



External Debt Dynamics and Implications for Monetary Policy in the SADC Region

Paper prepared for the SADC Committee of Central Bank Governors (CCBG)

Nebson Mupunga, Tawedzerwa Ngundu and Philton Makena

RBZ WORKING PAPER SERIES Number 1/ 2019

Disclaimer: The views and conclusions expressed in this paper are those of the authors and do not necessarily reflect the official position of the Reserve Bank of Zimbabwe nor the SADC Committee of Central Bank Governors.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
SECTION 1: INTRODUCTION	4
SECTION 2: STYLISTED FACTS ON EXTERNAL DEBT AND MONETARY POLICY	6
Risk of Debt Distress Ratings	12
SECTION 3: REVIEW OF LITERATURE	14
SECTION 4: METHODOLOGY AND EMPIRICAL ANALYSIS.....	19
SECTION 5: RESULTS ANALYSIS.....	20
SECTION 6: CONCLUSION AND POLICY IMPLICATIONS.....	25

LIST OF FIGURES

Figure 1: Public Debt Developments for SADC and SSA Region	6
Figure 2: External Debt Developments 2010 and 2018	7
Figure 3: Average Multilateral and Concessional Debt for SADC LIC countries (2005 to 2017)..	7
Figure 4: Sovereign Bond Maturities for SADC countries.....	8
Figure 5: Drivers of Public Debt Dynamics in SADC	9
Figure 6: Drivers of External Debt SADC Countries	9
Figure 7: SADC GDP Growth Rates (2007 to 2018).....	10
Figure 8: Primary and Overall deficits for SADC countries 2006 to 2018.....	11
Figure 9: Exchange rate Depreciations (2010 to 2018)	11
Figure 10: SADC LIC Countries: Debt Risk Ratings for 2018	12
Figure 11 : External debt and Inflation (% of GDP average 2015 and 2018).....	20
Figure 12: External Debt and Exchange Rates	21
Figure 13: External Debt and Policy Rates	21
Figure 14: Annual Change in External Debt and Annual Change in Import Cover 2010-2018	22
Figure 15: Panel Bivariate Results: External Debt and Inflation.....	24
Figure 16: Panel Bivariate Results: External Debt and Exchange rates	25

LIST OF TABLES

Table 1: SADC MAC Countries: Debt Risk Analysis for 2018	13
Table 2: Panel Regression Results: Modified SADC Taylor Rule	23

EXECUTIVE SUMMARY

This paper assesses the implications of changes in external debt on the effectiveness of monetary policy. The paper was motivated by the recent pace of external debt accumulation in SADC countries since 2010, which, in addition to presenting worrisome debt sustainability concerns, could also undermine the effectiveness of monetary policy. The paper finds that on average, external debt is still within manageable levels in SADC countries, with exception of three countries at high risk of external debt distress. External debt in the region is, however, vulnerable to macro-fiscal, exchange rate and export shocks. The paper also finds that automatic debt dynamics, explained by changes in growth rates, exchange rates and interest rates have been key in influencing debt dynamics over and above the current account and fiscal deficits. These findings were collaborated with results from regression analysis, which suggest that changes in external debt is positively related to inflation, policy rates and exchange rate depreciation. This implies that central banks have been responding to increases in external debt through policy interest rates hikes. There are several monetary policy implications of increasing external debt. The first aspect is to ensure that sovereign external debt does not grow out of hand in the first place. Though the central bank cannot control this directly, it can play a significant role by actively and openly supporting enactment of laws to support strong fiscal positions. In addition, central banks can also play a significant role in the development of domestic financial markets to ensure shift away from external debt to domestic debt financing, with positive benefits enhanced market-based operations for central banks. Lastly, there is need to encourage governments to build fiscal buffers to prepare for servicing of the maturing external debts.

SECTION 1: INTRODUCTION

The pace of public debt accumulation in SADC countries since 2010, in addition to presenting worrisome debt sustainability concerns, could also undermine the effectiveness of monetary policy. Total average public debt in SADC increased from 34.9% of GDP in 2010 to 54.9% in 2018 (IMF, 2018). The increase in public debt reflected the general increase in both external and domestic debt. External debt in SADC rose from an average of 23% in 2010 to 30% in 2018. Despite the general increase in debt levels, there are, however, greater disparities across countries in the SADC region.

The deteriorating debt positions reflect mainly increased primary deficits and exchange rate depreciation (World Bank, 2018). Widespread fiscal deficits have led to increased debts, with average fiscal deficits in SADC rising from an average to 2% in 2010 to average above 4.5% since 2015. In addition, only 3 SADC countries had fiscal deficits of over 5% in 2010, compared to 8 countries in 2016. It can be noted that large fiscal deficits largely reflect increased borrowing by SADC countries to finance large infrastructure projects. The favourable global liquidity and significant growth rates in some SADC countries resulted in increased borrowing to finance infrastructure and development expenditures (IMF, 2015).

The improved macroeconomic performance, supported by favourable international commodity prices, contributed to improved creditworthiness. At the same time, new borrowing opportunities emerged as a result of the accommodative liquidity conditions in international capital markets, the deepening of domestic financial markets for some SADC countries and the growing lending activities of non-Paris Club countries such as China (IMF, 2015). The Highly Indebted Poor Country (HIPC) and Multilateral Debt Relief (MDR) initiatives of the early 2000, resulted in increased debt carrying capacity, thereby heightening appetite for borrowing.

The reversal in international commodity prices since mid-June 2014 resulted in falling growth rates and declining government revenues, especially for commodity-dependent SADC countries such as Angola. This led to increased fiscal deficits and debt levels rose on account of financing the deficits. The collapse in commodity prices also put pressure on exchange rates leading to increased external debt due to valuation effects. In particular, SADC countries experienced substantial depreciation in their currencies, posing the risk of increasing external debt service obligations. Additionally, the cost of financing has increased resulting in increased interest payments.

The challenge of external debt accumulation has been exacerbated by the change in debt management landscape, which is now tilted towards non-concessional borrowing from non-Paris club creditors as opposed to concessional loans from international financial institutions and bilateral Paris club creditors that countries have traditionally relied on. A number of SADC countries have had access to international capital markets since 2010 including Zambia, Mozambique and Angola. Consequently the increase in debt resulted in most SADC countries' debt sustainability ratings deteriorating considerably.

It, however, remains unclear whether the recent external debt dynamics trends have impacted on monetary policy and financial stability. As argued by Dornbusch (1996), excessive external debts can potentially lead to challenges in the conduct and transmission mechanism of monetary policy, negatively impacting the conduct of sound monetary policy. Elevated external debts may result in an increase in long-term interest rates and inflation, hampering exchange rate stability and heightening uncertainty and undermining credibility. Kganyago (2012) also highlights that financing pressures emanating from rising fiscal deficits may also have implications on monetary policy in cases where the central bank needs to issue securities to manage money market liquidity. This paper, therefore seeks to understand the implications of increases in external debt on monetary policy in SADC. Specifically, the paper seeks to address the following objectives to:

- i. Review the recent developments in debt, particularly external debt in SADC countries;
- ii. Understand the transmission mechanism of the impact of external debt to monetary policy and how this can constrain monetary policy; and
- iii. Examine the measures central banks can take to limit the negative impact of increased debt on monetary policy.

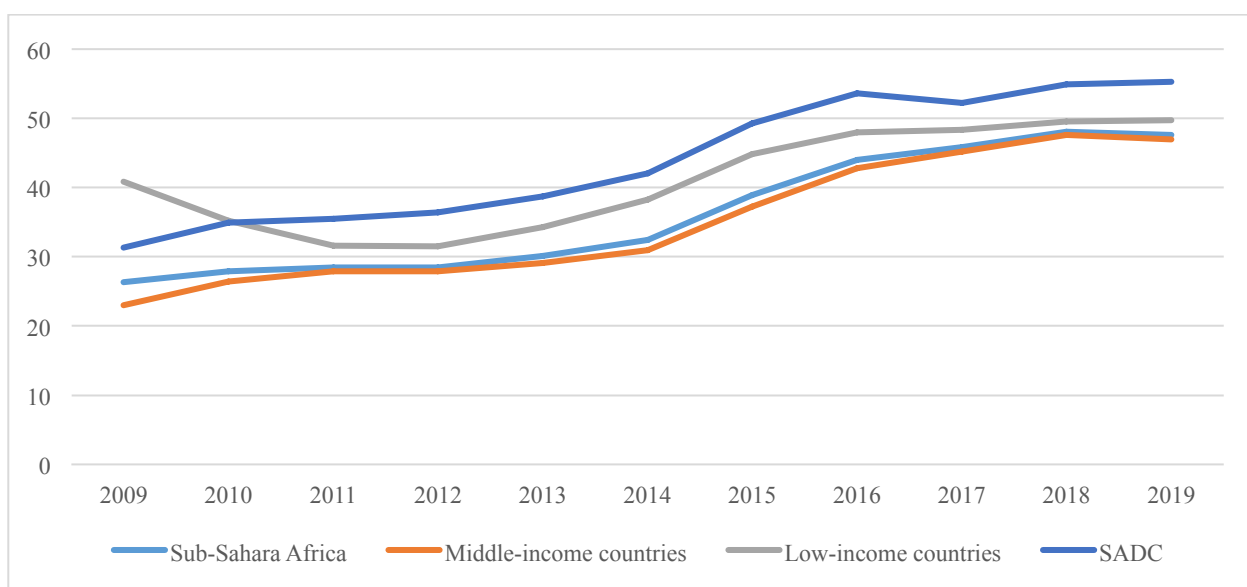
The rest of this paper is organized as follows. Section 2 discusses the recent trends in debt in SADC countries, focusing mainly on external debt. Section 3 provides a review of literature on the impact of debt (external debt) on monetary policy, while Section 4 describes the methodology used in the paper. Section 5 provides results analysis and Section 6 gives the conclusion and policy recommendations.

SECTION 2: STYLISTED FACTS ON EXTERNAL DEBT AND MONETARY POLICY

This section discusses the recent developments in public debt, particularly external debt in the SADC region. It also provides an assessment of the drivers of external debt accumulation in SADC as well as preliminary evidence on the relationship between external debt and monetary policy variables.

Public debt, which was on a downward trend in SADC countries since the early 2000s, took an upward trajectory from 2010, rising from 34.9% of gross domestic product in 2010 to 54.9% in 2018. Public debt in SADC is expected to be higher at 55.3% in 2019. The same pattern was also witnessed in the rest of Sub-Saharan African (SSA) countries. Figure 1 shows developments in public debt for SADC compared to other SSA countries.

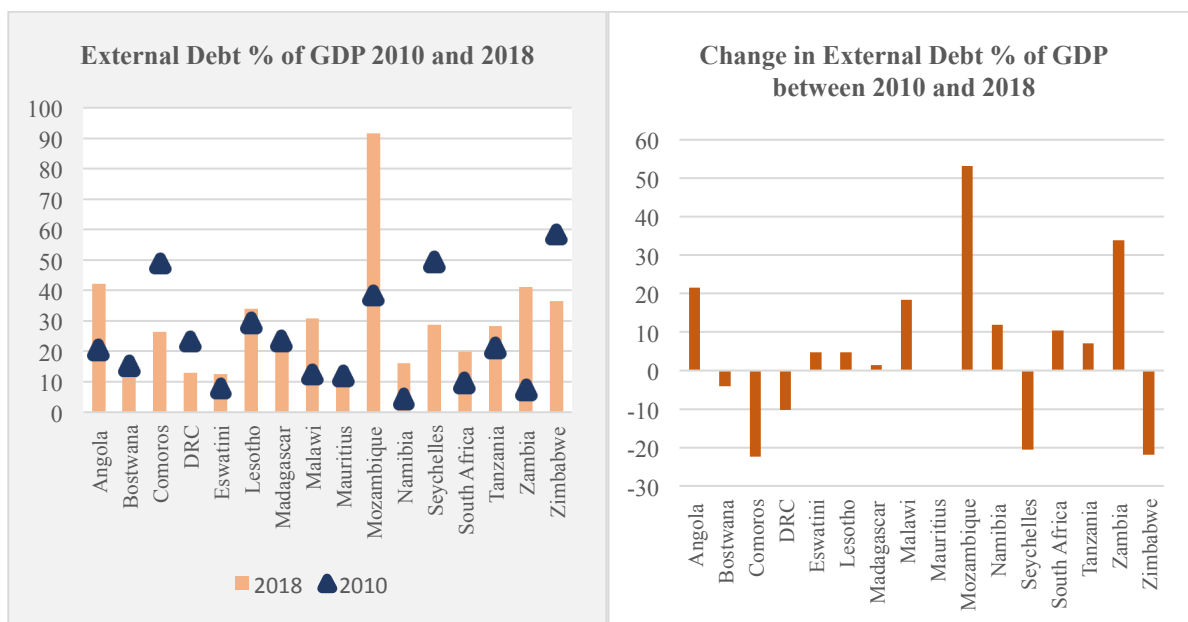
Figure 1: Public Debt Developments for SADC and SSA Region



Source: WEO, 2018

There are, however, significant disparities in the developments in public debt in SADC countries. The same pattern is also discernible in the developments in external debt. External debt in SADC rose from 13.7% in 2010 to 25.1% in 2018 and is expected at 25.6% in 2019. Figure 4 shows developments in external debt in SADC region. The external debt developments also differ among countries in SADC as shown Figure 5.

Figure 2: External Debt Developments 2010 and 2018

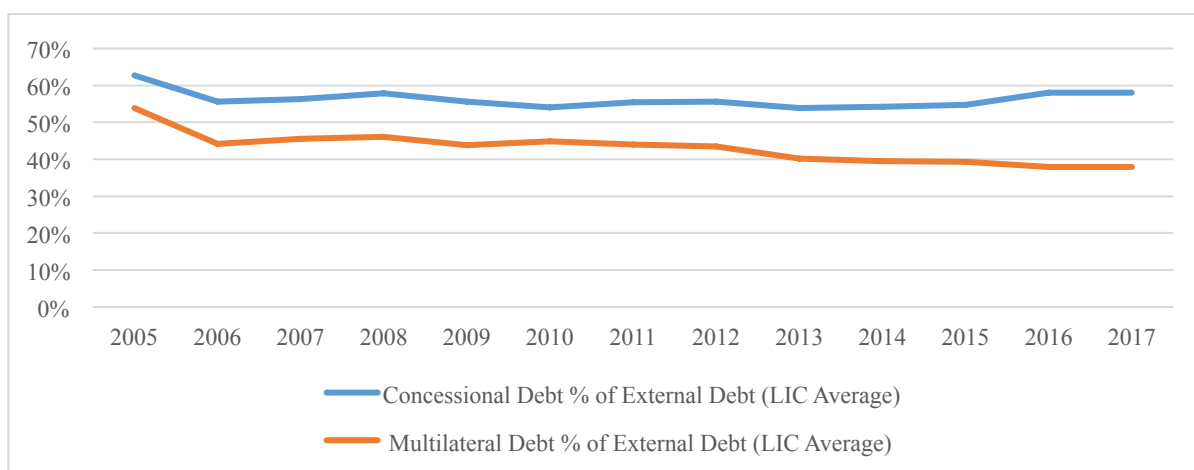


Source: WEO, 2018

2.1 Changing Structure and Composition of External Debt

The structure of external debt has changed from the largely concessionary dominated by the traditional multilateral financiers such as IMF, World Bank and African Development Bank and the Paris Club prior, to the debt relief initiatives towards non-Paris Club, non-concessional and commercial debt. The share of multilateral debt for SADC Least Industrialised Countries (LIC) declined from 54% in 2006 to 38% in 2017, while concessional debt fell from 63% to 58% during the same period.

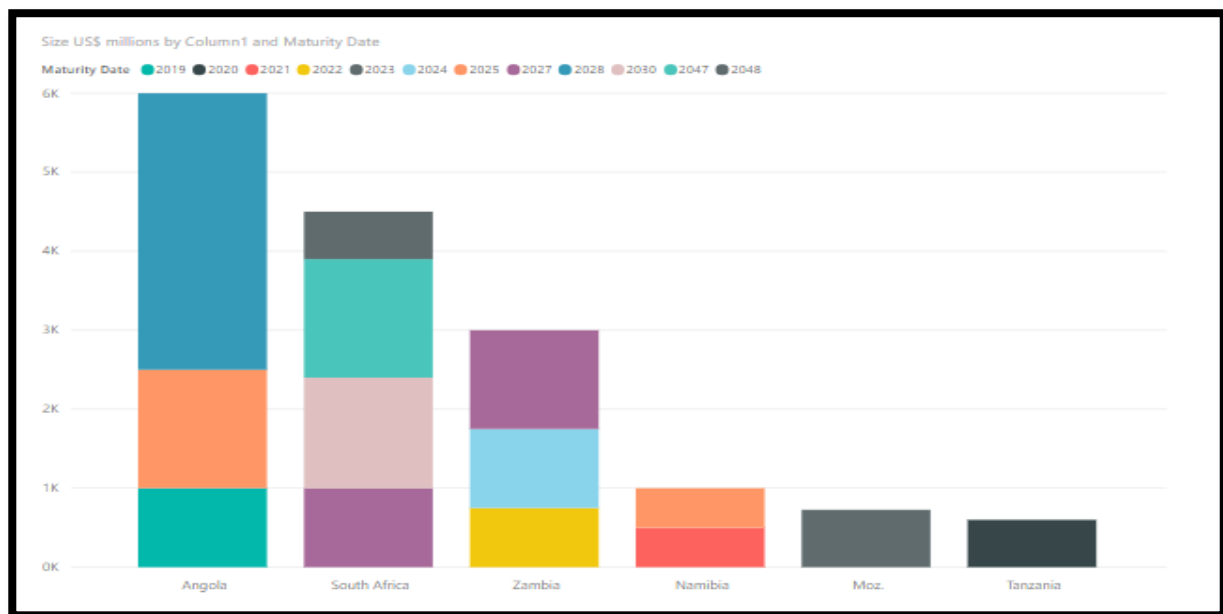
Figure 3: Average Multilateral and Concessional Debt for SADC LIC countries (2005 to 2017)



Source: World Bank, 2018

The changing external debt landscape is also reflected by the recent tapping of international capital markets by some SADC countries since 2010. These countries include Angola, Tanzania and Zambia. The issuance of international sovereign bonds was supported by highly favourable conditions, but these conditions drastically worsened since 2015, resulting in increased spreads (World Bank, 2018). Figure 4 shows maturities of international sovereign bonds by SADC countries.

Figure 4: Sovereign Bond Maturities for SADC countries

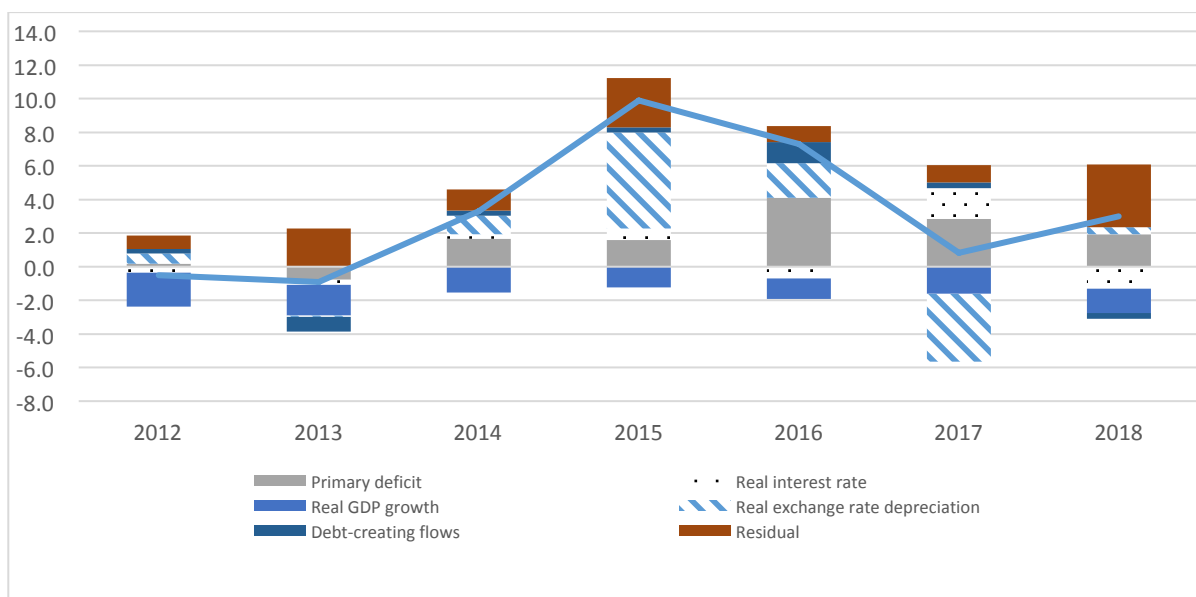


Source: Standard Chartered Bank, 2019

2.2 Drivers of Public and External debt accumulation in SADC

The debt dynamics in SADC have broadly reflected the impact of new borrowing shown by fiscal primary deficits, exchange rate and GDP growth. Figure 5 shows the drivers of public debt for SADC LICs countries from 2012 to 2018, collated from individual country Debt Sustainability Analysis (DSAs) carried out by IMF and World Bank.

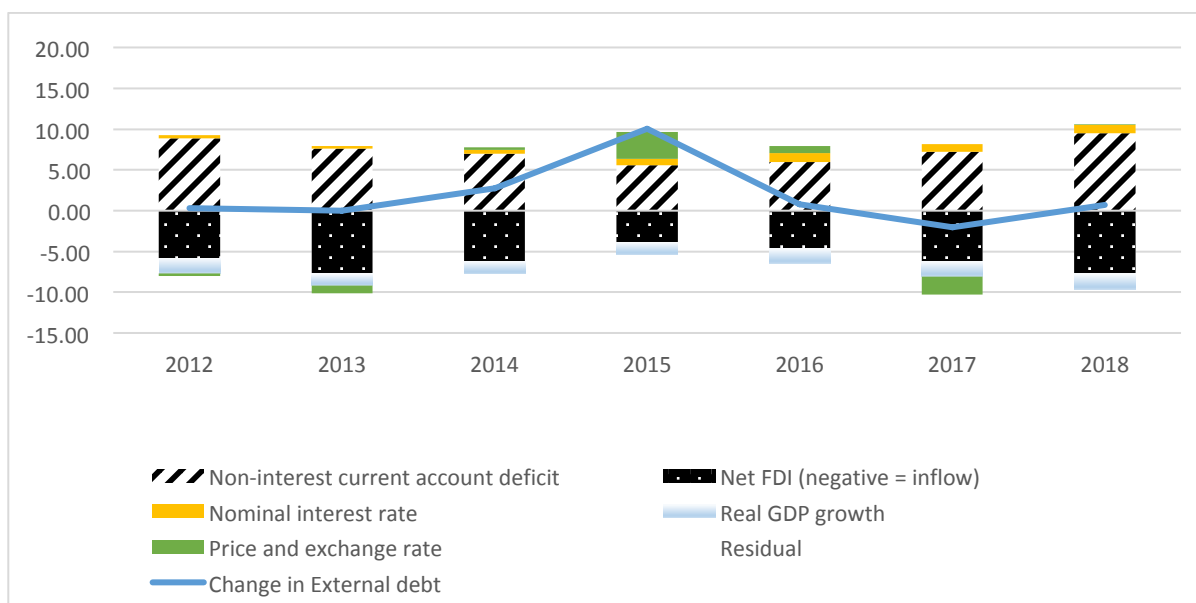
Figure 5: Drivers of Public Debt Dynamics in SADC



Source: Authors' Computations from IMF and World DSA Reports

Figure 5 confirms that debt accumulation in SADC countries is mainly driven by the fiscal stance and the unexplained part or stock flow adjustment. Automatic debt dynamics, notably changes in growth, exchange rates, price level and interest rates also play a crucial role in explaining the debt dynamics. The current account deficit, exchange rate and economic growth rates are also important in driving the external debt for SADC LIC countries as shown in Figure 6.

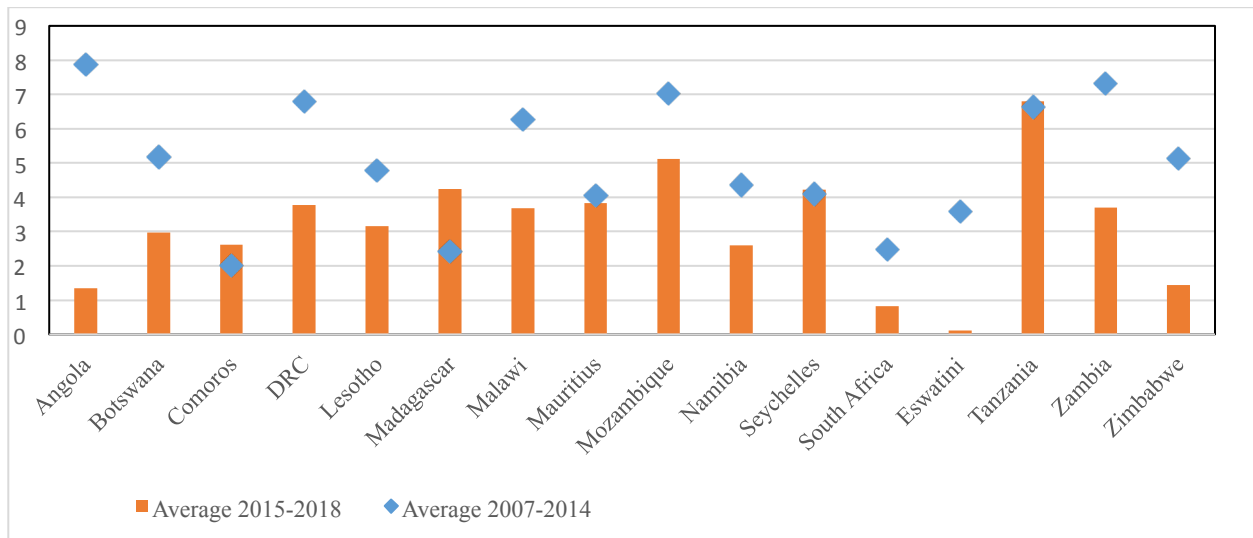
Figure 6: Drivers of External Debt SADC Countries



Source: Authors' Computations from IMF and World DSA Reports

The sustained high growth rates experienced by most sub-Saharan African countries in excess of 4%, prior to 2012, explain in large part the sustainable public debt positions in most economies. This supports the hypothesis that debt is helpful as long as it is being applied to fund productive activities. The collapse of commodity prices and the reversal of growth in the last 5 years, however, negatively affected debt developments. Figure 7 shows the developments in real GDP for SADC countries.

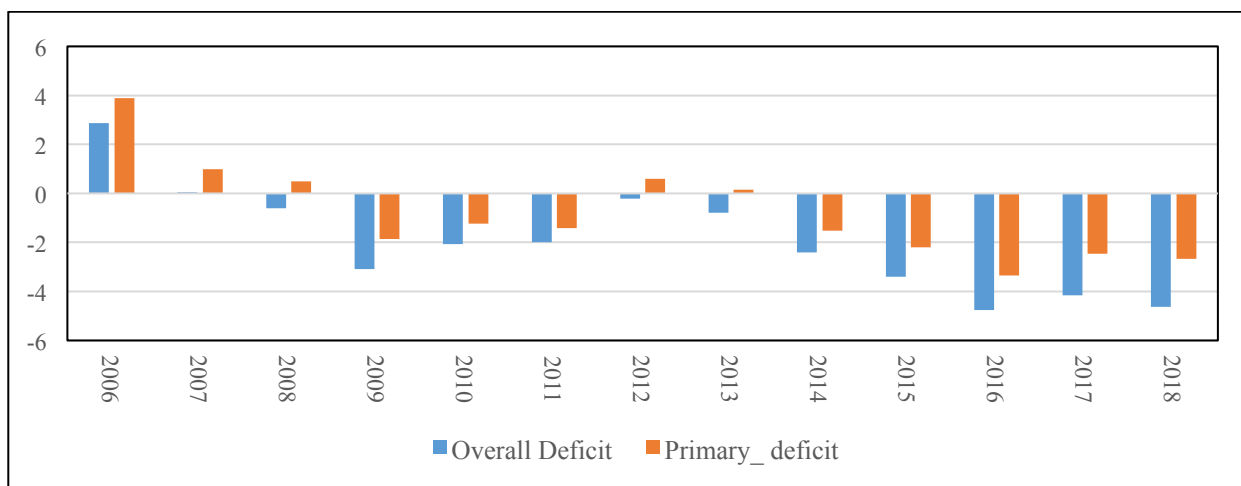
Figure 7: SADC GDP Growth Rates (2007 to 2018)



Source: WEO, 2018

The SADC countries, similar to most SSA countries, experienced significant increases in fiscal deficits since 2013 and this has been the main driver of rising public debts. The increase in deficits reflects partly the increased public investment in infrastructure. Figure 7 shows developments of overall fiscal and primary deficits over the period 2006 to 2018.

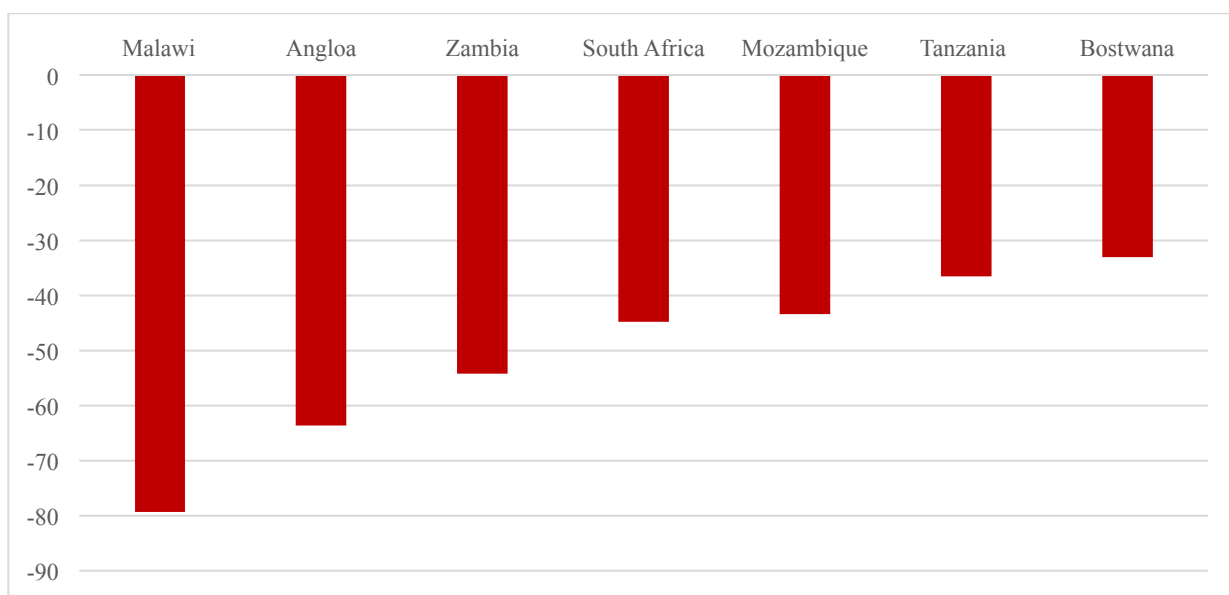
Figure 8: Primary and Overall deficits for SADC countries 2006 to 2018



Source: WEO, 2018

Exchange rate depreciation, particularly following the collapse of commodity prices in 2015, has been one of the prominent factor driving external debt. Most SADC countries' exchange rates depreciated sharply in 2015, impelling external debt. Figure 8 shows developments and the size of depreciations for selected country currencies over the period 2010 to 2018.

Figure 9: Exchange rate Depreciations (2010 to 2018)



Source: SADC Central Banks

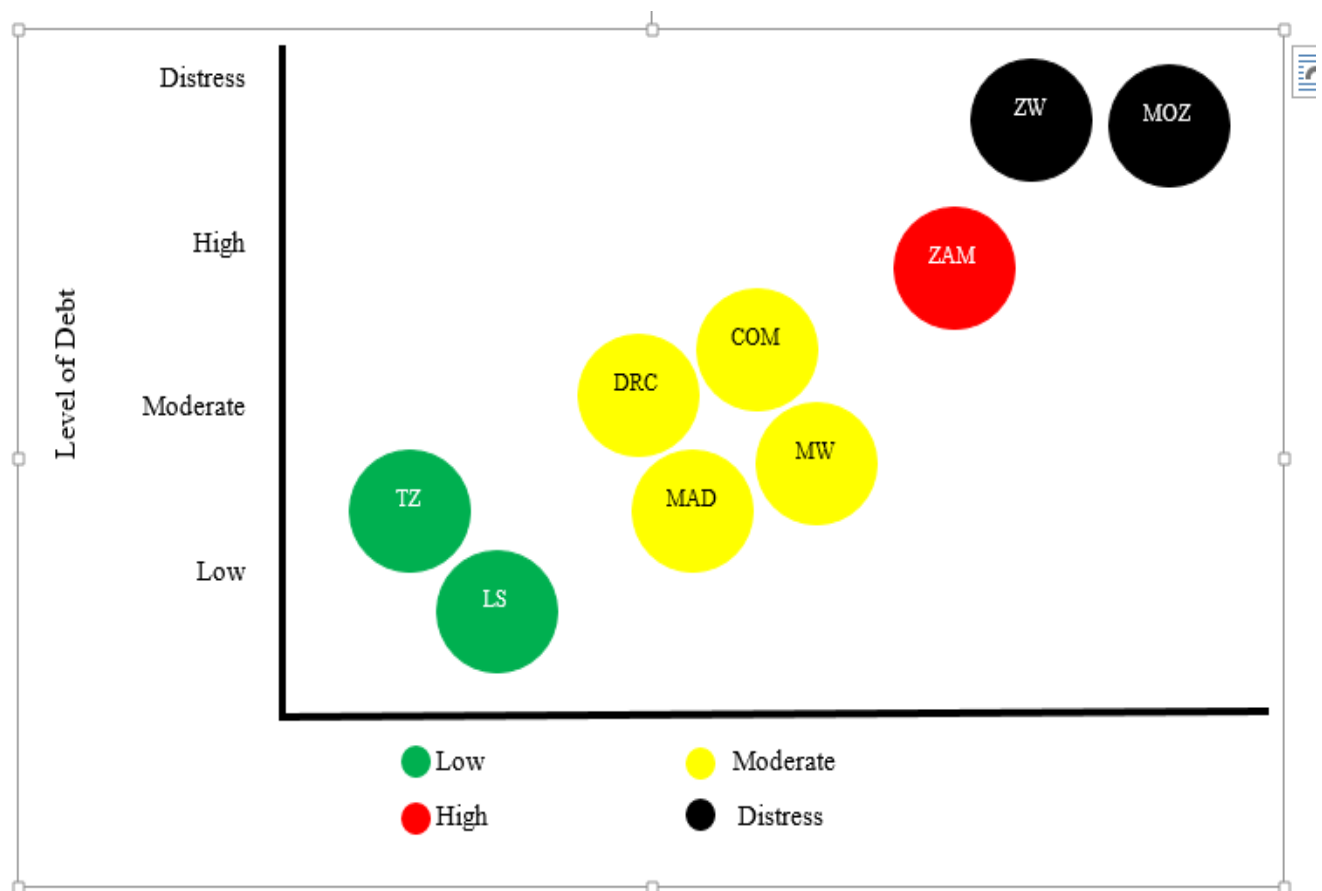
“Other” factors significantly contributed to the decline in average public debt in the region. This effect faded after nearly all countries had reached the HIPC completion point. It can be noted that interest rates have generally been low and thus impacting marginally to debt dynamics. The significant positive economic growth rates in SADC have to a larger extent partially off-set the

debt-creating impact of primary deficits. The slowdown in economic growth since 2014 may imply that fiscal deficits should be reduced to ensure fiscal sustainability.

2.3 Risk of Debt Distress Ratings

The recent increase in debt across SADC has resulted in many countries moving from low debt risk ratings to moderate and high debt risk ratings since 2013. Precisely, the sovereign debt distress ratings for countries assessed using the low income countries debt sustainability framework (LIC-DSF) and those assessed using the debt sustainability framework for middle and advanced economies (MAC-DSF) have been deteriorating since 2010. The recent external debt distress ratings suggest that two LIC countries are in debt crisis, namely Mozambique and Zimbabwe, while Zambia is at high risk of external debt distress. Figure 10 shows debt risk rating for LIC countries in 2018¹.

Figure 10: Recent Debt Risk Ratings for SADC Low Income Countries (LIC)



Source: IMF and World DSA Reports

¹ DRC figures are for 2015

² Policy Rates are for Botswana, DRC, Madagascar, Malawi, Mauritius, South Africa, Tanzania and Zambia

The debt distress ratings for non-LIC countries in SADC are summarised in Table 1. The results suggest that external debt in these countries is still stable, but significant risks are emerging. Importantly, both public and external debt have become very sensitive to macro-fiscal shocks such as growth, exchange rate and contingent liabilities.

Table 1: Recent Debt Risk Ratings for SADC Market Access Countries (MAC)

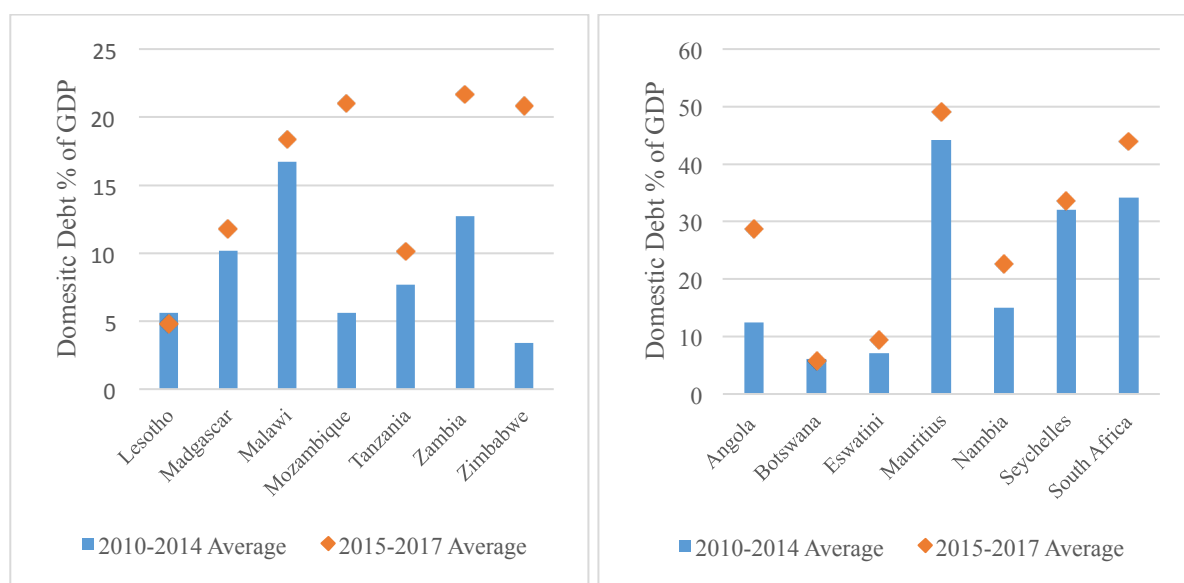
	PUBLIC DEBT	EXERTNAL DEBT	COMMENTS
South Africa	Sustainable	Stable	Sustainable but public debt and gross financing needs highly sensitive to macro fiscal risks such as growth and contingent liabilities.
Eswatini	Sustainable	Stable	Debt almost doubled since 2015 and require fiscal adjustment. Debt level may reach unsustainable levels in the absence of fiscal adjustment. External debt sensitive to current account exchange rate shocks
Angola	Sustainable	Stable	Debt vulnerable to macro-fiscal shocks-growth oil price and contingent liabilities
Botswana	Sustainable	Stable	Low level of risk of distress
Seychelles	Debt around high risk benchmark	External private debt elevated	Debt vulnerable to gross public and external financing needs due to large foreign denominated debt.
Namibia	Sustainable	Stable	Debt deteriorating and fast approaching DSA risk thresholds. External debt exposed to exchange rate and current account shocks.
Mauritius	Sustainable	Stable	Debt profile risk related to share of public debt held by non-residents slightly elevated. Gross financing needs vulnerable to growth, real interest and primary balance.

Source: IMF and World DSA Reports

2.4 Domestic Debt Developments

In general, however, low income countries tend to have lower domestic debt to GDP compared to market access countries. This partly shows the shallow domestic financial markets characterizing most of these countries, resulting in over reliance on concessionary external debt. This implies that there may be need to support financial sector and bond markets development to support increased local borrowing.

Figure 11: Domestic Debt Developments in SADC 2009 to 2017



Source: IMF and SADC Central Banks

As shown in Figure 11, domestic debt has also showed an increasing tendency since 2015, albeit at a slower pace than external debt. Important to note is that most LIC countries experiencing high debt risk and debt distress since 2015 tend also to be facing significant increases in domestic debt, these include Zambia, Zimbabwe and Mozambique. Two issues may be pointing to this observed. Firstly it may mean that increased debt service, as a result of mainly increased foreign debt is resulting in increased borrowing by these countries. Secondly, it may be the case that the huge external debt has resulted in reduced foreign borrowing opportunities causing these countries to increase domestic debt. For the MAC countries, South Africa, Angola and Namibia are also experiencing increases in domestic debt since 2015.

SECTION 3: REVIEW OF LITERATURE

This section reviews the theoretical literature on the impact of debt on monetary policy, with particular emphasis on the external debt. Additionally, empirical literature on debt and monetary policy is also reviewed.

3.1 Theoretical Literature

There are several ways through which rising fiscal deficits and debt affect monetary policy. The most direct link between debt (domestic and external) and monetary policy occurs when increased debt results from monetisation of deficits. As argued by Dornbusch, (1998) the monetisation of debts would result in increased inflation since the monetary base (a function of money printing) is closely tied to the price level. The risk of debt monetisation occurs mainly in the presence of fiscal dominance. Fiscal dominance is a case where monetary policy loses both its independence and efficiency. Under fiscal dominance, the fiscal deficit is exogenously determined and monetary policy should accommodate the seigniorage to close the deficit. This results in the controlling of inflation being subordinated to fiscal objectives. The case of monetisation of debts have, however, declined in most developing countries, including SADC. This is because most countries have enacted laws that limit recourse to central bank financing.

According to Sargent and Wallace (1981), if debt results in real interest rates rising faster than real economic growth, monetary policy aimed to control inflation may have negative effects or even actually increase inflation. In such a scenario, a reduction in money growth aimed at reducing inflation pushes up debt relative to GDP when bond finance is used instead of monetary finance. The move to bond finance will likely raise interest payments, thus increasing future deficits relative to GDP. This would require more money growth in the future and therefore increase in inflation. As a result, central banks may face significant pressure to pin down interest rates than is required in order to reduce refinancing burden, thus compromising monetary policy effectiveness.

Taylor (2003) also argues that an increase in government debt can affect the effectiveness of monetary policy in that it can reduce or even reverse the negative impact of higher interest rates in reducing aggregate demand. This will compromise the use of interest rates in reducing inflation. The reasoning applies mainly for domestic debt. The argument is that the increase in interest rates actually increases the income of debt holders. The increased income of debt holders will stimulate consumption, offsetting the effects of higher interest rates on spending.

Another important explanation on the link between fiscal deficit and debt and monetary policy is given by the Fiscal Theory of the Price Level (FTPL) attributed to Leeper (1989). Under the FTPL, monetary policy does not completely determine inflation. According to the FTPL theory, what determines the price level is the expectations of economic agents on the future government deficits.

The increase in debt and the concomitant uncertainty regarding future consolidation may also impact the effectiveness of monetary policy. Cecchetti, Mohanty and Zampolli (2010) argue that worsening debt can result in increases in long-term inflation expectations. In addition, the uncertainty on the timing of the future path of fiscal consolidation may affect the accurate macroeconomic forecasting required to set policy interest rates at their appropriate level.

The structure of the public debt is also important. The increase in external debt can affect the effectiveness of monetary policy through several ways. As argued by Christensen and Schanz (2018), the financial conditions regarding external debt depends on the monetary policy in whose currency the debt is issued. Most SADC countries' external debt is issued in US dollar. Therefore, increases in interest rates in the US, result in the tightening financing conditions and depreciating domestic currencies. A combination of declining commodity prices and rising interest rates as a result of US monetary tapering resulted in significant depreciations in some SADC countries such as Zambia, South Africa and Botswana.

The reliance on floating or short-maturity or exchange rate-linked debt may induce perverse monetary authority responses; see Goldstein and Turner (2003). To illustrate, a central bank would be reluctant to ease if the resulting currency depreciation would raise the burden of foreign currency debt. Hence, the indexation of public debt may also influence the channels of monetary policy transmission, sometimes in unexpected or perverse ways. Another example is that a currency depreciation is generally countered by higher domestic interest rates. However, if the public debt is indexed to short-term interest rates, the cost of the debt will rise, heightening uncertainty about sustainability and possibly accentuating the depreciation. As debt is often indexed to the exchange rate, currency depreciation will aggravate the public debt burden. Indexation of the public debt played a significant role in the recent difficulties experienced by Brazil and Turkey.

In turn, the weaker domestic currency may also result in heightened vulnerabilities, particularly in situations where there are currency mismatches. In addition, as argued by Bruno and Shin (2015) depreciating domestic currencies may induce capital outflows as unhedged foreign

investors try to repatriate investments to limit valuation losses in their home currency. Debts that are indexed to short-term interest rates, inflation, the exchange rate and unhedged foreign debt becomes very risky and this was the case in crises in Argentina, Brazil and Turkey. The worsening of external financial conditions and the concomitant depreciation in exchange rates put the central bank in a dilemma of attempting to stabilise exchange rates and limit capital outflows on one hand and reducing borrowing costs, on the other.

The size and composition of public debt may also influence a central bank's foreign exchange reserve management with implications on monetary policy. The increase in repayment of external debt reduces the level of foreign exchange reserves, which may induce temporary liquidity challenges. Falling foreign exchange reserves may result in changes in market sentiments about the sustainability of the external debt resulting in pressure on the exchange rate. As a result the external debt and exchange rate considerations may constrain monetary policy.

Indirectly, high external debt may affect monetary policy through expectations. The perception on fiscal policy and debt management affect effectiveness of monetary policy. Monetary policy can be used as a tool for countercyclical policy when inflation expectations are low during economic downturns. The increase in external debt makes domestic borrowers more vulnerable to swings in market sentiment. Furthermore, perceptions on the sustainability of the debt may trigger a fall in confidence with destabilising effects on financial markets and foreign exchange markets.

3.2 Empirical Evidence

Montoro, Takáts and Yetman (2012) found that increasing fiscal deficits and debt are associated with higher interest rates, which impact negatively on growth through the crowding-out effect. On the contrary, healthier fiscal positions given by reduced fiscal deficits and debt levels are weakly associated with real interest rates. With respect to inflation, Montoro, Takáts and Yetman (2012) found that strong fiscal positions are weakly associated with reduced inflation. The results were found through use of correlational analysis.

Hilbers (2004) argues that unsustainable government debts have led to crises in Turkey (1994, 2001), Mexico (1994), Russia (1998), Brazil (1999) and Argentina (2001). In these cases, increases in interest rates as a result of rising debts pushed up debt servicing costs. This led to an increase in short-term and foreign currency-linked public debt, heightening the sensitivity to interest rate, exchange rate and rollover risks. In Israel and Poland increased fiscal deficits and

debt resulted in increased inflation. High interest rates aimed at reducing inflation resulted in increased capital inflows, impairing the effect of monetary policy. Monetary efforts to sterilise the capital inflows to reduce inflation became costly and complicated (Hilber, 2004).

Taylor (1995) found that lower deficits and debt in the US resulted in a smaller gain in credibility, which enhances the achievement of price stability. He concluded that credibility and price stability as key to monetary policy that the lower debt to GDP ratio only adds a little to credibility. Blanchard (2004) found that under external debt and high risk aversion, an increase in interest rates results in an increase in the probability of default on government debt leading to depreciation of the currency rather than an appreciation. The depreciation will result in an increase in inflation. Thus, instead of reducing inflation, an increase in interest rates actually leads to a rise in inflation.

Davis (2017) showed that a country with a current account deficit financed by reserve depletion or accumulation of foreign currency-denominated debt may be forced to use interest rates to stop capital outflows even at the risk of destabilizing the domestic economy. He argued that central bank of Russia in December 2014 and the central bank of Turkey in January 2014, raised interest rates and this resulted in a sudden drop in net capital inflows. Davis (2017) further shows that a reserve depletion of 7% of GDP in a year can result in a central bank abandoning floating its currency and adopting a *de facto* peg to stabilize capital flows. As such, he concluded that most central banks have been forced to increase interest rates in line with the US Federal Reserve rate hike to guarantee stability of capital flows.

Zoli (2005) also showed that increases in fiscal policy variables such as fiscal deficit and debt are normally associated with increases in long-term interest rates in emerging economies. Regarding developing countries, Agenor and Montiel (1996) show that fiscal deficits have a negative impact on real interest rates. In addition, Edwards focussed on interest spreads and found that increases in external debt positively affect EM interest rate spreads. Zoli (2004), using a threshold non-linear model of sovereign spreads, shows that spreads increase with external debt up to a certain level and above, beyond which it becomes irresponsive.

The external debt can also affect the management of the exchange rate. Specifically, central banks may intend to limit depreciations of currencies for countries with huge debt denominated or linked to exchange rates, thus affecting the shock-absorbing nature of exchange rates. The empirical evidence on fiscal deficits and exchange rates, is however, mixed. Given the various channels through which external debt may constrain conduct of monetary policy and the mixed

empirical evidence, there is need to carry out an empirical study on the impact of external debt on effectiveness of monetary policy in SADC.

SECTION 4: METHODOLOGY AND EMPIRICAL ANALYSIS

The analysis employed in this study includes a combination of both the causal relationship analysis between external debt, exchange rates, inflation and policy rates on one hand and econometric analysis on the other hand. The econometric approach follows the one applied by Zoli (2005) who assessed the reaction function of monetary policy to fiscal variables. The model is a modified Taylor reaction. The addition of fiscal variable or external debt variable is not fully anchored on theoretical underpinnings but allows the direct analysis of fiscal effects on monetary policy. Precisely, the model checks if monetary policy considers fiscal policy or external debt in undertaking interest rate decisions. The model is specified as follows:

$$i_{it} = \beta_0 + \beta_1 i_{t-1} + \beta_2 INFL_{it-1} + \beta_3 Outgap_{it-1} + \beta_4 \Delta ext_{it-1} + \varepsilon_{it} \text{-----} (1)$$

Where

i_t = is the monetary policy rate,

$INFL_t$ = annual inflation rate

$Outgap_{t-1}$ = lagged output gap

Δext_{t-1} = change in external debt

This equation assesses the direct impact of changes in external debt on monetary policy, in addition to aggregate demand pressure and inflation. Naturally, the monetary reaction function should be done for single countries since the monetary framework is different among countries. In addition, some countries have changed the monetary frameworks during the period under review, making it difficult to model. As such, this study uses a panel regression approach. To partially account for the different monetary frameworks, the study uses the fixed effects panel regression model. Given, the challenges in data the results should be viewed as indicative rather than as cause and effects.

In addition, following Beck (1993) the study also applies a panel bivariate Vector Autoregression Model (VAR) model to assess the response of exchange rate and inflation to increases in external

debt. This allows the study to analyse indirectly the impact of external debt on monetary policy. By influencing financial variables such as inflation, exchange rates, and sovereign spreads, external debt indirectly affects the deployment of monetary policy.

The data used for the study was obtained from IMF, World Bank databases and individual central banks. The longest data runs from 2006 to 2018. Given the lack of data and incomplete data for other countries the study used an unbalanced panel model.

SECTION 5: RESULTS ANALYSIS

5.1 Preliminary Results from Causal Relationships

Figure 12 shows the causal relationship between external debt and inflation in the SADC region.

Figure 12 : External debt and Inflation (% of GDP average 2015 and 2018)



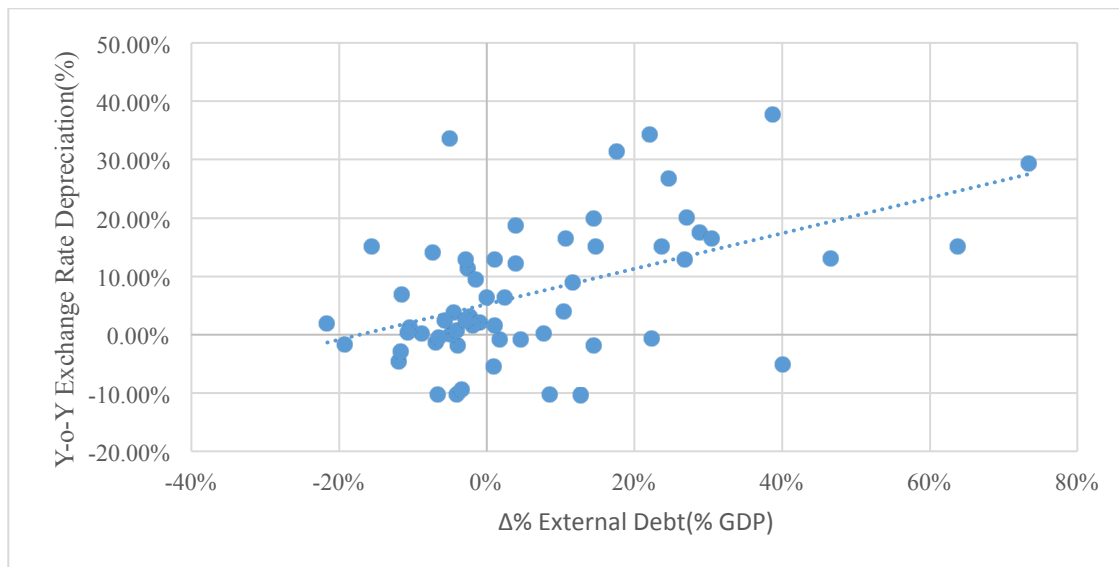
Sources: World Economic Outlook Database and Authors calculations.

Figure 12 shows that external debt is positively correlated to inflation in SADC region during the period 2015 to 2018, when there was a positive tide to external debt. As argued by Dornbusch (1996) an increase in debt either public or external debt is seen as an invitation for inflation. In most cases, though this may not lead to extreme inflation (hyperinflation), the increase in inflation may undermine the implementation of sound monetary policy. In order not to amplify the increase in debt, monetary authorities may choose not to increase interest rates.

5.2 External debt and Exchange rates

The increase in external debt is mostly likely to lead to increase the probability of debt default, which may result in capital inflow reversal and putting pressure on the currency. Figure 13 shows the causal relationship between external debt and exchange rate.

Figure 13: External Debt and Exchange Rates

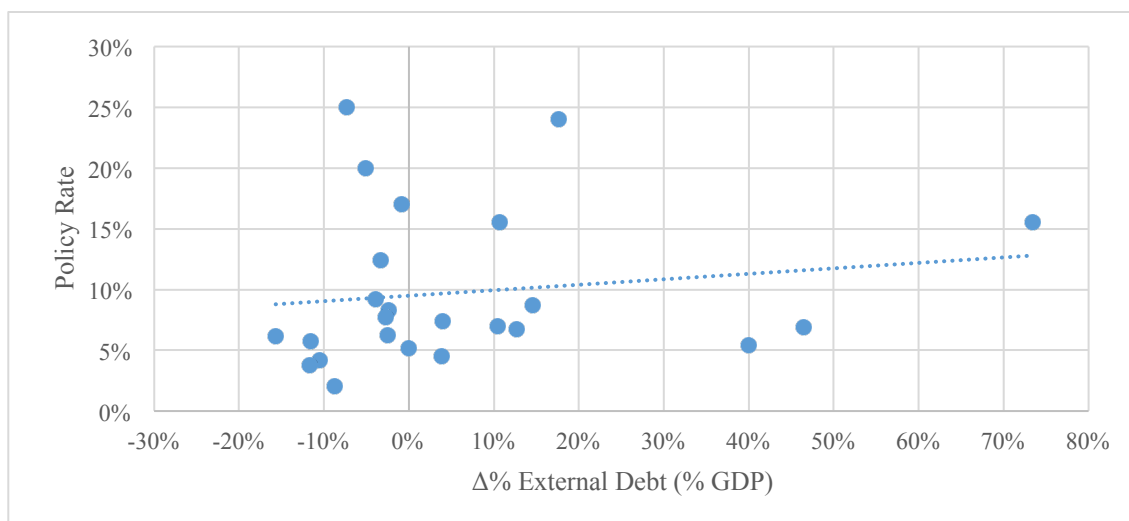


Source: Authors' Computations

5.3 External debt and Policy Rates

Figure 14 shows that external debt may result in increases in policy rates as central banks aim to mitigate the negative effects of rising debt levels, such as the rise in inflation and depreciation of domestic currencies.

Figure 14: External Debt and Policy Rates

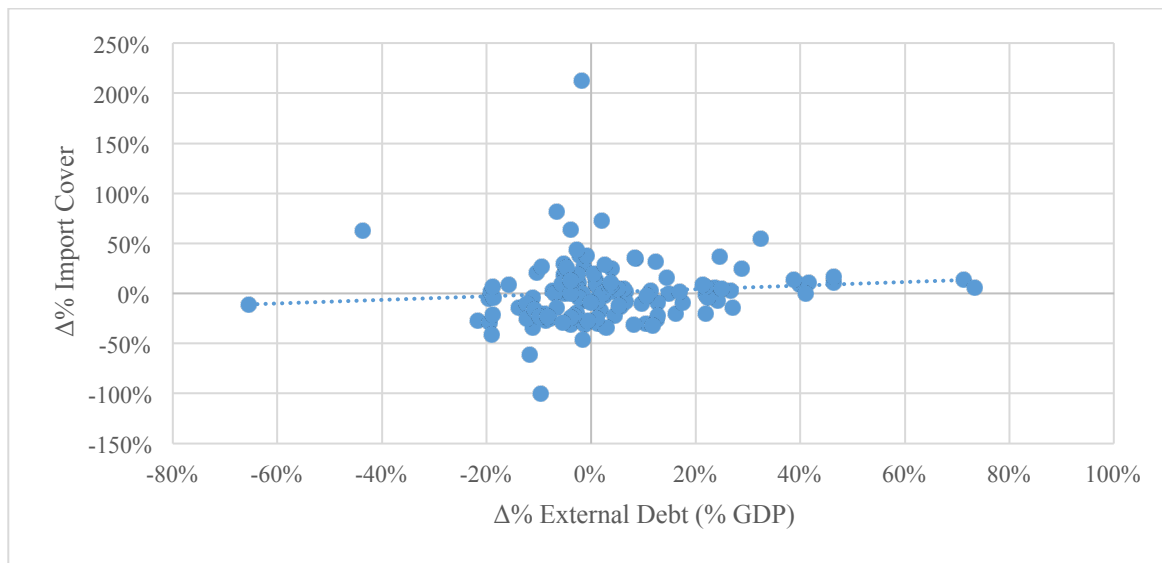


Source: Authors' Computations External Debt and Policy Rates²

5.4 External debt and International Reserves

Figure 15 shows that international reserves rises with increases in external debt, though the relationship is not that strong.

Figure 15: Annual Change in External Debt and Annual Change in Import Cover 2010-2018



Source: Authors' Computations

5.5 Econometric Results

The first results pertain to the modified Taylor rule to check if central banks take into account changes in external debt in taking interest rate decisions. Given the various policy frameworks and lack of high frequency data the results should be viewed mainly as being indicative not necessarily cause and effect.

² Policy Rates are for Botswana, DRC, Madagascar, Malawi, Mauritius, South Africa, Tanzania and Zambia

Table 2: Panel Regression Results: Modified SADC Taylor Rule

Variable	Coefficient
Dependent Variable – Policy Rate	
Constant	4.7928 (0.0000)
Lagged policy rate	0.5743 (0.0000)
Lagged Inflation	0.0914 (0.0001)
Lagged External Debt	0.0026 (0.0900)
Lagged Output gap	0.0130 (0.2898)

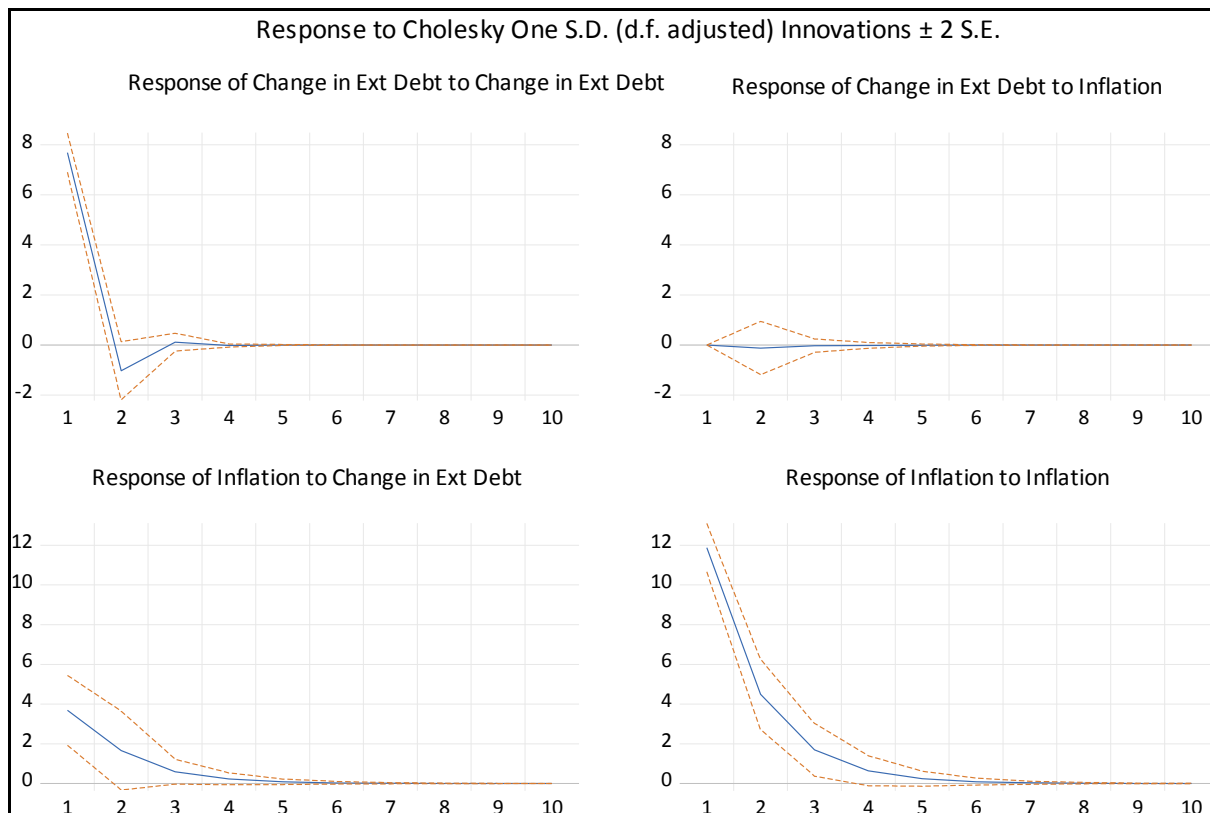
Source: Authors' Compilation

As shown above, generally the results are mainly in line with theoretical underpinnings. As expected most central banks significantly react to inflation through raising interest rates. The central banks also take into account developments in the real sector as typified by the positive coefficient on lagged output gap though it is insignificant. Importantly, however, it was found that central banks also consider external debt developments in the monetary reaction function. The coefficient of lagged external debt was found to be positive and significant at 10%. Central banks tend to tighten monetary policy in order to address or counter the effects of increases in external debt or generally loose fiscal policy.

As highlighted in the literature, changes in external debt can also affect the conduct of monetary policy indirectly through affecting inflation, exchange rates, sovereign spreads and risk premiums. As such the paper progresses by estimating a panel bivariate to assess the impact of changes in external debt on these important financial variables namely, inflation and exchange rate.

Figure 16 shows the response of inflation to changes in external debt. It can be seen that an increase in external debt positively impacts on inflation, which is in line with results from causal plots. Importantly, as expected, change in external debt is not affected by domestic inflation.

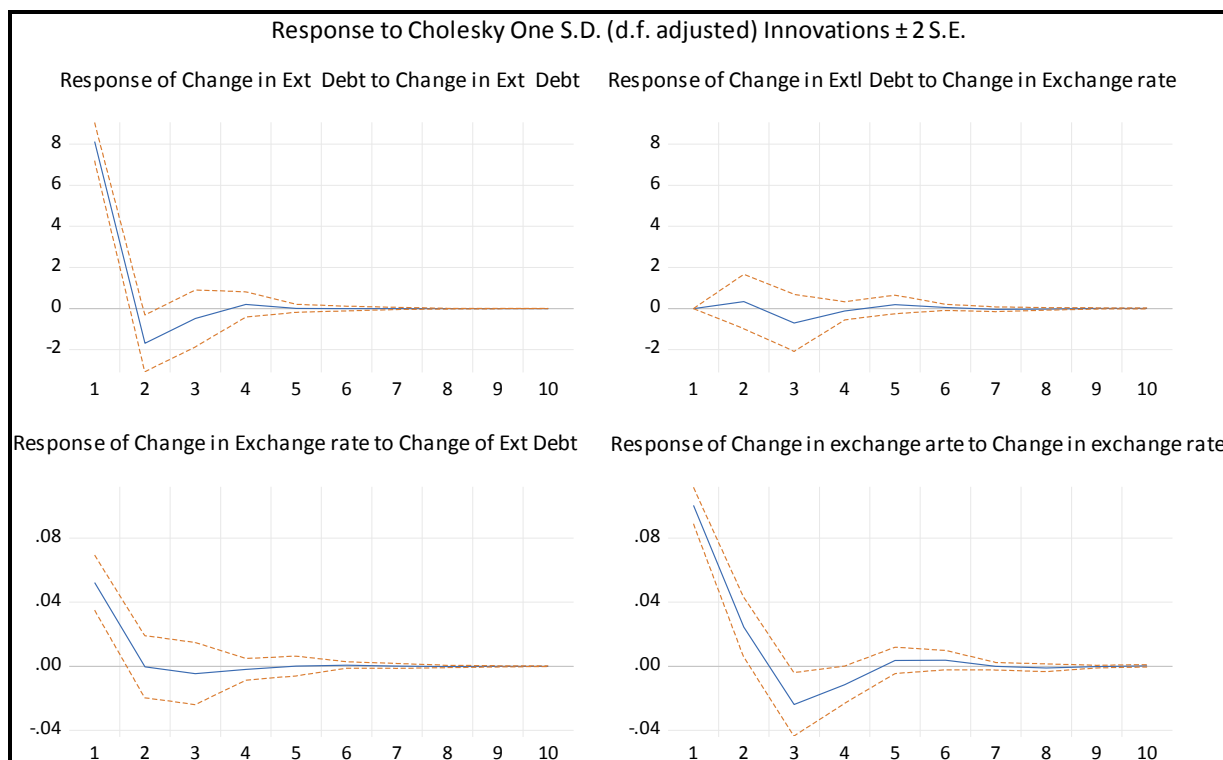
Figure 16: Panel Bivariate Results: External Debt and Inflation



Source: Authors' Compilation

The results of the panel bivariate VAR also suggest that increases in debt result in depreciation of domestic currencies. The response of exchange rate is found to be significant. Figure 17 shows the response of exchange rates to changes in external debt.

Figure 17: Panel Bivariate Results: External Debt and Exchange rates



Source: Authors' Compilation

SECTION 6: CONCLUSION AND POLICY IMPLICATIONS

While public debt management is not the prerogative of central banks, developments on debt dynamics have implications on central bank operations. External debt distress can impair the conduct and transmission mechanisms of monetary policy, through higher interest rates spread, exchange rate depreciation, currency premiums and weak credibility. High debt increases the risk premium which translates into higher interest rates. The higher debt service on external debt puts extra pressure on foreign currency demand, which affects stability of the exchange rate and hence inflation, depending on the degree of pass through. Given the increased pressures on exchange rate as a result of external debt, the role of the central bank is to ensure that depreciation does not lead to permanent increase in adverse inflation expectations or un-anchoring of inflation expectations. These factors militate member countries' ability to meet and sustainably comply with macroeconomic converge targets.

There are several monetary policy implications of increasing external debt. The first aspect is to ensure that sovereign external debt does not grow out of hand in the first place. Though the central bank cannot control this directly, it can play a significant role by actively and openly

supporting enactment of laws to support strong fiscal positions. This can take the form of reduction of the monetisation of government fiscal debts. In SADC, there has been reduction in terms of government recourse to central banks, but this may need to be eliminated altogether. Central banks should also advocate for fiscal rules and adoption of medium-term fiscal frameworks to ensure fiscal prudence. Lastly, central banks can enhance debt growth nexus by ensuring that proceeds from external debts are applied productively.

As argued by Hibler (2004), communication is also important, central banks should also express their views to Government and other stakeholders, regarding the need for prudence in government external borrowing, basing the analysis on the potential impact of external debt distress on monetary policy and financial stability. There is also need to enhance the independence of central banks in terms of operational autonomy to give them the power to act appropriately in terms of monetary policy even in the external debt distress. As a medium-term strategy, central banks should also move towards the inflation targeting regime, which provides better immunity to political pressure and enhances greater credibility.

Another important avenue is to increase coordination between government, debt management office and monetary authorities. This comes in several ways but all aimed to reduce the cost of borrowing, increase tenors and align timing of external debt service to favourable fiscal inflows. African countries have benefited from the Eurobond market, but the debts are of short maturity, resulting in currency mismatches as some have bullets payments. Central banks can play an active role in ensuring these debts are restructured from short- to long term, so they can align with the returns from the public investments.

In addition, the central bank can also play a significant role in the development of domestic financial markets to ensure shift away from external debt to domestic debt financing, with positive benefits enhanced market-based operations for central banks. Another important implication is the need to build reserve buffers to prepare for servicing of the maturing debts. Attraction of non-debt creating flows in the form of FDI, which has on average assisted in the reduction of external debt to GDP ratios of SADC countries over the years, needs to be aggressively promoted. Improved FDI inflows will also assist member countries to build international reserves towards the achievement of the stipulated 6 months of import cover SADC convergence threshold.

REFERENCES

- Agénor, P.-R., & Montiel, P. (1996). *Development Macroeconomics*, Princeton, New Jersey: Princeton. BIS.
- Beck, S. (1993). Ricardian Equivalence proposition: Evidence from foreign exchange markets. *Journal of international monetary Finance*.
- Blanchard, O. (2004). *Fiscal dominance and inflation targeting : Lessons from Brazil*. NBER Working Paper Series.
- Bruno, V., & Shin, H. S. (2015). “Cross-border banking and global liquidity”, . Review of Economic Studies, vol 82, no 2, pp 535–64.
- Calvo, G., & Reinhart, C. (2002). *Fear of Floating* . Quarterly Journal of Economics.
- Cecchetti, S. G., Mohanty, M. S., & Zampolli, F. (2010). *The future of public debt: prospects and implications*. Monetary and Economic Department : BIS Working Papers, No 300 .
- Christensen, B. V., & Schanz, J. (2018). *Central banks and debt: emerging risks to the effectiveness of monetary policy in Africa?* BIS Papers, No 99.
- Davis, S. J. (2017). *External debt and monetary Policy*. Dallas: Federal Reserve Bank of Dallas.
- D'Erasmus, P., Mendoza, E. G., & Zhang, J. (2015). *What is a Sustainable Public Debt?* NBER Working Paper No. 21574.
- Dornbusch, R. (1998). *Debt and Monetary Policy: The Policy Issues*. `NEBR Working Paper Series.
- Hilbers, P. (2004). *Interaction of Monetary and Fiscal Policies: Why Central Bankers worry about government Budgets*. Washington D C: IMF Seminar on Current Developments in Monetary and Financial Law.
- IMF. (2017). *Sub- Saharan Africa -Restarting the Growth Engine, Regional Economic Outlook, April 2017*. Washington, D.C: IMF.
- IMF. (2018). World Economic Database. *WEO, October 2018*.
- IMF. (Various Years). *Article IV Consultations, Various Country* . IMF.
- Kganyago, L. (2012). *Fiscal policy, public debt management and government bond markets: issues for central banks* . BIS 67.
- Leeper, E. (1989). *Policy Rules, Information and Fiscal Effects in a 'Ricardian' Model*., Federal Reserve Board, August 1989: International Finance Discussion Paper 360.
- Montoro, C., Takáts, E., & Yetman, J. (2012). Is monetary policy constrained by fiscal policy? *BIS No 67*, 11-30.
- Montoro, C., Takáts, E., & Yetman, J. (2012). *Is monetary policy constrained by fiscal policy?* BIS No67.
- Sargent, T., & Wallace, N. (1981). *Some Unpleasant Monetarist Arithmetic*. Reserve Bank of Minneapolis, Quarterly Review 5, 1981, pp. 1-17.
- Taylor, J. (1995). *Monetary Policy Implications of Greater Fiscal Discipline*. Symposium Proceedings.
- Taylor, J. B. (2003). *Monetary Policy Implications of Greater Fiscal Discipline*. Kansas City: Federal of Kansas City.
- World Bank. (2017). *Africa Pulse, April 2017*. Washington, D. C: World Bank.
- World Bank. (2018). *An analysis of issues shaping Africa's Economic Future*. Washington DC: World Bank.
- World Bank. (2018). *World Development Indicators* . World Bank.
- Zoli, E. (2004). Credit rationing in emerging economies' access to global capital markets. *IMF working paper 04/70*.
- Zoli, E. (2005). *How does fiscal policy affect monetary policy in emerging market countries*. BIS Working Papers 174.

