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Achieving debt reduction through fiscal and macroeconomic stability in Zambia

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Abstract

Research problem: Zambia in the past experienced debt crises and in most cases used fiscal adjustments and monetary tightening as efforts towards redeeming the economy. However, it has been noted that the country fails to come out of the crisis without external support mostly from the IMF and World Bank. This research looks at how Zambia can use fiscal and Macroeconomic variables (fiscal, interest rates, growth rates and inflation rates) to sustain public debt. Zambia has a record of unsustainable debt due to inactive use of these variables. There is always a tendency to emphasize them during a crisis and this comes too late to remedy the extent of the damage.

Contribution of study: Various studies have been carried out on Zambia's debt management but there seems to be no serious emphasis on the efficient use of these variables as guides to debt reduction. This study emphasizes the active and continuous use of these variables as they form the basis for economic stability which is a foundation for ensuring liquidity in the economy and thus capacity to sustain public debt.

Aim and objectives: to establish how fiscal and Macroeconomic variables can be used to sustain public debt. This study identifies the use of fiscal and macroeconomic variables (growth, interest rates and inflation) as essential in reducing the debt level to acceptable levels. It also recognizes the availability of other debt reduction strategies but emphasizes the use of fiscal and macroeconomic variables as they are always at the government's disposal and their continuous application can prevent debt problems from getting out of control.

Literature Review: Literature Review contains evolution of the debt crisis with particular attention to the 20th century from the post-World War One (WWI) preceded by the great depression, the World War Two (WWII) to the current post-COVID-19 crisis. A sensitivity analysis was used on results of the multiple linear regression coefficients to identify highly sensitive variables to debt dynamics.

Methods: The paper used a combination of quantitative and qualitative data analysis through the mixed-method research.

Findings: It was found that interest rates and fiscal balance were very sensitive to debt but the earlier had a positive while the latter had a negative effect on debt.

Conclusions and Recommendations: The study concluded that fiscal policy makers needed to focus on fiscal balance which indicated a higher debt reduction per unit of fiscal balance. In order to achieve this, fiscal balance needed to grow by 4.5 of GDP to make debt barely sustainable. This result guides Zambia to direct more effort towards managing the fiscal balance.

Keywords: Fiscal adjustment; Monetary tightening; Economic stability; Post-COVID-19 crisis; Fiscal balance

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1. Introduction

Zambia is currently facing two major challenges being a debt crisis and a cost of living crisis. This scenario is not different from most countries in the world. For example, biggest economies in the world, US and China, are struggling with high debt levels and high inflation (Fortune, 2023; 2023; Bloomberg, 2023). The debt crisis and high cost of living are making it difficult for most economies to recover from the devastating impact of the COVID-19 (Forbes, 2022). Big and smaller economies are resorting to tightening of the monetary rates, invoke austerity measures, expenditure cuts, remove or introduce subsidies, tax cuts and stimulus packages, among other measures, in an attempt to rescue their economies. Zambia's effort towards this quest is not different.

In the last two decades, Zambia experienced good economic periods such as from 2006 to 2014 after recording economic growth averaging 7 percent (Smith et al., 2016). This was attributed to the debt relief of 2005 and also the rise in copper demand as manufacturing activities heightened in China (Winton, 2017). The Zambian economy managed to shrug off the impact of the Global financial crisis which ravaged big and small economies due to high economic growth and low debt level (Siyanga, 2018). However, as debt started to build up after the 2012 first Eurobond, growth was on a downward spiral and this was exacerbated by the 2014/2015 drought which affected crop yield and severe power shortages (Lwazi, 2022).

Zambia failed to record meaningful growth since the 2015/2016 season amid more debt acquisition and rising interest on debt (UNICEF, 2016). This led the IMF and World Bank to classify Zambia to be at high risk of debt distress in the year 2017 (Brautigam, 2021). The effect of the COVID-19 pushed the Zambian economy into default in the year 2020. Zambia was the first country on the continent to default on debt terms in the COVID-era (Komminoth, 2022). The effect of the corona-virus pandemic cannot be ignored looking at the huge adverse impact on the global economy, making all countries vulnerable and even wealthy economies and the international community ill-equipped to provide an effective and decisive response (UN, 2022).

This study seeks to review literature relating to economic recovery in a debt crisis using fiscal (deficit/ surplus) and macroeconomic variables (economic growth, interest rates and inflation rates). The study acknowledges that there are a wide variety of debt reduction strategies but emphasis is put on fiscal and macroeconomic stability rather than extreme or extra-ordinary measures such as privatization, repudiation, re-financing, conversions and swaps, among them (Buchheit, 2021; Hakura, 2020)

This paper consists of five sections being the Introduction (already given), Literature Review and research objectives, methods and data, research results, and conclusions.

2. Literature Review

Zambia experienced high borrowing in the last decade and this was associated with rapid increase in debt servicing costs against declining government revenue (Kalikeka et al, 2019). The country's revenue capacity was completely ravaged during the pandemic forcing the economy to record a negative growth of negative 2.8 percent (Beetsma, 2022). Zambia's economy is vulnerable and history indicates that the country has a low and fragile revenue base and it is thus unable to pullout of the crisis without external support. In order to avoid continuation of this scenario, the international community encourages countries to follow their guided regional debt ratios (IMF, 2022). The recommended debt ratios are essential in ensuring that governments do not do little (Omotor, 2021; Hakura, 2020).

Government's commitments are seen in the way they stabilize economies through policies of which macroeconomic policies and fiscal policies are at the heart of government's efforts.

In order to appreciate the role that macroeconomic and fiscal debt reduction strategies can play in the economy, it is important to look at the history of major debt crises and how they were solved. These debt reduction methods can be understood by going through the five periods of high debt levels globally, being the 1918-1939 economic depression (1), 1945-1980 post-WWII(2), 1970s oil crisis (3), 1981-1990s "the black hole" long global economic crisis (4), and the global financial crisis of 2008 (5). Solutions to these crises can then be used to reflect possible avenues that Zambia can take to resolve it's post-COVID-19 crisis.

The great depression era 1929-1939: The First World War (WWI) created a number of problems for most countries in that they had to deal with high inflation, high debt levels and feminine in the post-WWI period. Today it is inevitable to read about the economic depression between 1929 and 1939 which reversed gains of 1920s' industrialization. Among

the causers of this crisis were the mounting debt and rapid expansion of the stock market (History.com, 2023). High debts in the post-WWI period were resolved by default and debt restructuring. This was due to the reason that the gold standard was relied upon and economic growth and inflation played no significant influence (Reinhart & Sbrancia, 2011). Interest rates remained high over the decade causing debt to rise to unsustainable levels in most countries. Further, deflation and the deteriorated output exacerbated the debt to GDP ratios. The authors stated that the gold standard in most countries represented the current monetary policy.

The financial repression era 1945-1980: The post-Second World War Two (WWII) also brought in many similar challenges. The WWII debt crisis was liquidated through default and restructuring of foreign debt while financial repression and inflation were used on most debts denominated in local currencies (Reinhart & Sbrancia, 2011). The 1945-1980 period saw the use of interest rates as a tool to repress debt. Financial repression refers to government's tactics to make bonds unattractive and difficult to transfer or convert by the investors (de Rugy & Kling, 2022) This period of financial repression saw most countries to lower interest rates to even negative percentages in order to reduce debt burdens (FitchRatings, 2022). For example, most developed economies spent half of the repression period with their interest rates in the negative especially on savings and higher interest rates on bonds. This was not the case for freer capital market before 1945. The action led to the rise in bondholders. The authors indicated that post-war growth was a key driver in reducing debt.

During this time, the world decided to establish institutions such as the International Monetary Fund (IMF) and the World Bank to help countries recover and sustain public debt in future. Interestingly, the IMF had to bailout most countries during this period and included the UK, among other European countries (Reinhart & Sbrancia, 2011). The surprise economy was Switzerland which did not participate in WWII but offered to provide safety of the wealth of other nations Gold reserves. After the WWII, most of the wealth kept in Switzerland was not claimed because of the high number of dead wealth people (Economic Raven, 2021). This was contrary to Finland which defaulted on the US debt during the economic depression 1930-1939 and has never settled since then.

The oil shortage crisis of 1973-1976: The 1970s oil crisis affected Zambia because the country had to import oil against declining revenue from copper. This caused deep fiscal deficits (Saungweme & Odhiambo, 2018). By 1976 Zambia had a balance of payments crisis and was highly indebted to the IMF (Siyanga, 2018). The situation forced the country to devalue its currency in 1976 by 20 percent under the IMF condition (IMF library).

The financial liberalization period 1981-2009: This period is referred to as a "black hole" because of the prolonged crisis which stretched from 1980 to the middle 1990s. The crisis raised the debt to GDP ratio to 277 percent by the year 1993 (Saungweme & Odhiambo, 2018). The author stated that during this post-period, Zambia decided to raise funds by issuing Treasury bills and bonds using an auction system at high interest rates of 200 percent between 1992 and 1993. The author also indicated that liberalization of the financial market in 1995 (BOZ, 2015; Foreign Exchange Act 1994) saw interest rates reach 15.5 percent on average. Both measures by the year 2001, made debt to GDP ratio to reach 235 percent. This was due to the fact that most private investors including foreign nationals were attracted to this investment. This was a period of capital market liberalization.

The 2008 Financial crisis: The 2008 financial crisis saw the synchronized surge in public debt globally. The financial crisis affected most countries in the world but the effect was more severe in developed countries than in developing countries like Zambia. This situation was not imaginable by most developed economies. The post-2008 financial crisis exposed the inadequacies of monetary measures such as low lending rates of interest, securitization of assets in addressing the financial crisis (The Basel Accords) and realized the importance of combined strategies to smooth out the impact of the crisis (ECB Economic Bulletin, 2016). This led to the realization of the importance of fiscal policy.

2.1. Empirical model and objectives

Various debt reduction strategies exist but the most common ones relate to Reinhart, Reinhart and Sbrancia (2015) cited by de-Rugy & Kling (2022) model which suggests that debt reduction methods can fall into two classes, namely orthodox solutions (economic growth, budget surplus, privatization or sale of assets) and heterodox solutions (debt restructuring, surprise inflation, financial repression and taxing the rich). They provide specific strategies while giving a reasonable scope of strategies. Such strategies are relevant because most of them have been used in Zambia. For example, Zambia cannot forget about privatization of the 1990s, the high inflation reaching 188 percent in 1993 (boz.zm; Chipili, 2021).

Zambia in this regard cannot afford to use all these strategies but it is evident that during 1990s privatization took place and taxing of the rich is not yet dominant like in other wealthy countries such as the UK and the US. This study, however,

aims at the use of fiscal strategies which in Reinhart, Reinhart and Sbrancia (2015) model relate to budget surplus, debt restructuring and taxing the wealthy, while macroeconomic strategies relate to focusing on growth target, inflation rates and interest rates targets (the two are synonymous to features of financial repression). This leads us to develop the following objectives:

2.1.1. Main objective: To establish how fiscal and Macroeconomic variables can be used to sustain public debt. Sub-objectives include the following:

- **Objective 1:** to identify macroeconomic and fiscal variables needed to reduce Zambia’s debt burden.
- **Objective 2:** to establish why each variable has the capacity to contribute to Zambia's debt reduction.
- **Objective 3:** to assess the extent to which each variable contributed towards debt reduction in the past twenty years.
- **Objective 4:** to discover the fiscal and Macroeconomic variables which are more sensitive to the debt level.
- **Objective 5:** to discover the fiscal and macroeconomic variables which are capable of delivering the country out of the post-COVID-19 crisis.

3. Methods and data

Social research provides a number of research philosophies. Using Saunders et al. (2009), a simple research onion provides guides to a number of choices a researcher can make. This study considered the pragmatic philosophy to be appropriate because of its flexibility and that the study was specific and well determined by research objectives (Kaushik & Walsh, 2019).

An epistemology element was relevant because looking at the debt reduction strategies, there is no limit to a number of possible strategies that a researcher can include. This permits flexibility and accommodates new methods and new findings which can be accepted and in some cases update or even replace past findings. The characteristic of epistemology removes barriers of norms in the field, widens the chance of discoveries. There was also an element of Interpretivism because of the presence of qualitative data (Haradhan, 2018). Bryman (2006) Stated that pragmatism can use features of any other research elements to clarify important points.

The Archival research was conducted for the period 2002-2021 on collected data from the Ministry of Finance and National Planning (MFNP). This was a cross-sectional study using secondary data and supplemented by a questionnaire to allow triangulation (Silverman, 2010). Archival research permits the use of annual reports, past documents including results of other researchers (Mbaye, Badia & Chae, 2018). Use of documentary sources is permitted in social research (Mogalakwe, 2009: 221).

3.1 Conceptual Framework

The model in figure 1 indicates the relationship that predictor variables fiscal surplus and macroeconomic variables (economic growth, interest rates and inflation) have towards debt reduction

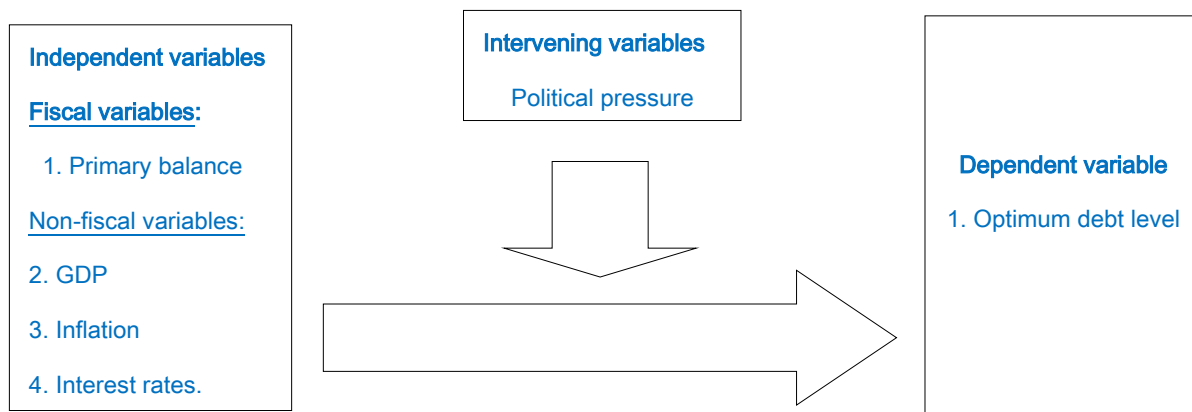


Figure 1 Conceptual Framework

The researcher tested this assumption using multiple regression technique.

- Objectives 1, 2 & 3 were met through access to various literature including MFNP annual reports, BOZ annual reports and quarterly reports, Journals, online sources, newspapers, tv news, and others. An archival research allows the researcher to access data from all available sources including findings of other researchers (Mbaye, Badia & Chae, 2018).
- Objective 4: to discover the fiscal and Macroeconomic variables which are more sensitive to the debt level. This research objective was met by using the Multiple Linear regression technique. Results of variables were identified in the regression coefficients table showing standardized beta and significant values.
- Objective 5: to discover the fiscal and macroeconomic variables which are capable of delivering the country out of the post-COVID-19 crisis.

The variables identified as more sensitive in objective four were used as the basis for helping the country to get out of the post-pandemic debt crisis. In order to come up with the needed effort towards the targeted debt to GDP ratio, these variables were used in the debt sustainability equation suggested by Bohn (1995). The required fiscal balance was established using the Fiscal Reaction Function FRF coined by Bohn (1995). Bohn referred the FRF framework to an error correction model. Government reacts by adjusting the primary balance in order to avert further escalation of the debt to GDP ratio (IMF, 2011). Ogbeifun and Shobande (2020) referred this to a relationship between public debt and fiscal balance (primary balance). Using Bohn's idea, Burger, Stuart, Jooste & Cueva, 2012; Mello & Luiz, 2008) derived the following equation:

$$D_t = (1+it) D_{t-1} - S_t \dots\dots\dots (1)$$

Where D_t is Public debt, S_t represents primary balance (surplus or deficit) and 'it' is the nominal interest on debt. All variables are ratios of GDP (Ikikii, 2017)

The above equation can be used to incorporate GDP and generate equation two by multiplying Y_t on both sides of the equation.

$$D_t/Y_t = [rt - gt / 1+gt] [D_{t-1}/Y_{t-1}] - [S_t / Y_t] \dots\dots\dots (2)$$

Where change Δ in $D_t/Y_t = 0$, Y_t is GDP (output), rt is real interest rate, and gt is real growth rate.

Making primary balance the subject produces equation three which is a rule that determines the primary balance needed to maintain the debt target.

$$[S_t / Y_t] = [rt - gt / 1+gt] [D_{t-1}/Y_{t-1}] = \alpha [D_{t-1}/Y_{t-1}] \dots\dots\dots (3)$$

Where $\alpha = [rt - gt / 1+gt]$

3.2 Empirical framework

Frankel (2019) suggested three stages needed as efforts towards debt sustainability. These include, calculating the growth rate of debt, calculating the required primary balance, and calculating the sustainability index (S2).

$$\text{Debt growth rate is a percentage change in debt and is denoted as } g_B = \Delta B/B. \dots\dots\dots (4)$$

The effect of this change on the PB can be expressed as,

$$g_B = (iB - PB)/B, \text{ Growth rate of debt formula.} \dots\dots\dots (5)$$

Required primary balance (PB^*) is what is needed for debt to become barely sustainable. This is where a Zambia's debt needs to grow at the same rate as GDP (Y). This can be calculated in four steps:

- Substitute PB^* for PB in the debt growth formula, $g_B = iB - PB^*/B$,

- Equate the debt growth formula to GDP growth, $iB - PB^*/B = gY$, to ensure that the growth rate of debt is equal to the growth rate of GDP,
- Multiply both sides of the equation by B to obtain $iB - PB^* = gY B$,
- Rearrange to solve for PB^* , to obtain, $PB^* = (i - gY) B$. (6)

The equation indicates that PB^* increases as interest rates (iB) rise and decreases as growth rate (gY) rises.

The needed increase in primary balance to make public debt barely sustainable is represented as required growth GDP Y needed to increase the primary balance. It is expressed as,

$$S2 = PB^* - PB/Y \dots\dots\dots (7)$$

4. Results

4.1. Objective 1

To identify macroeconomic and fiscal strategies or variables needed to reduce Zambia’s debt burden.

Sustainability of debt depends on several factors, among them are fiscal, economic prospects, financial market conditions, the structure of debt and quality of institutions (Bouabdallah et al., 2021). Key to these are fiscal and macroeconomic stability.

Fiscal surplus: This is represented by the primary balance which is the excess of government revenue over expenditure less interest on loan (Khalladi, 2019). The government of Zambia is in search of reducing the fiscal deficit. A lower deficit means that government saves resources which would otherwise be allocated towards debt servicing. This results in more resources which can be used for investment. Mainly expenditure cuts and tax increases are considered by a government in dare need to reduce the debt burden. This is what is obtaining in Zambia though proved ineffective in most developing countries (Igwe, Abdullah, & Sherko, 2016)). However, Zambia records fiscal deficits as shown in Table 2.

Economic growth: The best approach to reduce debt is to generate economic growth. Estavao and Essl (2022) advised that achieving economic growth is the only way to get out of a debt trap. However, empirical evidence indicates that high debt levels impede capacity to generate growth and this leads to lower growth (Reinhart, Reinhart & Rogoff, 2012). Zambia needs to reduce it’s current high debt level and this requires innovative transformations to achieve reasonable growth. Currently, the country records lower economic growth rates and even medium-term prospects indicate a rate of 4 percent GDP (8NDP) which is far below that of interest rates on debt averaging 8.97 percent (Brautigam, 2021). This situation makes it difficult to reduce the debt to GDP ratio.

Interest rates and inflation rates have similar features with financial repression.

Interest rates: the idea of managing interest rates is to keep them low so as to pay lower interest on debt and thus contribute to reduction in deficit and debt stock (Reinhart & Sbrancia, 2011). The authors stated that negative real interest rates liquidate existing debt in that it results into transfers of gains from lenders to borrowers. Zambia's interest rates are at 9.25 borrowing and average 25 percent lending (BOZ, 2023). High interest rates act as a ploy to borrowers for investment and ends up stifling economic growth (Al-Habashneh, 2023).

Inflation rates: inflation is usually not related to fiscal measures because it is highly regulated and mostly suffers from political influence. Inflation is currently at 9 percent (BOZ, 2023).

4.2. Objective 2

to establish why each variable has the capacity to contribute to Zambia's debt reduction.

Fiscal balance: it is derived from revenue less expenditure and less interest on debt servicing (Khalladi, 2019). Fiscal deficits are mainly financed through borrowing which increase the debt burden. The debt has to be repaid at some point in future and also requires payment of periodic interest (Ricardo, 1951). Reduction of debt can only be achieved through narrowing the deficit or use of growth enhancing policies which result into fiscal surplus (Calderon & Zeufack, 2020).

Literature indicates that measures involving spending cuts leads to lasting debt reduction than measures involving tax increases (de Rugy & Kling, 2022). However, Zambia has a small tax base and spending cuts do not result into more savings. Past experience indicates that the country struggles to raise finances to meet expenditure into essential sectors. Improving fiscal balance can help to reduce deficits, enable the country to build reserves which are essential for debt servicing.

Classical economists as proponents of balanced budgets advocate for reductions in deficits because high deficits are the main cause of recessions in most economies (Cinar, Eroglu & Demire, 2014). Cinar et al indicated that this view is contrary to orthodox Keynesian economists who see reduction in deficits as a cause of economic stagnation. However, all this depends on benefits derived from this decision. For example, a Zambian economy cannot afford financing most projects from local resources and recent suspension of most infrastructure development (Brautigam, 2021) has caused reductions in jobs, economic activities and growth. This is consistent with findings by Hogan (2004) that a reduction in public expenditure creates an economic slowdown where private sector fails to fill the void left by suspended public expenditure, and this is a scenario for Zambia.

Because of the need for infrastructure development which would otherwise not be achieved using local resources, Zambia borrows to finance such huge projects like power generating plants and roads, among them. This must also be weighed against the benefits and costs of debt finance. In real cases, increases in debt to GDP ratios are expected to reverse as the economy recovers. Literature indicates that reasonable level of borrowing in a developing country can enhance economic growth (Pattillo, Ricci & Poirson, 2002, citing in Alzeud, 2014). For example, infrastructure development in most parts of Zambia are used to reduce the wider gap between the rich and the poor and thus enhance their capacity to contribute to the economy (whitehouse.gov). In order to reduce vulnerability, overcapacity and eventual defaults, Brender et al. (2013) suggested use of the debt-to-income ratio instead of the debt-to-GDP ratio. This means that Zambia can be guided by revenue instead of GDP targets which is a consumption measure and this will lead into improving the fiscal balance.

Economic growth: Economic growth is what every country desires. Economic growth or GDP represents the national income which is needed to service debt (Frankel, 2019). Thus, economic growth needs to grow at a higher rate than interest rates because if interest rates exceed the growth rate the country finds it difficult to raise needed funds for debt servicing. Zambia's economic growth has been declining relative to increasing interest rates on debt, see figure 2. Also projected medium-term GDP sits at 4 percent (8NDP) and this is lower than the projected interest rates of 6 percent on debt denominated in foreign currency (CNBC, 2023). These interest differentials mean that the cost of servicing foreign debt will continue rising. Control of interest rates-economic growth rate differential is important because it can have a "snowball effect" on other variables such as debt and fiscal balance (Bouabdallah et al., 2021).

Inflation rates: inflation is still a factor in the economy especially that it affects the value of the Kwacha and also the cost of living. Managing inflation is key for price stability and makes it easier to plan. This is also needed for the Kwacha exchange rate stability which is essential in servicing foreign debt. It is the reason why the government of Zambia needs a single digit inflation rate to ensure stability and the economy targets an inflation rate of 9 percent (BOZ, 2023).

High inflation may not be good news to investors. In case of local investors, the depreciation of the Kwacha will cause a reduction in the value of their investment. High inflation benefits issuers of bonds and other securities denominated in local currency because the monetary assets and liabilities values remain unadjusted at the balance sheet level. This may influence changes in the behaviour of lenders (investors). For example, expected high inflation may cause most investors to go for short-term investments such as treasury bills and short-term bonds, of say one year.

This practice makes long-term bonds to become unattractive and in the long run require raising the rates to higher levels to attract potential investors. Reducing debt through deliberate inflation is only possible to local debt rather than foreign debt. A low but positive Inflation rate is essential in managing aggregate demand in the economy, and to control it interest rates are set by the central bank (Holtham, 2021).

Interest rates: the country is currently using interest rates to control inflation. This involves setting the monetary policy rates at a desired level in order to curb inflation (BOZ, 2023). The author indicates that the borrowing rates on government bonds have been set at between 18 percent and 27 percent while the lending rates averaging 25 percent and can reach as high as 40 percent. Further, foreign interest rates are rising as major economies continue tightening.

An understanding of the relationship between interest rates and economic growth is important because the two can shape the cause of sovereign debt (Bouabdallah et al., 2021) and this is crucial in the post-pandemic period. High interest

rates are not good for the economy because it makes borrowing from financing institutions expensive and thus reduces investment in the economy. This tends to reduce economic activities and growth (UNICEF, 2016; IMF, 2017).

Foreign interest rates affect debt denominated in foreign currency. Deterioration in foreign interest rates sends a negative signal to the Zambian economy which has huge foreign debt on flexible interest rates. Lower rates are, therefore, necessary to support the local economy and also reduce the debt burden through lower interest payments on government securities such as bonds. Another method of reducing cost of debt servicing involves issuing debt on the basis of perpetuities with options to floating, fixed and inflation linked rates (Cochrane, 2015; Corey et al., 2018). However, Zambia's debt is held to maturity and this makes it difficult to diversify interest costs. Even after international bonds have become unattractive and trading as low as \$43.5 and 44.6 cents bid, Zambia is still subjected to contractual interest rates (IMF, 2023).

In a local economy, lower interest rates can be used to reduce debt where government has an upper hand in influencing banks. Reductions in interest rates on bonds may reduce returns on bonds where government decides to do so. This can discourage investment in government securities. This is a reason why the Zambian government is offering high interest rates to attract more investors. However, the government needs to be worry of the increase in debt burden that may strain the country's capacity to repay (Hakura, 2020).

4.3. Objective 3

To assess the extent to which each variable contributed towards debt reduction in the past twenty years.

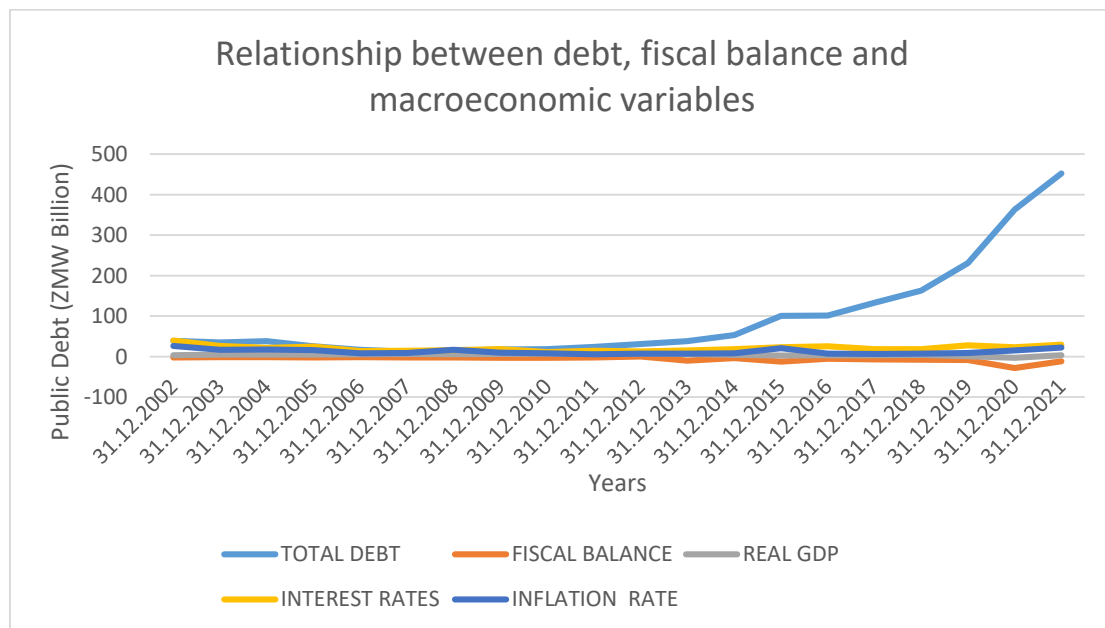


Figure 2 Relationship between debt & determinant variables

Fiscal balance: Figure 2 indicates that there was no relationship between debt and the fiscal balance after the year 2011. From the year 2012, fiscal balance declined into negatives and deepened as we reached the year 2020. This steep slope between 2019 and 2020 is attributed to the COVID-19 crisis. The year 2021 indicates a slight recovery but just not enough to move from the negatives. This recovery was as a result of availability of the vaccines which eased pandemic restrictions.

Economic growth: The GDP remained in the range 3 to 7 percent over the twenty year period but an upset of negative growth was recorded in 2020. Overall, GDP did not have any impact on the level of debt after the year 2011.

Interest rates: Figure 2 indicates that interest rates were effective from 2002 to 2011 but eventually lost the grip after the year 2011. High interest rates (local or foreign) are regressive to the economy if they surpass economic growth. High local interest rates become prohibitive to borrowers and this reduces investment on one hand while on the other hand attracting the wealthy who in the case of Zambia may be foreign investors to buy financial securities such as bonds and Treasury bills. This can create two adverse effects on the economy where finances raised are not invested to yield

a higher return than the yield on bonds. One effect is an increase in the debt burden and the other one is widening the gap between the poor majority and a few rich. It is likened to making the rich richer.

Interest rates are more effective in developed economies because the good number of locals are wealthy and can lend to the government at competitive rates. This lowers interest rates to unimaginable levels. In addition, government lends to local borrowers at reasonably low rates to encourage investment. This is meant to ensure a functional fiscal policy (Keynes, 1936; Cinar, Eroglu & Demire, 2014) needed to generate higher economic growth than interest rates. Also, local borrowing gives the government access to the financial repression and deliberate strategies.

Inflation rates: Figure 2 indicates that Zambia’s debt moved in the same direction with inflation from the year 2002 to the year 2011. From 2012 to 2021 inflation rates did not change much but there was rapid increases of debt burden. This indicates the lack of influence that the level of inflation had on the debt stock from the year 2012 to 2021. There is no evidence that inflation can influence the borrowing decisions and level of debt in Zambia. This can also be collaborated with the table of variables (table 2) indicating the highest inflation rate of 26.7 percent in 2002, the lowest inflation rate at 6 percent in 2015, and the second highest inflation rate of 22.1 percent in 2021. These years indicate different patterns in terms of debt levels.

Managing inflation is an important task especially in the current period of stagflation. Lower and stable inflation is necessary to reduce uncertainty and avoid derailing future plans. Control of inflation requires deciding on a targeted inflation rate which should be able to regulate the money supply in the economy and safeguard the integrity of the Kwacha (Holtham, 2021). High inflation is not good to the economy because imports become expensive. This can affect the price of imported goods and raw materials. It is a reason why the government of Zambia has aimed at reducing the inflation rate to a single digit (8NDP). The benefits with low inflation are that it becomes easier to plan ahead and also easier to manage the economy.

High inflation is not good for the economy because higher rates of inflation in extreme cases can create a financial crisis (Barrow, 2013; Khalladi, 2019). Managing inflation is more effective in developed countries which produce more and consume more of local products and thus avoid imported inflation. The other measure to shield the economy is to borrow locally in local currency which reduces the risk of Kwacha depreciation against other currencies in which debt is denominated.

4.4. Objective 4

to discover the Macroeconomic variables which were more sensitive to debt level in the past twenty years.

This objective was met by observing the results in the Multiple Linear Regression- table of coefficients.

4.4.1. Regression Coefficients

Table 1 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-98.619	202.482		-.487	.633	-530.200	332.961		
	REALGDP	2.811	21.149	.055	.133	.896	-42.267	47.888	0.136	7.341
	REALINTR	6.158	5.556	.350	1.108	.285	-5.683	17.999	0.234	4.280
	INFLATIO	-2.388	4.736	-.121	-.504	.622	-12.483	7.708	0.406	2.464
	FISCALBAL	-14.599	6.727	-.761	-2.170	.046	-28.937	-.262	0.189	5.278

a. Dependent Variable: TOTALDEBT

Standardized Beta: This indicates influence of predictor variables on the outcome variable. For example, real interest rates have the greatest value of a standardized coefficient beta of 0.350 indicating higher influence on debt. This result in table 1 means that any increase in interest rate increases debt by 350 million Kwacha. Fiscal balance, however, indicates a large negative beta (-0.761) denoting that any increase in one unit of fiscal balance can reduce debt by 761 million Kwacha. Fiscal balance in this case can be increased to reduce debt. This is consistent with Blanchard's (2020) suggestion that fiscal rather than monetary measures are effective ways of improving the fiscal situation. The choice can be confirmed by the significance values where fiscal balance has a higher significant value of 0.046 ($p < 0.05$) compared to interest rates significant value of $p = 0.285$. These results indicate that both interest rates and fiscal balance have influence on debt level. However, it is worth realizing that fiscal balance has a negative effect on debt sustainability as its increase means that the deficit narrows and hence borrowing is reduced.

Studies which have used a sensitivity analysis to data include:

Bouabdallah et al. (2021) on their work entitled “ sensitivity of sovereign debt in the euro area to interest rate – growth differential shock” using the Bayesian vector autoregression (BVAR) model found that macroeconomic, fiscal and financial variables had significant impact on the debt burden especially for higher - debt countries.

IMF (2013) on the study of “ the challenges of debt reduction during fiscal consolidation “ used sensitivity analysis to test the impact of changes in GDP, fiscal tightening and inflation. It was found that fiscal tightening raises the debt ratio in the short-term because of reduced output. In the medium- term debt can eventually decline providing the authorities do not focus on repeated tightening to conform to the official debt to GDP ratio target.

ECB Economic Bulletin (2016) in their study of debt reduction strategies called ‘the stability and growth pact (SGP)’ in the euro area used sensitivity analysis to test the variables inflation, growth and structural balance on panel data by building scenarios. It was found that fiscal adjustment aligned with stability and growth pact contribute to reduction in debt ratio. Where fiscal adjustment was not used, debt reduction was possible because of spending pressures and rising interest rates.

4.5. Objective 5

to discover the macroeconomic variables which are capable of delivering the country out of the post-COVID-19 crisis.

Reducing the fiscal deficit: Zambia has a widening fiscal deficit which over the last decade indicates rapid increase. Moreover, objective 4 confirms that fiscal balance has a huge negative meaning that as it increases debt declines. The negative (-0.761) denotes that fiscal balance is the most sensitive variable to debt and is a better way to reduce debt accumulation.

Suppress interest rates: The factors increasing debt most are interest rates. The positive (0.351) being the largest indicates that it is the main source of debt increase. For example, Zambia has 8.9 percent interest rates on foreign debt (Brautigam, 2021) compared with medium projected economic growth of 4 percent (National Assembly of Zambia, 2022). This means that debt is growing at a higher rate than growth rate.

Estevan and Essl (2022) suggested that a better way to escape a debt trap is to grow out of it. This is a reason why in most developed countries, interest rates are much lower than economic growth. In countries like Japan, interest rates can even reach negatives to ensure that even a recorded mediocre growth of 1 percent or less surpasses interest rates (FitchRatings, 2022). The idea is to worry about growth targets rather than the debt ratio because the country can only manage to pay its obligations out of its National income which is merely the GDP (Frankel, 2019).

Lower deficits alongside higher economic growth can stabilize the economy and reduce the debt burden (FitchRatings, 2022).

The effort needed to bring down the debt ratio to 60 percent (Mbandlwa, 2020) can be calculated using the modified debt sustainability equation (Frankel, 2019). The required fiscal balance was calculated from equation (6) which is also known as the debt stabilization equation (Napo, 2022).

$$FB^* = (i-g) B. \dots\dots\dots(6)$$

FB* is required fiscal balance =?, “i” is interest rate which relates to the expected highest global rate of 6 percent (CNBC, 2023; www.bloomberg.com), “g” is economic growth of 3.8 (World Bank,2022), B is the required debt ratio of 60% (Mbandlwa, 2020).

$$FB^* = (6 - 3.8) 60 / 100 = 1.32$$

Therefore, Zambia requires a FB/GDP ratio of 1.32 percent in order to make the debt sustainable.

The question now arises as to what needs to be done to achieve this FB/GDP ratio. The main target should be economic growth which can generate resources needed to support the FB. The growth rate to increase the fiscal balance can be expressed as,

$$S_2 = (FB^* - FB) / Y \quad \dots\dots\dots (7)$$

Since FB and Y are in percentages (ratios) and not in nominal values the equation can be reduced to,

$$S_2 = FB^* / Y - FB / Y$$

$$S_2 = 1.32 - (-11.47 / 3.6) = 1.32 - (-3.186) = 4.50$$

Therefore, the country must raise its fiscal balance by 4.5 percent of GDP to make debt sustainable. However, this will depend on factors such as the lingering effect of the pandemic, improvement in global inflation and local investment. Where there is uncertainty, Carton and Fouejieu (2020) suggested the use of three scenarios being the optimistic scenario, the weak scenario and the pessimistic scenario. This study assigned risk rates at 0.1, 0.6 and 0.9 respectively. This is consistent with other studies such as Napo (2022). From the 2021 and 2022 figures already obtained, expected FB to GDP ratios for years 2023, 2024, 2025 and 2026 are to take the following trajectories:

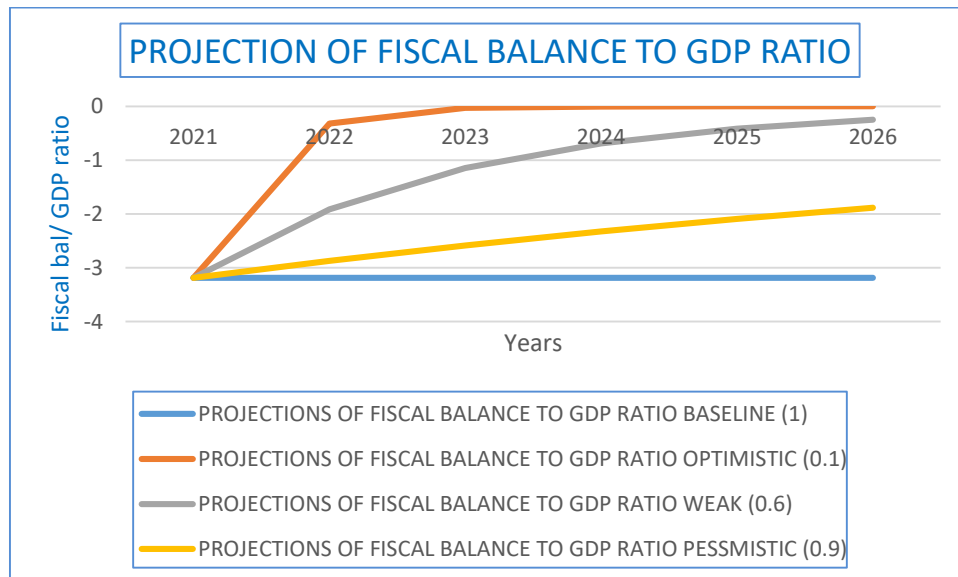


Figure 3 Projected FB/GDP ratio based on three scenarios

The above figure (figure 3) indicates an initial negative FB/GDP ratio (refer to Table 2). The figure shows that unless the limitations are eliminated, Zambia will not be able to raise its needed fiscal balance to 4.5 of GDP. In the medium term, it is not possible to reach the needed fiscal balance/GDP as the optimistic scenario indicates only a recovery from the negative ratio. If the positive scenario is imminent, the full recovery should take not less than 10 years. If unfortunately other scenarios become likely, the recovery process may require a much longer period and might need radical measures for the fiscal balance to improve. It is commonly recommended to use fiscal balance scenarios because of their impact on the accumulation of debt (ECB Economic Bulletin, 2016). This is because fiscal adjustment can help the country to get out of debt.

5. Conclusion

Two main strategies key in reducing Zambia's public debt are fiscal balance and economic growth. A minimum of 1.32 fiscal balance to GDP ratio is required to bring the debt ratio to the acceptable SADC threshold of 60 percent (Mbandlwa, 2020). This is simply possible through targeting economic growth of 4.5 percent to make the debt barely sustainable.

Interest rates are ranked the second sensitive variable and have positive relationship with debt. This means that they increase debt. Zambia must find ways of managing interest rates. For example, while interest rates are higher in Zambia, the economy has not been doing better than in Japan and European countries where interest rates are too low and sometimes in negatives (FitchRatings, 2022). This indicates that whilst interest rates can be injurious to the economy, they may be used in a positive way to provide cheaper credit to boost local investment and economic growth.

All the four debt reduction methods did not show a direct link with the debt level. This confirms that Zambia does not relate its fiscal and macroeconomic variables to debt stock and thus uses a non-Ricardian approach in deriving the fiscal balance (Afonso & Coelho, 2022). This disconnection leads to a weaker control position.

Despite the increase in the number of lenders, Zambia needs to develop a system that can ensure fiscal prudence and also backstop access to further borrowing to avert a crisis. Lessons need to be learnt from past mistakes and even the UK and other developed economies stopped assuming having access to credit after IMF bailouts between 1950s and 1980s (Reinhart, Reinhart, & Rogoff, 2015).

It is important to note that a debt servicing allocation is a political decision and may not be influenced by debt reduction strategies. However, the negative impact of high debt cannot be ignored and it is important to learn from past mistakes to avoid bating on the future.

Compliance with ethical standards

The researchers ensured that data was obtained in good faith for the purpose of the study and had no intention to use information for personal benefit or benefit a third party.

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Appendix

Table 2

YEAR	TOTAL	FISCAL	REAL	INTERES	INFLATIO	FB/GDP
	DEBT	BALANC	GDP	RATES	RATE	RATIO
31.12.2002	38.7	-2.26	3.3	40	26.7	-0.68
31.12.2003	35.5	-1.56	5.1	26.1	17.2	-0.31
31.12.2004	38.31	-1.27	5.4	22	17.5	-0.23
31.12.2005	25.57	-2.36	5.2	24.9	15.9	-0.45
31.12.2006	16.62	-1.59	6.2	13.6	8.2	-0.26
31.12.2007	12.38	-1.92	6.3	14.8	8.9	-0.30
31.12.2008	14.23	-2.07	5.8	16.2	16.6	-0.36
31.12.2009	17.46	-2.50	6.4	18.5	9.9	-0.39
31.12.2010	18.86	-2.42	7.6	11.6	7.9	-0.32
31.12.2011	23.8	-1.79	6.6	14.6	6	-0.27
31.12.2012	31.42	0.64	7.3	13.1	7.3	0.09
31.12.2013	38.68	-9.79	6.7	15.4	7.1	-1.46
31.12.2014	53.69	-3.59	4.7	18.5	7.9	-0.76
31.12.2015	101.12	-12.38	2.9	23.6	21.1	-4.27
31.12.2016	101.69	-5.48	3.8	25.8	7.5	-1.44
31.12.2017	133.32	-7.07	3.5	18.9	6.6	-2.02
31.12.2018	163.46	-7.31	4	18.9	7.5	-1.83
31.12.2019	230.87	-8.27	1.4	28.1	9.1	-5.91
31.12.2020	363.45	-27.74	-2.8	22.9	15.7	9.91
31.12.2021	452.51	-11.47	3.6	29.5	22.1	-3.19