Effects of Government Debt on Monetary Policy Strategy in Tanzania

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Abstract

This paper examines the fiscal dominance hypothesis in Tanzania by exploring the relationship between the monetary base and the government debt using monthly data from 2003:1 to 2019:12. Results from formal statistical tests indicate no evidence of a long-run relationship between the variables. Structural vector autoregressive model is thus estimated to analyse the short-run dynamics. The findings point to a positive and statistically significant impact of government debt on monetary base. The findings identifies political phenomenon that before the fourth phase government (2003-2005), monetary policy witnessed relatively intensive fiscal dominance as compared to the fourth phase (2005-2015) and fifth phase government (2015-2019). However, in comparison with the fourth phase government, findings suggest that during the first four years of the fifth phase government, monetary policy encountered a relatively high fiscal influence, partly attributed to implementation of huge development projects and reduction in foreign financing in the government budget. The identified fiscal dominance for the sample period, implies a subordinated monetary policy, compromising on Bank of Tanzania's primary objective of price stability.

Keywords: Fiscal dominance; SVAR; Monetary policy; Tanzania

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1. Introduction

While central bank financing of the budget deficit above legal limits has been declining over time, government influence on the work of central banks outside the context of central bank financing of the government debt has continued to impair the effectiveness of monetary policy in the Sub-Saharan Africa (SSA) (Adam and O'Connell, 2005, IMF, 2015). In the context, fiscal dominance (FD) — the extent to which government deficits condition the growth of the money supply has lately been a feature of policy discussions, particularly in the aftermath of the 2007-2008 global financial crisis where debt resurfaced as a serious challenge in the region[1]. Large government debt influences the discretionary policy choices by monetary authorities, imposing immense pressure on the central bank to maintain an overly accommodating policy stance — to close the government funding gap and the inflation becomes endogenous to fiscal actions. This could potentially leads to a tight-money paradox[2], thus complex interactions between debt management and monetary policy (Blake and Kirsanova, 2012; Blommestein and Turner, 2011). Certainly, many currency crises and hyperinflation episodes have been associated with central bank financing of government debt: Weimar Germany (1922-23), Hungary (1945-46), Greece (1941-45), Latin America during the debt crisis in the 1980s, to name a few (Hanke and Krus, 2012). The episodes in Zaire (1991-92 and 1993- 94), Angola (1994-97), Democratic Republic of Congo (1998) and Zimbabwe (2007-08, 2019-20) are the starkest examples in the SSA.

Tanzania, with an institutional environment and fiscal stance not very much dissimilar from that of many countries in the SSA, has also been characterized with large fiscal deficit, high bank's lending rates, and increased domestic and foreign debt. Moreover, over the past decade, fiscal structure in Tanzania has been characterized with high infrastructural expenditures, with an inelastic, non-progressive tax structure and narrow tax base, which always have resulted in high budget deficit that is; according to the IMF, the deficit has been mainly financed through the central bank, and concessional foreign borrowing (IMF, 2018). As such, the question of whether the financing of rising government debt has been influencing the discretionary monetary policy choices by the Bank of Tanzania (BoT) has returned to the forefront of the policy debate in

the wake of increased borrowing needs from the steady rise in government deficits (IMF 2018, IMF 2020). The concerns are therefore high, as to whether there has been evidence of debt monetization in Tanzania. Equally important, the recent BoT's move to price based monetary policy framework that requires absence of fiscal dominance further necessitate the need for an empirical evidence that can provide insight on how government debt becomes relevant to the BoT's monetary policy strategy.

Government debt arising from budget deficits is a likely contender to influence monetary policy. The central bank's open market operations involve purchase and sale of government issued securities, which in turn affect the money supply through the monetary base. Sims (2013) argues in favour of a potential linkage between monetary and fiscal policy, but Mankiw (2016) argues that there is a dearth of empirical evidence. Fiscal vulnerabilities arising from high government debt is likely to create new and complex interactions between public debt management and monetary policy (Blake and Kirsanova, 2012; Blommestein and Turner, 2011). A fiscal expansion, through a tax cut or increased spending (or both), may lead to budget deficits that sway government debt. In a forward looking monetary policy framework, the central bank policy rate reacts to deviations in contemporaneous inflation from a target, and, deviations in real output from its long-run potential level. In this respect, the government debt could bind the central bank to pursue a monetary policy in an accommodative manner - monetization of government debt (Thornton, 2010).

Empirical investigations analysing monetary policy strategy pay little or no attention to the possible nexus between the government debt and monetary aggregates such as the monetary base. As such, there is lack of comprehensive consensus on how government debt influences central bank monetary policy strategy. In one hand, government debt is financed partly through the central bank and it can motivate an indirect impact to increase the inflation level in the country. On the other hand, the central bank's open market operations involve purchase and sale of government issued securities, which in turn affect the money supply through the monetary base. Using structural vector autoregressive (SVAR) model, this paper therefore is an attempt to

develop more insight on the BoT's monetary policy strategy by analysing the relationship between monetary base and government debt in Tanzania. It contribute to the literature in two forms. First, using monthly data from the entire sample period of January 2003 – December 2019, the paper finds the overall evidence of fiscal dominance during the sample period. This implies that the government debt does influence the BoT's monetary policy choices in Tanzania. Second, the paper identify political phenomenon that the intensity of fiscal dominance varies with political regimes.

The interaction between the central bank and fiscal authorities has been explained through the dynamic equilibrium models since the real business cycle - RBC revolution. This approach implicates both fiscal and monetary interactions through a government expenditure constraint. In this model, there are two agents: a fiscal authority that controls government spending and taxes, and central bank that controls the money supply. The fiscal dominance theory is expressed in terms of an inter temporal budget constraint (King & Plosser, 1985) as follows:

$$\frac{M_t + B_t}{P_t} = \frac{[T_{t+1} + S_{t+1} - G_{t+1} + (M_{t+1} + B_{t+1})/P_{t+1}]}{1 + r} \tag{1}$$

where G_t and T_t are real government expenditures and revenues, P_t is the price level, B_t is interest bearing debt held by the public and M_t is the monetary base. Where $S_{t+1} = i_m/P_{t+1}$ is the forgone interest payments on the public's money holdings that accrue to the government (seigniorage), where i is the nominal interest rate, and r is the real interest ($r = [(1+i) P_{t-1} /P_t] - 1$). From equation (1), $(M_t + B_t)/P_O$ represents the net public sector liabilities in real terms. Substituting equation (1) forward over an infinite horizon, using the identities $LIAB_t = (M_t + B_t)/P_t$ and $PDEF_t = G_t - T_t - S_t$ yields the intertemporal budget constraint:

$$LIAB_0 = -E\left\{\sum_{t=1}^{\infty} PDEF_t/(1+r)^{t-1} + \lim_{t\to\infty} LIAB_t/(1+r)^{t-1}\right\} \tag{2}$$

where, $E\{.\}$ is the expectation operator. Transversality condition:

$$\lim_{t\to\infty} LIAB_t/(1+r)^{t-1} = 0 \tag{3}$$

Thus equations (2) and (3) represent inter-temporal solvency. In equation (3), the discounted value of government liabilities approaches zero over an infinite horizon. Although equations (2) and (3), are identities and cannot be tested,

rather it is possible to determine whether equation (3) would be satisfied if the relevant fiscal variables G, T, M, B, and P were to continue their historically observed path into the indefinite future. In such a situation, equation (3) is satisfied and fiscal policy is said to be sustainable. Otherwise, if an adjustment to one or more fiscal variables will be required at some future date, then it implies that the fiscal policy is unsustainable.

Fiscal dominance occurs when government discretionally decides the government expenditures without raising taxes at same time and hence influences the current and future flows of base money and the inflation rate. This relationship was identified by Sargent and Wallace (1981)'s "Some Unpleasant Monetarist Arithmetic" and suggests an inter-temporal positive correlation between government budget deficits and money growth. However, in a situation where regardless of the active fiscal policy, the central bank remains strong enough and committed enough to its own "independent" monetary policy then intertemporal government budget constraint must be satisfied somehow. Thus, in this case when neither regular fiscal policy nor monetary policy adjusts appropriately, then it must be the price level () adjusts to satisfy the intertemporal budget constraint, for a given level of outstanding debt.

With fiscal dominance, governments have discretionary control over monetary instruments, and they can prioritize other policy goals over price stability throughout their tenure. In particular, after nominal wages are set, politicians may be tempted to use monetary policy to produce short-term boosts in employment and output for electoral purposes, raising inflation. To overcome the time-inconsistency of commitments to price stability, and their inflationary bias (Kydland & Prescott, 1977), the literature stresses the benefits of enforced commitments (rules) over discretion (Barro and Gordon, 1983a, 1983b). In particular, Rogoff (1985) makes a case for delegating monetary policy to independent central banks. Once central bankers are insulated from political pressures, commitments to price stability can be credible, helping to maintain low inflation. Yet despite the importance of the central bank independence for price stability, the empirical literature has given limited attention to fiscal dominance, in Tanzania or elsewhere. The gap in the literature likely reflects the declining importance of central bank financing of government

deficits in advanced economies[3] over the past few decades. However, there is a closely related strand of literature that looked at the much broader concept of central bank independence. For instance, Allen and Smith (1983) found evidence of presence of regimes in the central bank's policy preference, but also found a positive and significant impact of total Treasury borrowing upon the growth of the monetary base, and concluded that there is evidence of policy accommodations in the U.S.

Recently, there has been a renewed interest in the interaction between fiscal authority and the central bank in the literature. For instance, Alpanda and Honig (2009) explored the presence of regimes in the monetary policy by investigating how central bank monetary policy strategy evolves with the tenure of the central bank governor. Bae et al., 2012 and Sims (2013) suggested that, the cooperation between fiscal and monetary policies is crucial for price stability in the economy. As such, Leeper and Leith (2016) develop the theory of price-level determination using jointly optimal monetary and fiscal policy. They argue that, from a theoretical perspective when the fiscal authorities adopt an active fiscal rule (i.e., presence of fiscal dominance) the central banks' ability to control inflation depends on the maturity structure of the outstanding debt and the nature of its policy response. According to Corsetti and Dedola (2014), the monetary authority can provide a reinforcement which helps rule out a government debt crisis, where the central bank purchases the government debt as unconventional monetary policy, instead of the conventional monetary policy regarding the choice on inflation. As such, Corsetti and Dedola (2014) used a monetary model similar to that of Calvo (1988), two potential states of the economy (high output state and low output state), the authors[4] argue that a monetary backstop is a feasible option in situations with large government debt and such a monetary backstop prevents high inflation.

Blommestein and Turner (2011) demonstrated the crucial role of fiscal and monetary coordination in the post-financial crisis era. Using linear-quadratic rational expectation model[5], Blake and Kirsanova (2012) investigate the stabilization bias that arises in a model of monetary and fiscal policy stabilization, despite of potential conflicts or tensions between the debt managers and the central bank. These authors find that if the steady-state level of debt is high, then the monetary authority has to take an active part in debt stabilization. Dıaz-Gim

enez et al. (2008) using a cash-in-advance model analyse the implications for the optimal sequential design of monetary policy with nominal and indexed public debt. These authors argue that a Calvo (1988) model is by design unable to show how debt, either nominal or indexed, can influence the choice of monetary policy. They further argued that, in the cash-in-advance production economy, the rational expectations equilibria for an initial given level of outstanding debt, nominal debt is a burden on optimal monetary policy.

The rest of the paper is organized as follows: Section 2 outlines the data and methodology for analysis; Section 3 discusses the results, and Section 4 presents the conclusion.

2.0 Methodology

2.1 Estimation method

The linkages between the real government debt and real base money is assessed following a bivariate structural VAR approach proposed by Fratianni and Spinelli (2001) and Xiong (2012). The structural VAR (SVAR) approach has been chosen to capture the relationship between government debt and the monetary base, such that the mean reverting dynamic behaviour of the monetary base can be analysed, while considering the necessary restrictions on the estimated reduced form model, required for identification of the underlying structural model, as provided by economic theory. The short-run dynamics from the identified SVAR will eventually establish the evidence of debt monetization by the central bank, and short run debt adjustment by fiscal authorities in Tanzania, and hence the state of the central bank; independence. The SVAR model can be specified as follows:

$$\begin{bmatrix} 1 & b_{12} \\ b_{21} & 1 \end{bmatrix} \begin{bmatrix} Y_t \\ X_t \end{bmatrix} = \begin{bmatrix} b_{10} \\ b_{20} \end{bmatrix} + \begin{bmatrix} \delta_{11} & \delta_{12} \\ \delta_{21} & \delta_{22} \end{bmatrix} \begin{bmatrix} Y_{t-1} \\ X_{t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{yt} \\ \varepsilon_{yt} \end{bmatrix} \quad (4)$$

where b and δ are coefficients, ε is a white noise shock. The structure of the system allows Y_t and X_t i.e. real government debt and real base money to produce contemporaneous effects on each other. Y_t and $X_t$can be expressed in terms of current and past values of the shocks to ε_{yt} and ε_{yt}. The error term in the standard VAR[vi] model can be expressed as linear combination of independently distributed shocks to Y_t and X_t:

where b and δ are coefficients, ε is a white noise shock. The structure of the system allows and i.e. real government debt and real base money to produce contemporaneous effects on each other. and can be expressed in terms of current and past values of the shocks to and . The error term in the standard VAR[6] model can be expressed as linear combination of independently distributed shocks to and :

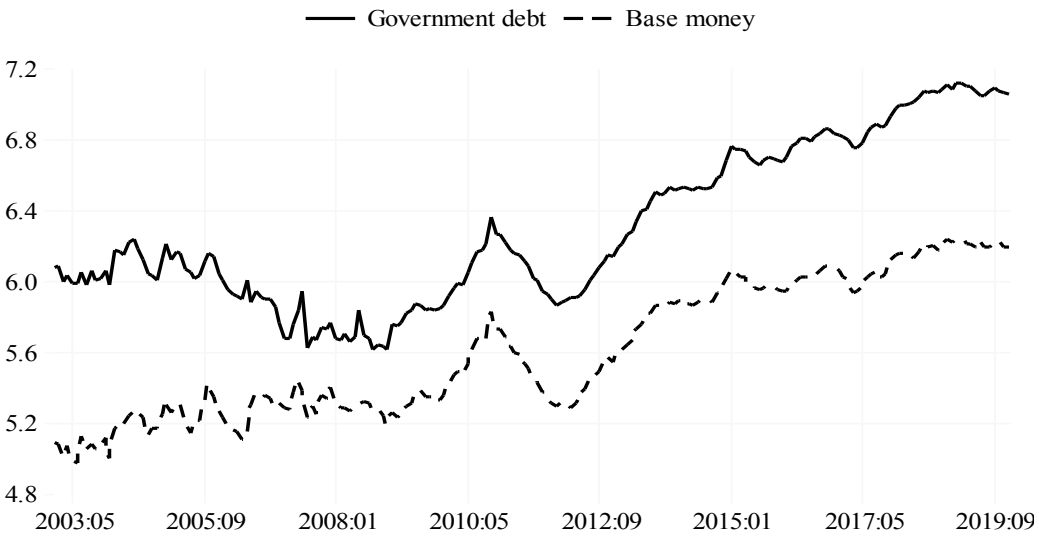
Economic theory paves the way to assume in equation (5), implying that real base money has no contemporaneous effects on the growth of real government debt. Accordingly is expected to be positive in case of fiscal dominance. Equation (5) can be transformed as

where equation (6) explains that an innovation in real base money () is caused by a shock in real government debt () and a structural shock in real base money () whereas an innovation in real government debt () is caused by only a structural shock in itself (). Absence of the central bank independence in this case is being assessed through the fiscal dominance test, which examines the unidirectional causality from central government debt to the growth of real monetary base (Gaiotti & Rossi, 2004).

2.2 The data and preliminary tests

The analysis is based on monthly time series data for the period 2003: I – 2019: I2.The government debt [7]data series is obtained from the Ministry of Finance and Planning and the monetary base data is obtained from the Bank of Tanzania. The CPI inflation deflator series are obtained from the National Bureau of Statistics (NBS). The CPI inflation is used to convert the government debt and monetary base data into real terms. The variables used in this analysis are in their log[8] where LB_t denote the log of real monetary base and LD_t denote the log of real government debt. Figure 1 below plots the data in real values, and Table 1 provide a descriptive summary of variables.

Figure 1: Natural log of monetary base and government debt, 2003 to 2019



Source: Bank of Tanzania, Ministry of Finance and Planning.

Table 1: Descriptive statistics of the variables

Variable	2003M1 - 2019M12				
	Obs	Mean	Max	Min	Std. Dev.
LB	204	5.6044	6.2378	4.9730	0.3787
LD	204	6.2917	7.1140	5.6102	0.4512

Notes: The term "Obs" represents the number of observations, while "Std. Dev" stands for the standard deviation. Min and Max indicate the smallest and largest observation, respectively. The variables LB and LD represents monetary base and government debt, both in logs

Table 2 presents positive and very strong pairwise correlation coefficients between the log of government debt and the log of monetary base.

Table 2: Correlation matrix of the variables

Variables	LB	LD
LB	1.0000	
LD	0.9211 ***	1.0000

Notes: The asterisks ***, **, * indicate statistical significance at the 1 per cent, 5 per cent, and 10 per cent levels, respectively. The unadjusted significance level corresponding to the critical t-statistic is obtained using the method developed by Pearson (1986) and Pearson and Filon (1988)

Stationarity test results using augmented Dickey and Fuller (1981) and Perron (1989) tests on the level and differenced data are provided on Table 3. These results indicate both variables are non-stationary at levels, as such, the null hypothesis of unit root in the data cannot be rejected.

Table 3: Stationarity test

Levels

Variable	ADF		PP		KPSS	
	Constant	Constant and trend	Constant	Constant and trend	Constant	Constant and trend
LB	-0.6466	-2.9654	-0.6082	-3.0873	1.6701	0.1811 **
LD	-0.0158	-1.9666	0.0578	-1.9168	1.3928	0.3554

First difference

Variable	ADF		PP		KPSS	
	Constant	Constant and trend	Constant	Constant and trend	Constant	Constant and trend
LB	-13.8813 ***	-13.8508 ***	-13.8896 ***	-13.8574 ***	0.0448	0.0327
LD	-15.7321 ***	-15.8503 ***	-15.6816 ***	-15.8173 ***	0.2850	0.0663

Notes:

a: For the ADF and PP tests indicate that the null hypothesis of a unit root is rejected at 10%; (*), 5% (**) and 1% (***) significance levels, while those for the KPSS test indicate that the null hypothesis of stationarity is rejected at 1% (***), 5% (**), and 10%; (*), significance levels.

b: Lag Length based on SIC
c: Probability based on MacKinnon (1996) one-sided p-values.

d: Probability based on Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Table 4 (a, b) displays the Johansen (1991) and the Phillips and Ouliaris (1990) procedures, which indicate no evidence in support of the linear or nonlinear cointegration between log of real government debt and the log of real money base.

Table 4.a: Johansen cointegration test

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.0484	9.9158	15.4947	0.2873
At most 1	0.0002	0.0392	3.8415	0.8431

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.0484	9.8767	14.2646	0.2201
At most 1	0.0002	0.0392	3.8415	0.8431

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 4.b: Phillips-Ouliaris (1990) cointegration test

Dependent	**tau-statistic**	**Prob.***	**z-statistic**	**Prob.***
LB	-2.4720	0.2952	-6.4924	0.608
LD	-2.0404	0.5083	-5.1706	0.7160

Intermediate Results:

	LB	LD
Rho - 1	-0.0415	-0.0358
Bias corrected Rho - 1 (Rho* - 1)	-0.0320	-0.0255
Rho* S.E.	0.0129	0.0125
Residual variance	0.0011	0.0016
Long-run residual variance	0.0007	0.0010
Long-run residual autocovariance	-0.0002	-0.0003
Number of observations	203	203
Number of stochastic trends**	2	2

**Number of stochastic trends in asymptotic distribution
*MacKinnon (1996) p-values.
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth)
No d.f. adjustment for variances

Cointergration test results on shows no evidence of long run relationship – supporting estimation of the SVAR. The sample is divided to represent assessment of fiscal dominance in different periods: the overall sample period (Jan 2003- Dec 2019), but also three different political regimes, i.e., Jan 2003 – Oct 2005, Nov 2015 – Oct 2015 (fourth phase government) and Nov 2015 – Dec 2019 (first 4 years of the fifth phase government). Table 5 presents a summary of the VAR diagnostic tests at different sample periods. Results indicates that residuals are normally distributed (joint Jarque Bera statistics), while the LM test for serial correlation shows that the models are free from autocorrelations, with the probabilities of LRE statistics and Rao F statistics greater than critical p-values at 5 percent level of significance. Models are therefore statistically stable and appropriate for impact assessment of real government debt on real monetary base in Tanzania.

Table 5: VAR diagnostic tests

	Jan 2003 - Dec 2019	Jan 2003 - Oct 2005	Nov 2005 - Oct 2015	Nov 2015 - Dec 2019
No. of Observations	204	34	120	50
No. of Lags (h)	43	2	39	7
LM test **				
LRE* stat	2.3867 (0.6650)	3.4310 (0.4885)	6.8048 (0.1466)	5.4430 (0.2448)
Rao F-stat	0.5975 (0.6651)	0.8709 (0.4886)	1.7658 (0.1467)	1.3975 (0.2449)
Joint Jarque-Bera test	5.0414 (0.2831)	2.1101 (0.7155)	3.4624 (0.4836)	6.2462 (0.1815)

Note: * Edgeworth expansion corrected likelihood ratio statistic. ** Null hypothesis: No serial correlation at lag h. The p values are in parentheses.

3.0 Results and Discussion

Table 6 presents estimates of SVAR models for the entire Jan 2003 – Dec 2019 period and for three sub periods. Estimates show that is positive and statistically significant for the entire sample period revealing evidence of fiscal influence on central bank's monetary policy strategy in Tanzania. Moreover, the estimates of for all sub periods are also positive and statistically significant, with different levels of magnitudes.

Table 6: The structural coefficients of the SVAR model

Note: ***, **, * denote significance level at 1%, 5% and 10% respectively

The variance decomposition in Table 7 shows that for the overall sample period, monthly forecast error variance of the changes in real base money is significantly affected (around 67.3% - 63.7%) by the changes in real government debt at a time horizon of 20 months. This finding further suggest the influence of fiscal authorities in central bank policy decisions for the sample periods. However, for the sample period Jan 2003 – Oct 2005, changes in real government debt account for around 81.8% - 74.5% of the variation in real base money during the first four months, and remains at 73.8% for more than 16 month in the horizon. The findings also suggest evidence of fiscal pressures for the period between Nov 2005 – Oct 2015 and Nov2015 – Dec 2019, with the 20 month average contribution of 45.8% and 51.9% respectively.

Table 7: Variance decomposition of real base money explained by real government debt

Month	Jan 2003 - Dec 2019	Jan 2003 - Oct 2005	Nov 2005 - Oct 2015	Nov 2015 - Dec 2019
1	67.31244	81.8264	42.7715	53.8105
2	68.39433	75.8742	41.8803	53.7026
3	68.19601	74.9183	42.3749	51.7503
4	68.19020	74.5123	44.3945	50.1864
5	68.14470	73.8989	44.2648	49.6713
6	68.04417	73.9018	43.5375	50.8881
7	68.29205	73.8094	43.8214	50.8545
8	68.18662	73.7845	44.0552	51.4139
9	68.32625	73.7816	45.2235	51.6397
10	69.95904	73.7729	50.2240	52.7286
11	69.47016	73.7727	49.1481	52.6748
12	68.56683	73.7717	48.9968	52.2334
13	67.01733	73.7713	46.5194	52.2440
14	66.98460	73.7713	46.9008	51.9144
15	66.43505	73.7711	45.4500	51.9045
16	66.23646	73.7711	46.1517	51.9093
17	65.70144	73.7711	46.0104	51.9044
18	65.00294	73.7711	48.6827	51.8871
19	64.44147	73.7711	48.2337	51.8875
20	63.68441	73.7711	47.6588	51.8301

The impulse response functions of the real base money for the entire sample period and three sub periods. An impulse response function describes the effect of one standard deviation shock to one of the endogenous variables on

the current and future values of all variables in the system. The solid line shows the point estimate of impulse response functions and dotted lines indicate the upper and lower bounds by adding and subtracting two times standard errors of the point estimator. In a structural VAR model, impulse response functions are orthogonalised using a structural Cholesky decomposition of the residual covariance matrix and ordering of variables in the model plays a significant role. Accordingly, shocks to real government debt (LD) and real base money (LB) are imposed. After a structural shock, speed of adjustment is measured through the number of periods before the impulse response functions cross the zero line.

Standard deviation shock to the real government debt leads to a monthly contemporaneous increase in real base money by 0.029 per cent for the entire sample Jan 2003 – Dec 2019 and sustains its impact on real base money only for four months, this impact systematically approaches to zero during the fifth month. However, between the fifth and sixth month it becomes slight positive, and maintain the stance between the sixth and eighth month, and approaching to zero again. Also during the time period Jan 2003 – Oct 2005 (Figure 8: b), a positive shock to real government debt leads to a contemporaneous increase in real money by 0.066 per cent, and this impact approaches to zero during the fifth month. Likewise, during Nov 2005 – Oct 2015 (Figure 8:c), a positive shock to real government debt leads to a contemporaneous increase in real money by 0.027 per cent, and sustain a positive for approximately eight months at most

During Nov 2015 – Dec 2019 indicate that a positive shock to real government debt leads to a contemporaneous increase in growth of real money by 0.018 per cent and approaches to zero during the fourth month at maximum, and the impact become positive again during the fifth and sixth month, before it approaches to zero again beginning the eighth month.

4.0 Conclusion

This paper investigates the impact of real government debt to the monetary-base by using monthly data from January 2003 to December 2019. Both linear (Johansen, 1991, Phillips and Ouliaris, 1990) and non-liner (Enders & Siklos,

2001) cointegration tests procedures fail to detect presence of cointergration between the government debt and the monetary-base in Tanzania. Therefore, the study estimates the SVAR model for the entire sample period of January 2003– December 2019 and also for four sub periods; Jan 2003– Oct 2005, Nov 2005 – Oct 2015, and Nov 205 – Dec 2019. The estimated coefficients reveal a positive and statistically significant impact of the government debt on the BoT's choice of monetary base for the sample period Jan 2003 –Dec 2019. The estimated coefficients are also positive for all sub periods. These findings are further confirmed by variance decomposition and impulse response functions generated through the just identified SVAR model.

The findings also identifies political phenomenon that before the fourth phase government, monetary policy witnessed relatively intensive fiscal dominance as compared to the fourth phase and fifth phase government. However, in comparison with the fourth phase government, findings suggest that during the first four years of the fifth phase government, monetary policy encountered a relatively high fiscal influence, which can be attributed to the government implementation of huge development projects and reduction in foreign financing in the government budget. The identified fiscal dominance for the sample period, implies a subordinated monetary policy, compromising on its primary objective of price stability. Henceforth, commitment to reduction in fiscal dominance is of paramount for long term price stability, but also one of the key requirement for an effective implementation of the price based monetary policy framework in Tanzania.

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