution between domestic debt and external borrowing.

The analysis compares the baseline scenario with two shock scenarios. The first adverse scenario sets the long term fiscal deficit at historical average primary deficit

plus one standard deviation. Scenario two comprises a persistence of the primary deficit rate of 6% in 2016 and 2017, combined with growth rate of real GDP at historical average real rate less one-standard deviation. The transmission mechanisms of the two scenarios containing changes to the primary deficit is through the effect on debt creating flows; that is, a rise in primary deficit tends to drive debt accumulation

Table 7: Public debt sustainability ratios

	2015	2016	2017	2018	2019	2020	2021	2024	2022-2030
PV of debt-to-GDP ratio									
Baseline	46.53	47.38	46.77	47.26	47.69	47.56	47.54	43.94	42.46
Primary balance unchanged	46.53	47.07	47.92	49.54	51.06	52.79	54.52	56.81	59.52
Low growth	46.53	49.03	51.74	52.43	53.07	53.16	53.38	50.48	49.53
Threshold	74.00	74.00	74.00	74.00	74.00	74.00	74.00	74.00	74.00
PV of debt-to revenue ratio									
Baseline	207.61	195.60	187.82	198.88	201.29	193.07	193.41	172.67	164.35
Primary balance unchanged	207.61	194.32	192.43	208.51	215.49	214.31	221.82	223.22	230.01
Low growth	207.61	202.32	207.58	220.51	223.80	215.68	217.05	198.28	191.57
Threshold	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
Debt service-to-revenue ratio									
Baseline	23.73	17.60	15.69	20.63	23.70	23.62	24.72	25.94	20.06
Primary balance unchanged	23.73	17.69	15.45	18.95	23.86	23.49	25.21	29.36	23.49
Low growth	23.73	17.60	15.61	20.53	25.86	25.98	28.06	33.23	28.35
Threshold	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00

Source: DSA computations.

Table 7 presents computed sustainability indicators for total public sector debt. The present value of public sector debt to GDP in the baseline rises steadily from 46.51% in 2015 to 47.38% in 2016. The ratio peaks slightly above 47% in the long-term, but begins to decline in the outer years. The other two scenarios yield approximately worsening debt ratios over time. The ratio, for example, exceeds more than the 60% associated with the long term primary deficit shock. None of the scenarios breaches the benchmark 74% for debt to GDP ratios, thus the debt is fairly stable under this. This shows that despite the deterioration of debt indicators in the middle years, the debt profile improves over time. Similar trends are observed for the present value of debt-to-revenue ratio (Figure B1 and B2).

Nevertheless, the ratios for total public debt service are not impressive. Debt service-to-revenue ratio, which measures the capacity of the country to obtain local resources to service maturing debt obligations, appears to worsen dangerously towards the middle of the forecast period, reflecting perilous debt repayment burden for Kenya (Figure B3). The second scenario ratios (which combine a primary deficit and growth shock) indeed breach the thresholds about 2024. This poses the danger that the country will be using a lot of local resources to service debt instead of placing those resources in priority social and productive sectors. This aggravates liquidity risk for Kenya if no correction to the total public debt accumulation and repayment is made. In both graphs and Table 7, the risk of uncontrolled debt accumulation under conditions of low growth and primary balance shocks could send the country towards debt distress and associated growth risks.

6.0 Conclusion and Recommendations

The fast-paced accumulation of debt today, at least from the Kenya government's standpoint, is justified by the anticipated growth returns of the debt financed investment. The 2015 government's official debt policy documents and actual borrowing confirms a real policy shift from concessional to external commercial borrowing and semi-concessional government-to-government loans. Such borrowing, however, brings with it exchange rate and interest rate risks, despite its potential positive contribution to growth. The advantages of debt-financed public investment should, therefore, be weighed upon the costs of debt if the expected growth acceleration, for example, does not take place.

The rise in size of debt to more than 50% of nominal GDP could trigger own debt dynamics, whereby the requirement for more financing is coupled with increased demand for resources to amortize the debt and pay down interest. More importantly, the rising share of commercial debt potentially exposes Kenya to interest rate and exchange rate risk, and equally to repayment problems in times of economic stress.

Thus, the analysis incorporated a baseline scenario based on assumptions about future evolution of debt accumulation, repayments and macroeconomic factors, mainly backed by Kenya's debt policy. The basic scenario, called the "baseline", was tested against alternative assumptions about growth, exports, primary balance, and borrowing terms. In the baseline scenario, external debt profile was considered sustainable when measured against three solvency metrics, namely the present value of debt-to-GDP ratio, the present value of debt-to-revenue ratio, and debt-to-exports ratio. However, if the economy grows at a lacklustre 4.8% in the long-term, combined with low export growth equivalent to 4.7%, then computed ratios exceed sustainability thresholds for key external debt repayment capacity, exports and local revenue. Similarly, the combined effect of low growth and rising borrowing costs reduces repayment capacity from exports and local revenues. The results uniformly confirm that persistently low economic growth, including negative shock to exports, poses the greatest risk to sustainability of external debt.

Public debt sustainability, combining domestic and external debt, indicates dichotomy in the debt ratios, whereby the simulated ratios for debt-to-GDP and debt-to-revenue are within thresholds, but those for debt service-to-revenue exceed the threshold for some years under a long-term growth shock. Debt service-to-revenue ratio, which measure the capacity of the country to obtain local resources to service

maturing debt obligations appears to worsen dangerously towards the middle of the forecast period, reflecting perilous debt repayment burden for Kenya.

In conclusion, Kenya's debt service ratios are not sustainable when growth and exports, the key indicators for repayment capacity, fall slightly below their historical values. This shows aggravated liquidity risk for Kenya, meaning that rising debt service on external debt and domestic debt could strain foreign exchange earnings and local revenues in the medium to long term. Overall, the suggested solutions include raising growth, moderating debt accumulation, and reducing the current account deficit through investment in the exports sector.

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Appendix

Appendix A: External Sustainability

Figure A1: Present value of debt-to-GDP ratio
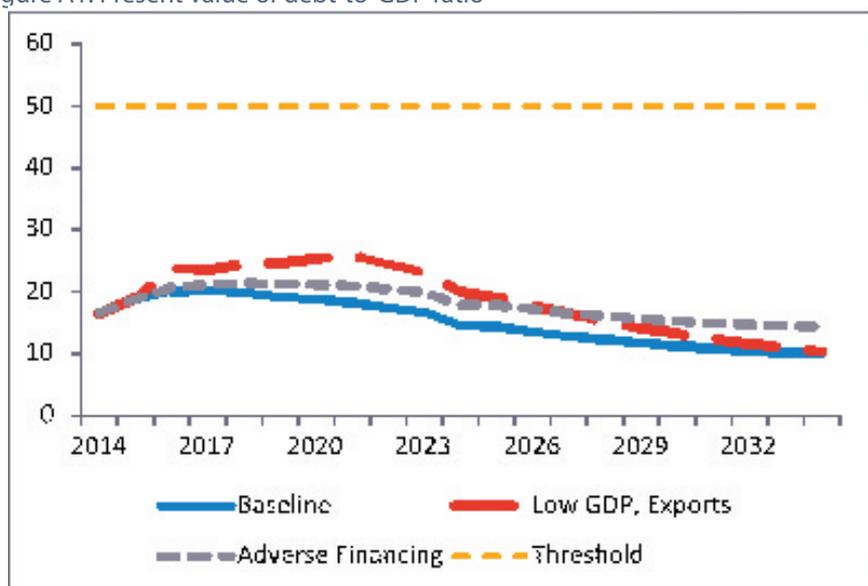
Figure A2: Present value of debt-to-exports ratio
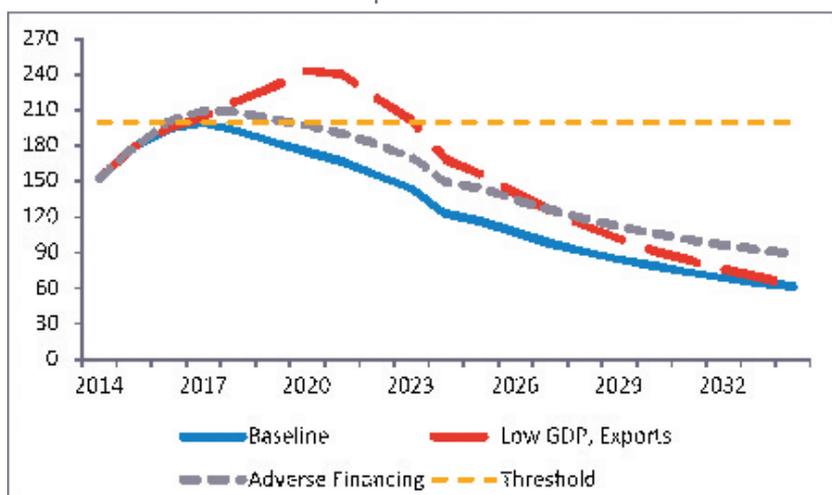
Figure A3: Present value of debt service-to-revenue ratio
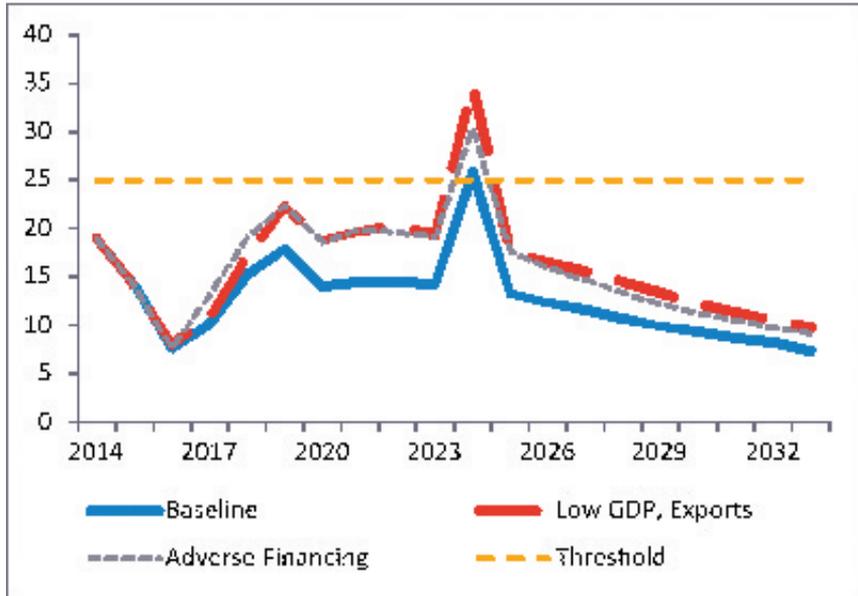
Appendix B: Public Debt Sustainability

Figure B1: Public debt, present value of public debt-to-GDP ratio
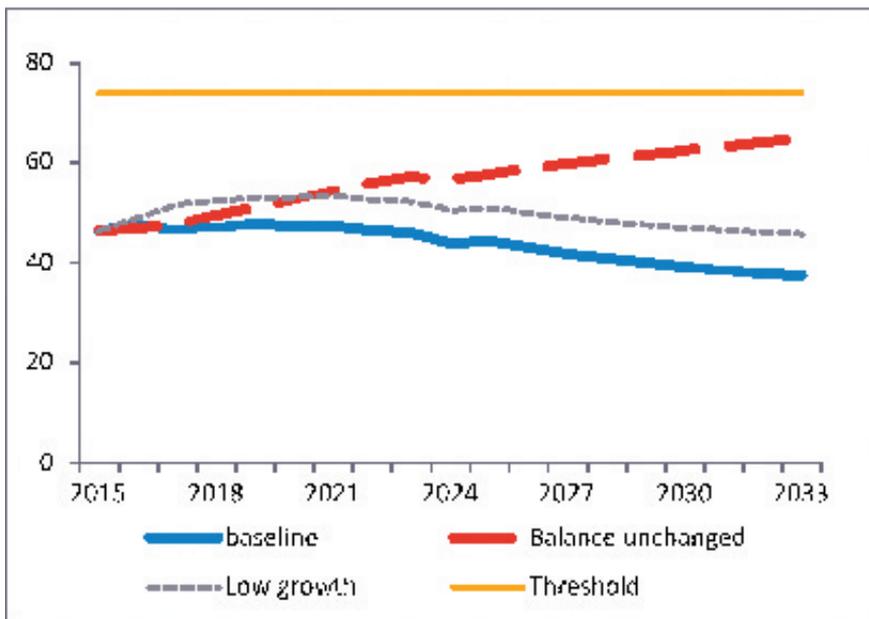
Figure B2: Public debt, present value of public debt-to-revenue ratio
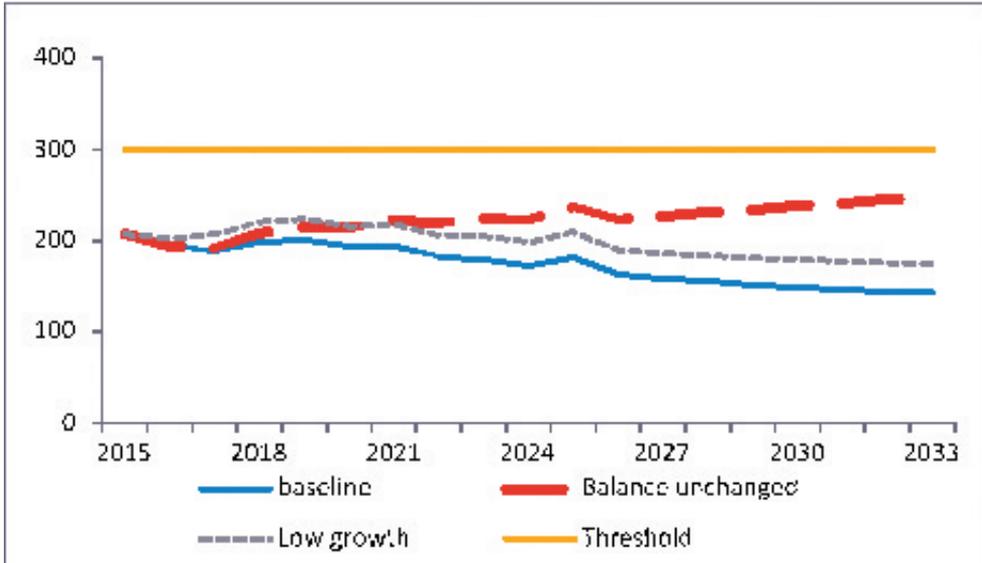
Figure B3: Public debt, debt service-to-revenue ratio
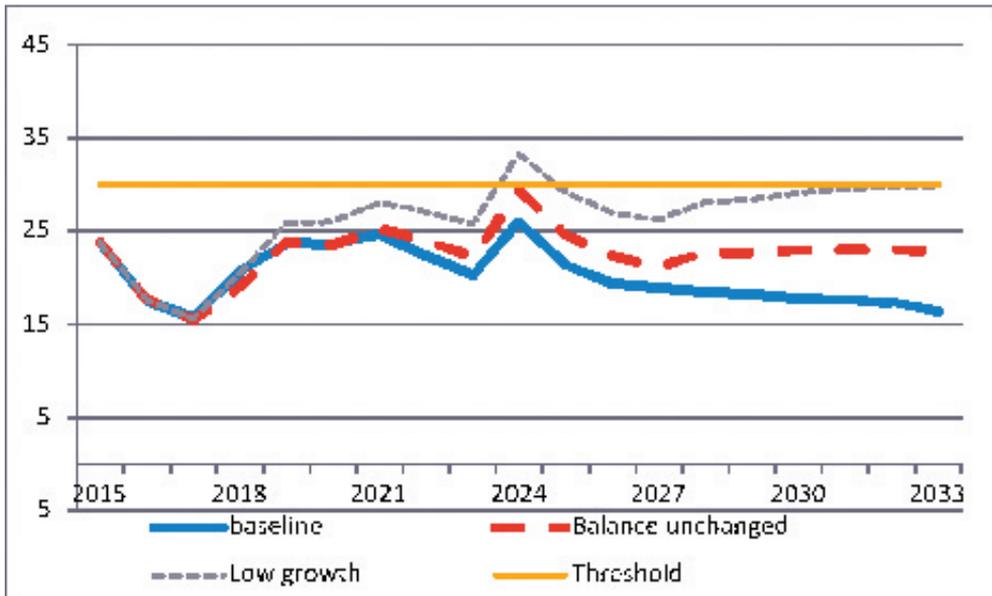
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