

# Public debt and private sector financing in Tanzania

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# Abstract

Public debt is an important macroeconomic policy area of interest for governments, researchers and academia. This study investigates its impact on private sector financing in Tanzania. Firstly, it discusses the evolution of public debt since independence, focusing on the legal and policy framework for its management and the debt relief strategies adopted. Secondly, it looks at the trends, patterns and composition of public debt, going beyond the creditors and instruments of external and domestic debt to compare Tanzania's debt situation with that of its neighbours.

Thirdly, the study analyses the impact of public debt on credit in the private sector and the lending rate during 1990 to 2020 using the Autoregressive Distributed Lag (ARDL) technique. The results show that in the long run, both external debt and domestic debt have a positive and statistically significant effect on lending rate while external debt has a significant negative impact on lending rate in the short run. On the other hand, the effect of external debt, domestic debt and total debt on domestic credit to private sector are negative and significant in the long run while their effect was vice versa in the short run.

This study recommends that the government must consider the effective (1) development of the capital market, (2) implementation of measures that maintain an efficient financial market via prudent fiscal policy and enhancement of banks' lending capacity while adhering to the debt strategy thresholds, (3) development of the domestic bond market and diversification of the investor base in government securities to include institutional and private lenders, setting domestic financing limits in debt management strategies, and (4) further limiting of borrowing through widening the tax base by either generating new revenue sources or strictly enforcing tax regulations to mobilize more revenues.

# Abbreviations

ARDL	Autoregressive distributed lag
EAC	East African Community
BOT	Bank of Tanzania
ECM	Error correction model
GDP	Gross domestic product
GMM	Generalized method of moments
GNI	Gross national income
HIPC	Heavily indebted poor countries
IMF	International Monetary Fund
MDRI	Multilateral Debt Relief Initiative
MTDS	Medium-Term Debt Management Strategy
NARDL	Nonlinear autoregressive distributed lag
PC	Paris Club
SAPs	Structural adjustment programmes
SMEs	Small and medium enterprises
SSA	Sub-Saharan Africa
URT	United Republic of Tanzania
VAR	Vector autoregressive model
VECM	Vector error correction model
WDI	World Bank Development Indicators

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# 1. Introduction

Tanzania's debt stock levels have increased by 10 folds in the past two decades, going from LCU 5,611 billion in 2001 to LCU 55,852 billion in 2020, and growing at an average annual rate of 13.82% (URT, 2021). Notwithstanding the fact that the decade has been a part of the historically longest periods of sustained economic growth, the period has seen the national debt rise with the ratio of its value to GDP growing from 29.8% to 41.6% between 2012/13 and 2020/21 (URT, 2021). The key drivers of the debt growth include exogenous shocks such as commodity price volatility that have hit budget revenues of commodity exporters; fiscal management and macroeconomic policy frameworks that are too weak to support economic growth; the changing of the composition of the debt toward the more expensive sources of financing; and the high levels of public spending (World Bank, 2018; Atingi-Ego et al., 2021).

The recent trends in public debt call for informed analysis of its effect on the economy and social welfare of present and future generations (Matiti, 2013). Moreover, as scholars have argued, public debt can reduce the level of funds available for the private sector and that way cause an increase in interest rates and crowding out of the private sector from the credit market. In addition, when banks increase investments in government securities their attitude to risk might change and their desire to lend more to relatively risky avenues might increase (Majumder, 2007; Abubakar et al.

, 2019). As a result, public debt is more likely to result in either an increase in interest rate, known as the crowding in effect, or a shrinking of credit to the private sector, known as the crowding out effect (Abubakar et al., 2019). increase (Majumder, 2007; Abubakar, et al., 2019). As a result, public debt is more likely to result in either increase

Having benefited under the frameworks of the Heavily Indebted Poor Countries (HIPC) Initiative and the Multilateral Debt Relief Initiative (MDRI), Tanzania largely eliminated its debt burden in the early 2000s (Were and Mollel, 2020). While it is fully understood that with Tanzania's growth rate and future projections private financing will increasingly play a more important role in development of funding for FYDP II, it is also critical that Tanzania re-establish its solid capacity to properly monitor and manage its debt obligations. As more private sector financing of industrial ventures and other key sectors become important, operating conditions and the business environment must continue to improve, as should the financing options, particularly long term financing, which will need to be enlarged.

This study undertook a comprehensive analysis of the trends and patterns of public debt and their impact on private sector financing. This analysis is expected to contribute to the strengthening of revenue administration towards budget reliability and credibility, public financial management integrity and implementation of the national blueprint for regulatory reforms to



improve the business environment, focusing on enhancing access to capital. This exercise will examine the trends and patterns of public debt and their impact on private sector financing in Tanzania and will be guided by the following research questions:

- What are the trends and patterns of public debt in Tanzania?
- What is the impact of public debt on private sector financing?
- What is the impact of public debt on lending in Tanzania?

## **1.1 Historical background of public debt in Tanzania**

Tanzania's huge external and domestic debt is a result of the government's attempt to achieve rapid development as elucidated in the Tanzania Vision 2025 and its predecessors and independence as a basic human right and to be in accord with the spirit of the Arusha Declaration, which articulates the philosophy of socioeconomic liberalisation based on socialism and self-reliance (URT, 1996). To pursue the development path as articulated in the vision, Tanzania has accumulated domestic and foreign debt since independence in 1961. The debt came from borrowing by the government to close the financing the gap created by the mismatch between revenue collection and expenditure requirements that resulted in budget deficits. The post-independence period witnessed excessive government borrowing to finance national development projects and development plans, the Development Plan for Tanganyika of 1961/1962 to 1963/1964 and the Five-Year Plan for Economic and Social Development, 1964–1969 (Mabula and Mutasa, 2019; URT, 2011).

From the mid-1970s to the early 1990s, Tanzania experienced an unprecedented crisis characterized by high inflation, unemployment and shortage of basic commodities. This was mainly caused by external shocks, that is (1) the 1973/1974 and 1979/1980 oil price increases, (2) the worsening terms of trade since the mid-1970s, (3) the breakup of the East African Community in 1977 and (4) the war with Idi Amin-led Uganda in 1978 whose direct expenses cost the equivalent of a year's exports. Another cause was adverse weather conditions such as droughts and floods (Mbelle, 2003). During that period, Tanzania suffered from large financial imbalances and a precarious external payments situation with recurrent foreign exchange shortages and heavy reliance on balance of payments support. Large imbalances in the country's fiscal and external accounts emerged, causing debt accumulation, which in a span of two and a half decades generated a debt–GDP ratio close to fivefold that of 1980. The succession of the shocks was followed by structural adjustment programmes (SAPs) in 1986 designed by the International Monetary Fund (IMF) and the World Bank that obliged Tanzania to restructure its economy.

The first and second generations of the reforms were intended to gradually establish more open credit markets, achieving flexible and liberal interest rates and enhancing financial intermediation. The reforms involved the introduction of long term financial institutions to improve availability of and access to long term financing for enterprises, infrastructure and housing. The banking sector also was reformed with the aim of promoting diversification, efficiency and competitiveness. This was envisaged to be a way to improve the allocative efficiency of resources.

From 1988, comprehensive tax reforms became a part of the economic reforms geared towards economic growth and sustained macroeconomic stability with low inflation, prudent fiscal policy, a stable exchange rate and a favourable balance of payments. Bonds were also issued by the government to take over the liabilities of many restructured parastatal companies, as privatization proceeds fell short of the liabilities. By the close of the 1990s, Tanzania's performance across most indicators of public sector reform and economic growth had improved markedly. Thereafter, Tanzania adopted the poverty reduction strategy backed by the World Bank and IMF's SAPs. The government also developed the Tanzania Development Vision 2025 as the overriding policy statement outlining the country's long term targets on poverty eradication, human development, good governance, and stability.

The global financial crisis of 2007–2008 obligated the government to avail affordable credit capital for business. A stimulus package was released through commercial banks a portion of which served as guarantee schemes for export and small and medium enterprises (SMEs) (Lunogelo, Mbilinyi and Hangi, 2009). The plan to develop infrastructure also increased the government debt, as government issued long term treasury bonds in addition to borrowing from international financial markets.

Tanzania also introduced a capital market development initiative in 1996, but this still has very little impact, as very few investors have been attracted to the stock market. Without the establishment of secondary markets, capital market structures will not be suitable for SMES to raise capital in the form of equity securities. The government's high yield short term treasury bills introduced during this period attracted high demand but at the expense of the stock market. Commercial banks switched a big proportion of their deposit liabilities into treasury bills. This crowded out the private sector and productive activities from the capital market.

The lending rates in Tanzania remained stable until their gradual downward trend started in recent years. Specifically, the rate declined to 16.6% in 2020/2021 from 18% in 2016/2017, an indication of the easing of credit conditions supported by an improved business environment (BOT, 2019; 2021). The limited extent of lending has been attributed to high

intermediation costs, including high interest rate spreads, a signal of the banking sector's inefficiency (Mbowe et. al., 2020). Likewise, extended broad money supply (M3) grew by only 7.3% in 2020/2021 against the target of 10% and the preceding year's growth of 9.6% (Bank of Tanzania, 2021). The growth of credit to the private sector remained positive but subdued, with the rate averaging 4.3%, which was rather low against the target of 11.6% and compared to the rate of 8.1% in the corresponding period of 2019/2020 (Bank of Tanzania, 2021). The slowdown in the growth of credit to the private sector was attributed to the decline in demand for new loans, which was a reflection of the adverse effects of the COVID-19 pandemic on some businesses and investments (Bank of Tanzania, 2021).

The above overview highlights the government reform efforts to develop the domestic financial and capital markets. However, the various reforms did not reduce the country's debt. The introduction in 1993 of the treasury bills market in the government's efforts to use domestic borrowing to pay interest on external debt and finance social services expenditure led to excessive government borrowing. Interest rates on government securities rose from 9% per annum during 1966–1987 to 20% during 1988–1993 and then flew to 65.9% in 1994 before declining to 41.9% per in 1995 (Bank of Tanzania, 2011). The debt–GDP ratio was 2.9% in 2006 but increased to 32.6% in 2014, 37.1% in 2016 and 38.1% in 2019 (URT, 2021).

The interest rate ranged between 6% in 2007 and 16% in 2016 from when it declined to 11% in 2017, and now it stands at a low 4.5% in 2021 (URT, 2022).

## **1.2 Legal and policy framework of debt management in Tanzania**

Robust debt management plans play an important role in ensuring debt sustainability and effective fiscal management. It is therefore crucial to develop a proper strategy and institutional framework for debt management that works side by side with monetary plans of the fiscal authorities. The objective of public debt management is to ensure that the government's financing needs and payment obligations are met at the lowest possible cost over the medium to long run, observing the need for a prudent degree of risk and meeting any other goals such as developing and maintaining an efficient market for government securities. In a broader macroeconomic context for public policy, governments should seek to ensure that both the level and rate of growth of their public debt are fundamentally sustainable and can be serviced under a wide range of circumstances while meeting the cost and risk objectives. The objectives are to ensure that public sector indebtedness remains sustainable and that a credible strategy is in place to reduce excessive levels of debt.

Debt management in Tanzania is guided by the Government Loans, Guarantees and Grants Act No. 30 of 1974 as amended in 2004 and the National Debt Strategy of 2002. The Ministry of Finance and Planning, the Bank of Tanzania and the Attorney General's Office together are the executing agencies of the National Debt Strategy.

Under the Government Loans, Guarantees and Grants Act No. 30, the exclusive powers to raise foreign and local loans, issue guarantees and receive grants for and on behalf of the government are vested with the Minister for Finance and Planning. The Act provides the minister with the responsibility of reporting on the annual debt strategy and borrowing plan, plus the debt strategy implementation plan on a quarterly basis, and to present the debt and budget execution reports to the parliament during the budget speech. Section 25, Part VI of the Government Loans, Guarantees and Grants Act requires the minister to have an annual debt strategy and borrowing plan prepared and then approved by the government. Section 32, Part VII states that the authority conferred upon the minister to borrow on behalf of the state will be exercised in line with the debt management objectives set out in the national debt strategy.

The Government Loans, Guarantees and Grants Act also defines the advisory role played by the Technical Debt Management Committee and the National Debt Management Committee. The organizational setup for public debt management encompasses the following institutions and committees listed here with their key roles:

- The Parliament approves the annual borrowing ceilings and borrowing plan and it is to whom the debt statement must be presented.
- The Cabinet approves the annual debt strategy, which is a part of the budget policies, and it is to whom the debt strategy is presented.
- The National Debt Management Committee is the high level advisory committee for the Minister of Finance and Planning, and it is supported by the Technical Debt Management Committee and a secretariat.
- The Ministry of Finance, notably the Policy Analysis, External Finance, Treasury-Registrar, Stock Verification, Budget, Legal Services and Accountant General's departments, plays the front, middle and back office functions.
- The Bank of Tanzania plans the middle, front and back office functions in aspects relating to both domestic and external debt.
- The Attorney General's Chambers provide legal advice and legislation drafting support

## **1.3 Strategies for debt relief in Tanzania**

In addressing the debt crisis, the government took various measures to reduce the debt burden on the economy. Some of measures are discussed below.

### ***1.3.1 Bilateral cancellation***

Tanzania embarked on SAPs in 1986 after a decade of protracted economic decline. The main objectives of adopting SAPs were to adjust the country's economic structure, improve international competitiveness and restore the balance of payments. SAPs were supported by IMF and the World Bank. They were accompanied by a substantial increase in foreign assistance such as the cancellation of bilateral debts. As a part of the strategy to address the debt crisis, official creditors were requested to cancel or convert their debt into grants. Between 1978 and 1992, bilateral debts amounting to US\$ 1,044.3 million were either cancelled or converted into grants.

### ***1.3.2 Paris Club arrangements***

The Paris Club is the forum within which debtor countries negotiate the restructuring of public sector debt with their creditor governments. It is an informal group of official creditors born in 1956, whose role is to find coordinated and sustainable solutions to the payment difficulties experienced by debtor countries. As countries with major debts undertake reforms to restore and/or stabilize their financial

and macroeconomic situations, creditors at the Paris Club provide a debt treatment that is appropriate to their situation. The Paris Club creditors may facilitate debt rescheduling for debtor nations or offer concessional rescheduling.

The government of Tanzania has made big efforts to negotiate with its bilateral Paris Club creditors to cancel or reschedule its debts. Over 1986–1997, Tanzania had five Paris Club arrangements. In the first four of these, that is PC-I of September 1986, PC-II of December 1988, PC-III of March 1990 and PC-IV of January 1992, debts worth US\$ 1,753.56 million were rescheduled and US\$ 223.83 million cancelled. The debts affected were those contracted before 30 June 1986. For PC-V of January 1997, the government received the Naples terms that entailed cancellation of 67% of the eligible debt stock or flows and rescheduling of the remaining 33% on concessional terms. The cut-off date for PC-V was 30 June 1986, and the consolidation period ended in November 1999. By the end of financial year 1997/98, debts worth US\$ 371.121 million had been cancelled and US\$ 351.985 million rescheduled.

### **1.3.3 Debt conversation programme**

The government introduced the debt conversation programme in 1990 with the aim of reducing arrears of external debt and promoting investment in selected priority areas without compromising monetary stability. Debt worth US\$ 164.5 million was converted and utilised by various beneficiaries in 77 projects to finance investment in tourism, industry, agriculture, mining and social services. This scheme was abandoned in June 1993 because of inflation pressure.

### **1.3.4 Heavily Indebted Poor Countries Initiative**

Activities associated with the Heavily Indebted Poor Countries (HIPC) Initiative took place in Tanzania July 2000–February 2002. The Initiative provided comprehensive debt relief to the 40 most heavily indebted countries (33 of which are in Africa). The World Bank Group grants countries that qualify for debt relief under the HIPC Initiative debt reduction of up to 80% of their debt obligations as they come due until the full amount of the committed debt relief has been provided. As at end of March 2011, 26 countries including Tanzania had reached their completion points under the HIPC Initiative. The Bank Group has provided or committed irrevocable HIPC debt relief of US\$ 5.4 billion to these countries. The contribution from the Bank Group's internal resources typically finances 15–20% of the estimated cost of each beneficiary country, while 80–85% of the cost is financed through donor contributions.

### **1.3.5 Multilateral Debt Relief Initiative**

The Multilateral Debt Relief Initiative (MDRI) was introduced in September 2005 to operationalize the political outcome of the deliberations at the G8 Summit in Gleneagles in July 2005. MDRI aims for cancellation of all eligible debt stock owed by eligible countries to four multilateral financial institutions – the International Development Association, which is the concessional lending arm of the World Bank, IMF, the African Development Fund and the Inter-American Development Bank. Under MDRI, donors have committed to compensate the Bank Group dollar for dollar for MDRI-related foregone ADF reflows over 50 years (2004–2054) to safeguard the long term financial capacity of the African Development Fund. By the end of March 2011, all 26 regional member countries that had reached their completion point and qualified for irrevocable HIPC debt assistance had benefited from the MDRI debt cancellations worth US\$ 10.1 billion.

### ***1.3.6 Medium term Debt Management Strategy***

Bank and IMF to guide the debt management decisions and operations of government authorities. MTDS links borrowing with macroeconomic policy, helps countries maintain sustainable levels of debt and facilitates domestic debt market development. In Tanzania, the Ministry of Finance and Planning has published a medium-term debt management strategy for 2022–2026. This is structured based on the fiscal plan in accordance with Article 38 of the Public Finances Act no. 123/2015 and is presented annually. It covers five years and it is based on the previous strategy issued in December 2020 (URT, 2021).

## 2. Recent macroeconomic indicators and the evolution of public debt

### 2.1 Recent macroeconomic performance in Tanzania

Over the last decade, Tanzania has registered notable real GDP growth rate averaging 7% (Bank of Tanzania, 2020), although it slowed to 4.8% and 4.3% in 2020 and 2021, respectively, owing to the challenges associated with the COVID-19 pandemic. In terms of export of goods and services as a percentage of GDP, the country has witnessed a decline from 21.9% in 2012 to 14% in 2020 (Table 1).

Tanzania's fiscal deficit has remained relatively low, which could be an indication of its effective management of public spending. Moreover, inflation decreased from 7.9% in 2013 to 3.3% in 2020 mainly due to a steady decline in food prices (African Development Bank, 2021). The government's fiscal consolidation helped to reduce recurrent expenditures, but the adverse effect of COVID-19 on revenues increased the fiscal deficit slightly from 1.3% of GDP in 2017 to 2.6% of GDP in 2020, which still was lower than the government target of 5% (Table 1). Moreover, the deficit was largely financed through domestic borrowing (African Economic Outlook, 2021). National debt as a percentage of GDP rose from 36.2% in 2013 to 50.3% in 2021 (Table 1).

Table 1: Trend of key macroeconomic indicators (2012–2020)

Indicator	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Real GDP growth	4.5	6.8	6.7	6.2	6.9	6.8	7.0	7.0	4.8	4.9
Debt to GDP	37.6	36.2	37.7	38.8	43.8	46.4	46.1	48.6	47.4	50.3
Investment/GDP	30.1	37.5	37.7	32.8	32.8	30.6	30.8	32.1	32.2	33.2
Fiscal deficit/GDP (excluding grants)	-6.7	-6.5	-4.2	-4.9	-3.0	-1.3	-2.5	-2.3	-2.8	-3.8
Savings/GDP	12.2	10.7	13.0	13.2	17.2	15.8	16.3	17.3	17.2	18.0
Exports/GDP	21.9	19.2	20.6	19.0	17.4	15.9	15.0	15.8	14.0	14.3
Imports/GDP	32.0	30.6	32.6	28.8	21.4	18.0	18.2	17.3	13.9	17.0
Inflation rate	16.1	7.9	6.1	5.6	5.2	5.3	3.5	3.4	3.3	3.7
Money supply (M3)	12.5	10.0	15.6	18.8	3.4	8.0	4.5	9.6	5.7	15.5

Source: Ministry of Finance and Planning and Bank of Tanzania, (2021)

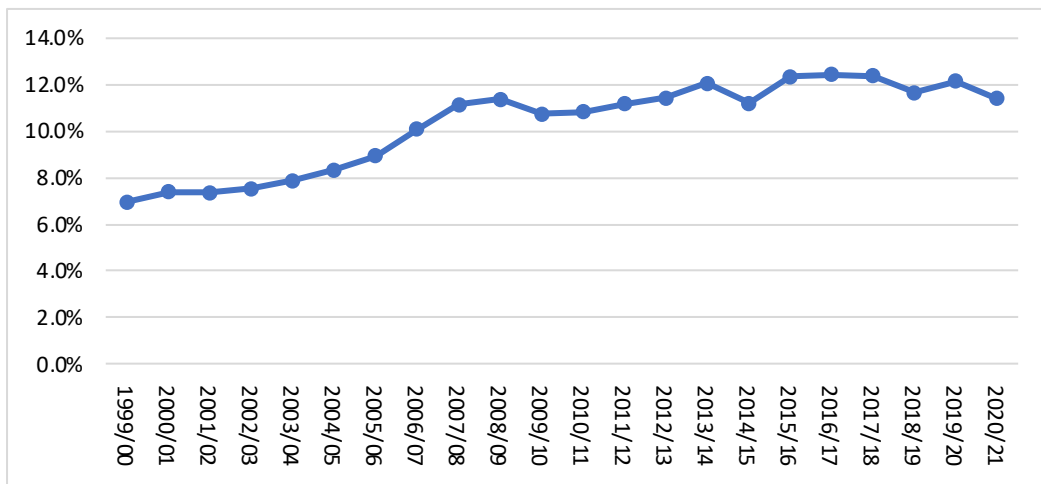


## 2.2 Why Tanzania borrows

Taxes are the main source of government revenue for Tanzania and the country is faced with the challenge of a narrow tax base. To mobilize adequate funds, the government is forced to borrow. Figure 1 shows the trend of the tax to GDP ratio. Tanzania has recorded an impressive trend in the tax to GDP ratio over the years, which grew by 63% between 1999/2000 and 2008/2009, before declining, though slightly, in 2009/2010. The tax to GDP ratio gained momentum again and rose from 10.8% in 2010/2011 to 12.1% in 2013/2014 and then declined slightly to 11.2% in 2014/2015. The tax to GDP ratio remained at an average of 12.4% for three consecutive years but later declined to 11.7% in 2018/2019. Despite the impressive growth of the tax to GDP ratio, the revenue is still insufficient to bridge the budget gap.

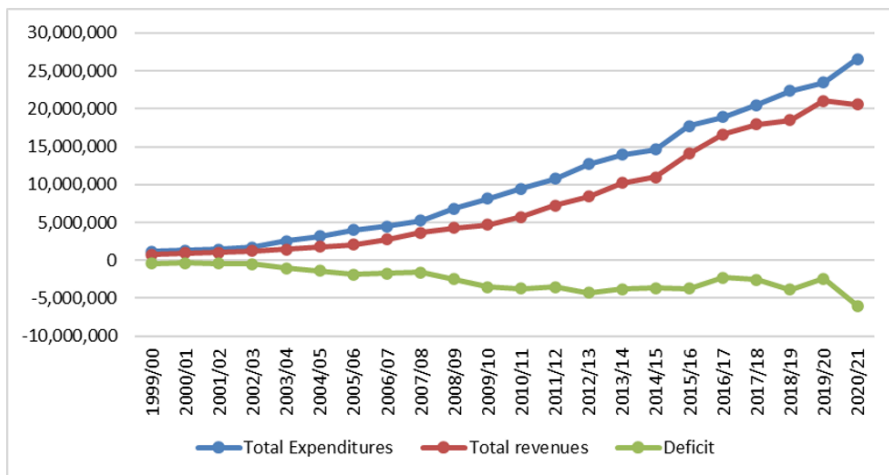
Over the past two decades government expenditure has been growing faster than the collected revenue, leading to a budget deficit. Borrowing is one of the policy options adopted by the government to bridge this gap. Government expenditure and total revenue increased by 22% and 25%, respectively between 1999/2000 and 2020/2021 (Figure 2). Domestic revenue and other external inflows such as grants have been insufficient to finance the budget deficit, so the country has to borrow externally.

Figure 1: Trend of the tax to GDP ratio in Tanzania



Source: Tanzania Revenue Authority

Figure 2: Trend of expenditure, total revenues and deficits in Tanzania



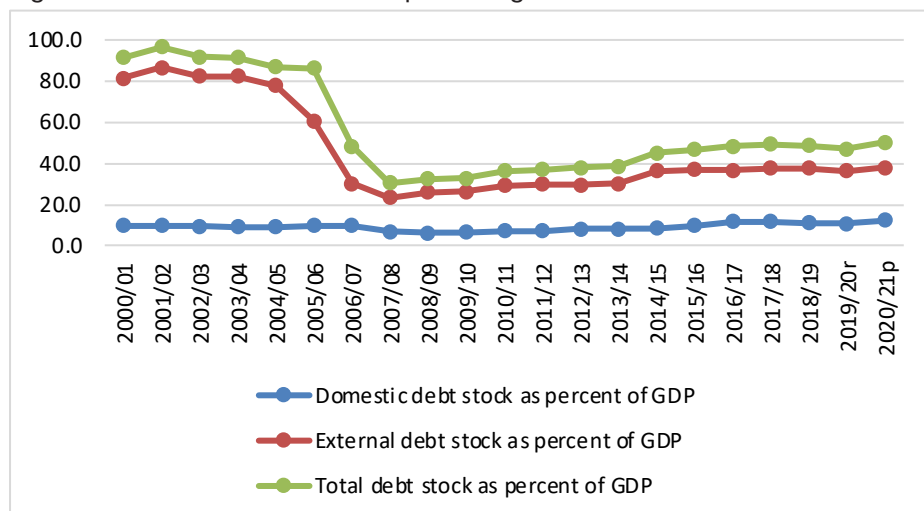
Source: Bank of Tanzania

## 2.3 Trends and structure of public debt in Tanzania

### 2.3.1 Public debt profile

Tanzania’s national debt stock, which comprises external (public and private) and domestic debt, has evolved over time, largely driven by public sector debt. Figure 3 shows there was a noticeable rapid decline of total debt stock and external debt stock as a percentage of GDP from 2001/2002 to 2007/2008, which was more likely attributed to debt relief initiatives that reduced the debt burden. Tanzania was accorded debt relief after implementing macroeconomic and structural reforms to meet completion point requirements (Were and Mollé, 2020). However, the debt stock increased slightly thereafter to respond to the increased demand for revenue to finance mega projects such as the Stiglers Gorge Hydropower Project and Standard Gauge Railway and the matured securities rollover (Mashindano and Kazi, 2021). Domestic debt stock as a percentage of GDP has remained steady over the last two decades (see Figure 3).

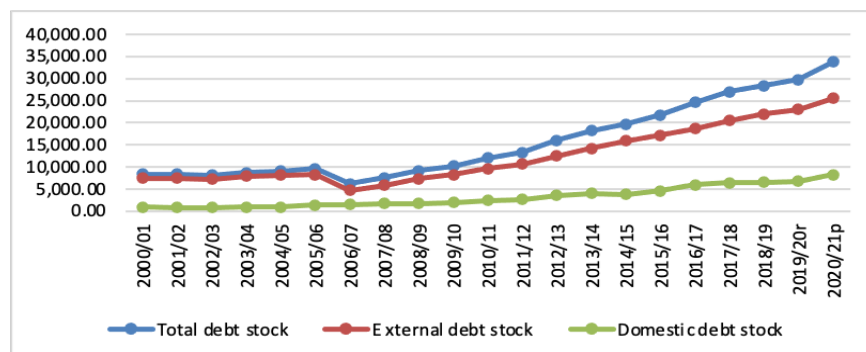
Figure 3: Trends in debt stock as percentage of GDP in Tanzania



Source: Bank of Tanzania, 2021

Figure 4 shows the trends in public and private external and domestic debt stock in Tanzania over 2000/2001–2020/2021. Both external and domestic debt stock have been increasing in the post-HIPC Initiative period, with external debt stock accounting for a significantly higher proportion of public debt. Both external and domestic debt increased over 2007/2008–2020/2021. The increase in the total debt stock was mainly on account of new borrowing to finance development projects.

Figure 4: Trends in Tanzania’s debt stock 2001–2020 (million US\$)

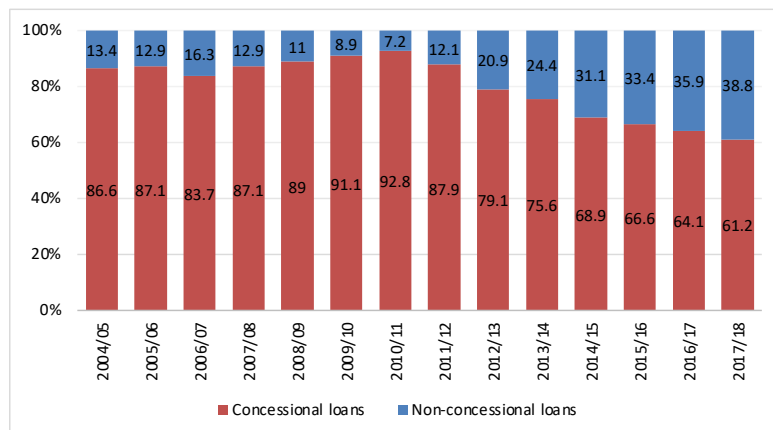


Source: Bank of Tanzania, 2021

### 2.3.2 Trends towards non-concessional debt sources

The rising financing needs to fund development projects have come at a time when the financing landscape is changing significantly. Traditional and relatively concessional sources of financing have been shrinking giving rise to new non-concessional financing sources that are more complex, costly and risky. The declining trend of financing from traditional creditors has necessitated that the government increase its access to non-concessional sources of funds in the recent years to finance its development projects. Consequently, the share of concessional debt has declined, going from 92.8% of total external debt in fiscal year 2010/2011 to 38.8% in fiscal year 2017/2018 (Figure 5).

Figure 5: Trends of concessionality of public external debt in Tanzania, 2005–2018

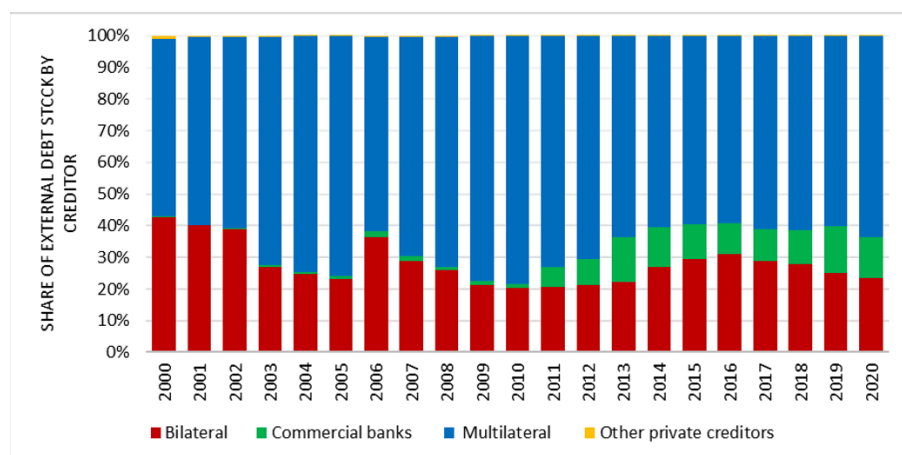


Source: Bank of Tanzania

### 2.3.3 Trend towards commercial debt sources

Tanzania's external debt traditionally was linked to concessional sources, that is multilateral and bilateral creditors. However, the period covered in this study was characterized by a gradual decline in the proportion of debt held by these creditors, which went from 54.7% and 17.7% at end of June 2012 for multilateral and bilateral creditors, respectively, to about 46.6% and 9.4% at end of June 2019. The proportion of debt owed to multilateral institutions remained dominant over this period but the debt from commercial sources rose from 18% to 33.4% (Figure 6). This has implications on debt servicing costs, given that commercial debt is relatively costlier. Figure 6 shows further the trends of the composition external debt by official creditors over 2000–2020. Multilateral creditors accounted for the largest debt share followed by bilateral creditors and then commercial banks and other creditors.

Figure 6: Tanzania's external debt from official creditors, 2000–2020

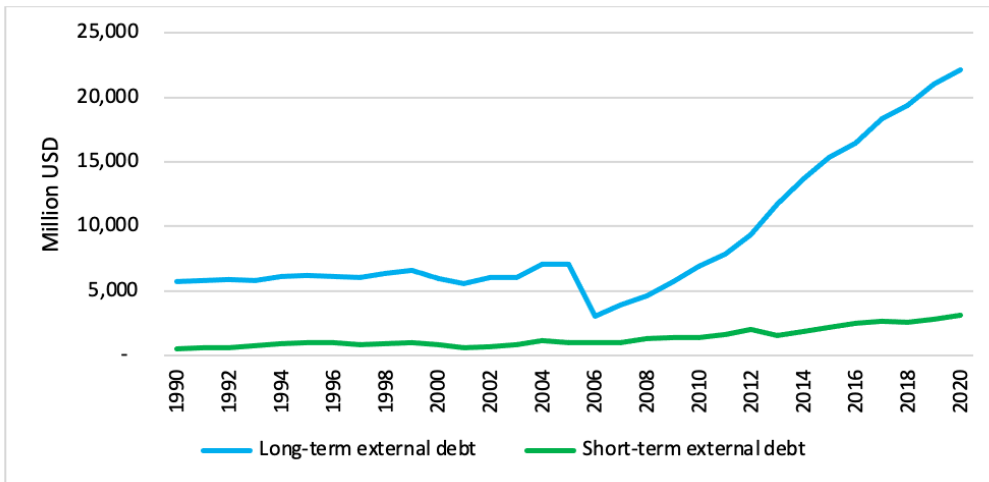


Source: International Debt Statistics, 2021

### 2.3.4 Maturity profile of external debt

In maturity terms, a large part of the external public debt is long term with an original maturity of more than one year (see Figure 7). Short term debt that matures within a year was less than US\$ 5,000 million. Based on its maturity profile, the external debt has relatively little exposure to refinancing risk (Were and Mollé, 2020) except for the debt with less than a year maturity.

Figure 7: Long-term and short-term external debt in Tanzania



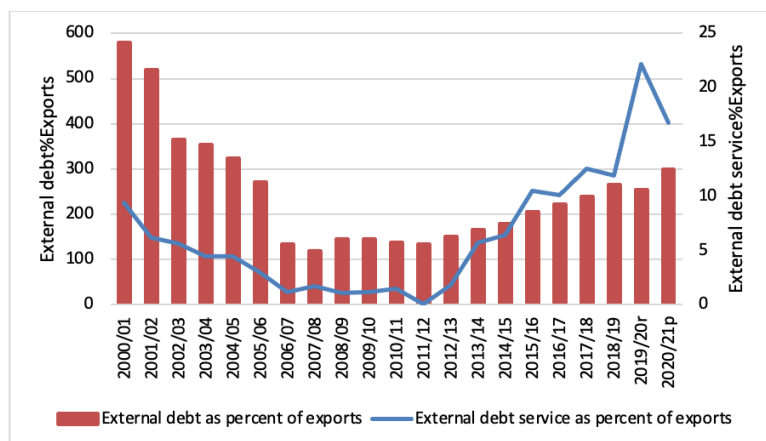
Source: International Debt Statistics, 2021

### 2.3.5 Debt service in Tanzania

The rising external debt burden, along with its increased risk profiles, is associated with rising servicing costs. The debt service ratio is considered an important indicator of a country's debt sustainability. It reflects a government's ability to meet external creditor claims on the public sector through export revenues. A fall in this ratio can result from increased export earnings, a reduction in debt servicing costs or a combination of both, and vice versa. A persistent deterioration of this ratio would signal an inability to generate enough foreign exchange income to meet external creditor obligations.

Tanzania's external debt service ratio as a percentage of exports dropped from 9.6% in 2000/2001 to about 1.9% in 2011/2012, but that was followed by a marked increase to 14.6% in 2018/2019 (Figure 8). The rise of the debt service ratio could be caused by a country's predominant reliance on public financing for resources for structural transformation while it is also struggling with fiscal space limitations associated with shallow domestic financial and banking systems and limited options to refinance maturing debt obligations in the international financial markets. Tanzania's debt servicing cost to export ratio has not crossed the IMF and World Bank defined threshold of 21% for risky debt, implying that the country's debt sustainability in the short and long terms is not off track.

Figure 8: The trend of the external debt/debt service as a percentage of GDP, 2001–2020



Source: Bank of Tanzania, 2021.

## 2.4 Profile of Tanzania’s domestic debt

The profile of domestic debt by instrument shows that the share of government bonds has risen gradually, starting from 56.1% in June 2017 to 76.9% in June 2021 (Table 2). This increase aligns with the implementation of the government’s strategy of lengthening the maturity profile of domestic debt through gradual leveraging of long-term instruments for financing. Besides that, treasury bonds remained dominant, altogether accounting for 76.9% of domestic debt stock in 2020/2021 compared with 59.1% in 2016/2017. Next were treasury bills, which accounted for 9.4% of the debt in 2020/2021 and 27.2% in 2016/2017 (Table 2). In terms of maturity, this composition of the domestic debt was in line with the requirements of the medium-term debt management strategy, which aims at mitigating risks by lengthening the maturity of the debt portfolio.

Table 2: Domestic debt by instrument (TZS billions)

Instruments	2016/2017		2017/2018		2018/2019		2019/2020		2020/2021	
	Amount	Share	Amount	Share	Amount	Share	Amount	Share	Amount	Share
Government securities	11,770.5	88.3	12,776.4	86.7	13,603.1	91.5	14,715.7	94.8	15,579.4	87.6
Treasury bills	3,633.3	27.2	2,659	18	3075	20.7	2,236.5	14.4	1,774.9	9.4
Government stocks	257.1	1.9	257.1	1.7	252.7	1.7	252.7	1.6	252.7	1.3
Government bonds	7,880	59.1	9,860.3	66.9	10,275.3	69.1	12,226.4	78.8	14,551.8	76.9
Tax certificates	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0
Non-securitized debt	1,564.9	11.7	1,955	13.3	1,260.1	8.5	800	5.2	2,354.9	12.4
Other liabilities	18.4	0.1	18.4	0.1	18.4	0.1	18.4	0.1	18.4	0.1
Overdraft	1,546.6	11.6	1,937.4	13.2	1,241.7	8.4	781.7	5	2,336.5	12.3
Domestic debt stock (without liquidity papers)	13,335.4	100	14,732.2	100	14,863.3	100	15,515.8	100	18,934.4	100

Source: Bank of Tanzania, 2021

Table 3: Domestic debt by creditor (TZS billions)

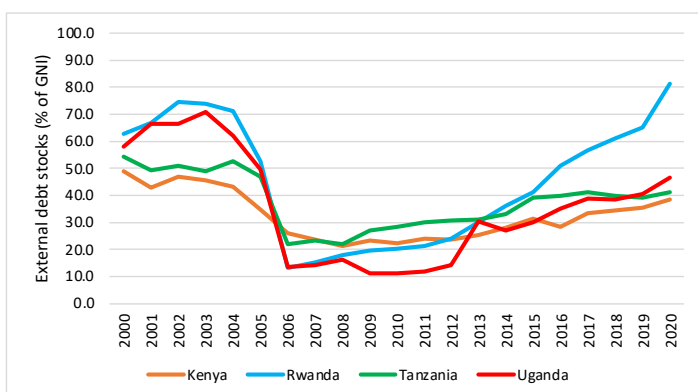
Holders	2016/2017		2017/2018		2018/2019		2019/2020		2020/2021	
	Amount	Share	Amount	Share	Amount	Share	Amount	Share	Amount	Share
Commercial banks	5,121.5	38.4	5,297.2	36.7	5,340.1	35.9	5,304.7	34.2	5,840.2	30.8
Bank of Tanzania	3,633.3	25.3	3,641.2	24.7	2,529.9	17	2,064.9	13.3	3,481.7	18.4
Pension funds	2,986.4	22.4	3,272.6	22.2	3,868.5	26	4,413.2	28.4	4,774.8	25.2
Insurance	595.5	4.5	1,074.4	7.3	1,363.9	9.2	1,201.2	7.7	1,484	7.8
Bank of Tanzania special funds	1,093.2	8.2	1,181.8	8	284.4	1.9	316.3	2	3,76.4	2
Others	162.4	1.2	265	1.8	1,476.5	9.9	2,215.5	14.3	29,77.5	15.7
Domestic debt stock (without liquidity papers)	13,335.4	100	14,732.2	100	14,863.3	100	15,515.8	100	18,934.4	100

Source: Bank of Tanzania, 2021

### 2.4.1 Regional comparison

Figure 9 shows that the ratio of external debt to the gross national income (GNI) increased sharply in early the 1990s owing to the 1980s debt crisis, it remained relatively stable albeit showing some volatility for more than a decade and then it started to sharply decline in the early 2000s. The ratio of Tanzania’s external debt to GNI declined drastically relative to that of its neighbours Kenya, Uganda and Rwanda after the cancellation of its debt in the early 2000s. But all the four countries had experienced rising trends in their external debt to GNI ratio owing to factors such as deteriorating macroeconomic conditions and rising fiscal deficits on the back of poor growth, exchange rate volatility and adverse climatic conditions. Moreover, as Figure 9 shows, in the countries except Kenya, the debt GNI ratio was higher than 50% prior to 2006 when it declined substantially. This was a result of a combination of improved economic growth and introduction of the HIPC and MDRI debt relief programmes (Battaile, Hernandez and Norambuena, 2015).

Figure 9: Trends in external debt in some EAC countries

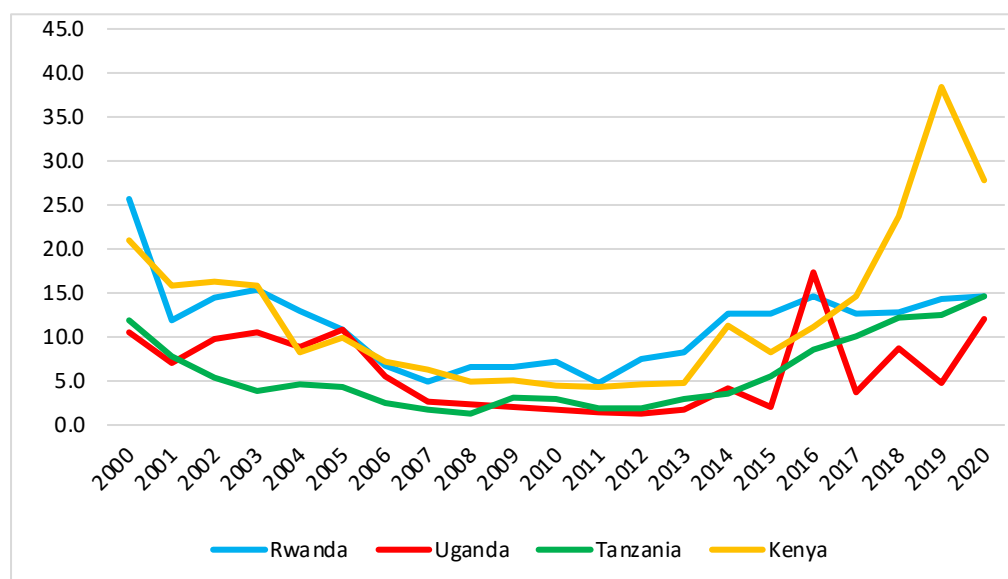


Source: International Debt Statistics, 2021

## 2.4.2 Debt services ratio

The World Bank and IMF's threshold level for the debt service to export ratio indicates the preferred range to be 20% to 25%. Figure 10 provides an overview of the debt service ratio for some EAC countries. It shows that the debt service ratios for Rwanda, Uganda and Tanzania were below the threshold of 20% during 2001–2020, which Kenya had exceeded during 2018–2020. The cost of external debt servicing had a rising trend in Tanzania, increasing sharply since 2010, but it was below that of Rwanda and Kenya.

Figure 10: Total Debt Service in some EAC countries (% of exports of goods, services and primary income)



Source: International Debt Statistics, 2021

## 2.4.3 Debt sustainability

The government of Tanzania has a sound institutional arrangement consisting of a Monetary Policy Committee, an Audit Committee, a Bank Supervision Committee and a Finance and Investment Committee to ensure oversight and proper management of domestic and external public debt (Mashindano and Kazi, 2021). The government also has adopted debt management strategies that maintain the credibility and sustainability of the debt stock to conform to international benchmarks. That way, Tanzania continues to be creditworthy. The debt sustainability analysis conducted by IMF in 2020 showed that Tanzania's debt is sustainable and all debt indicator ratios are below the acceptable debt threshold (Table 4).



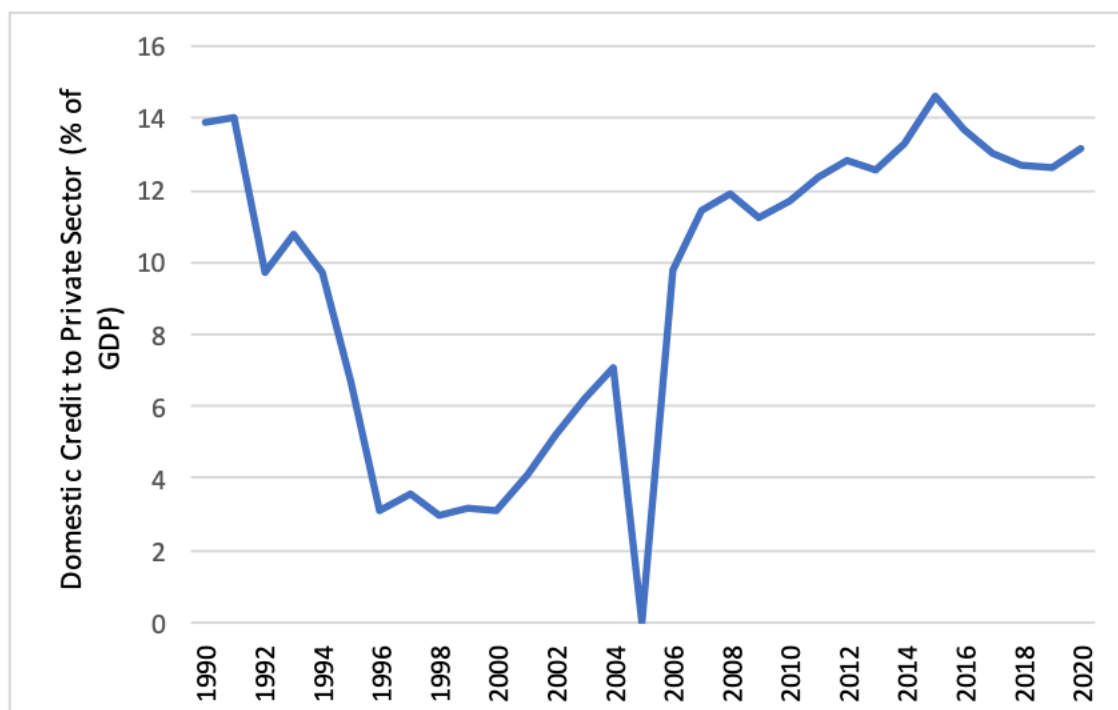
Table 4: Public debt sustainability indicators

Indicators	Threshold (%)	2019/20 (%)	2020/21 (%)	2021/22 (%)	2022/23 (%)
Present value (PV) of debt-to-GDP ratio	70	27.1	27.5	28.1	29.2
PV of debt-to-export ratio	240	103.9	105.5	110.9	116.7
Debt service-to-export ratio	21	11.9	11.1	9.5	10.3
Debt service-to-export ratio	25	11.9	11.9	10.1	10.7

## 2.5 Trends in private sector financing in Tanzania

Figure 11 shows that Tanzania's domestic credit to the private sector fluctuated substantially over 1990 to 2020 and Figure 11 shows that the ratio of domestic credit to the private sector to GDP decreased sharply from 1990 to 2000. Domestic credit to the private sector rose from 2001 to 2004 before dropping sharply in 2005. Thereafter, it increased substantially and was 13.2% in 2020 (Figure 11).

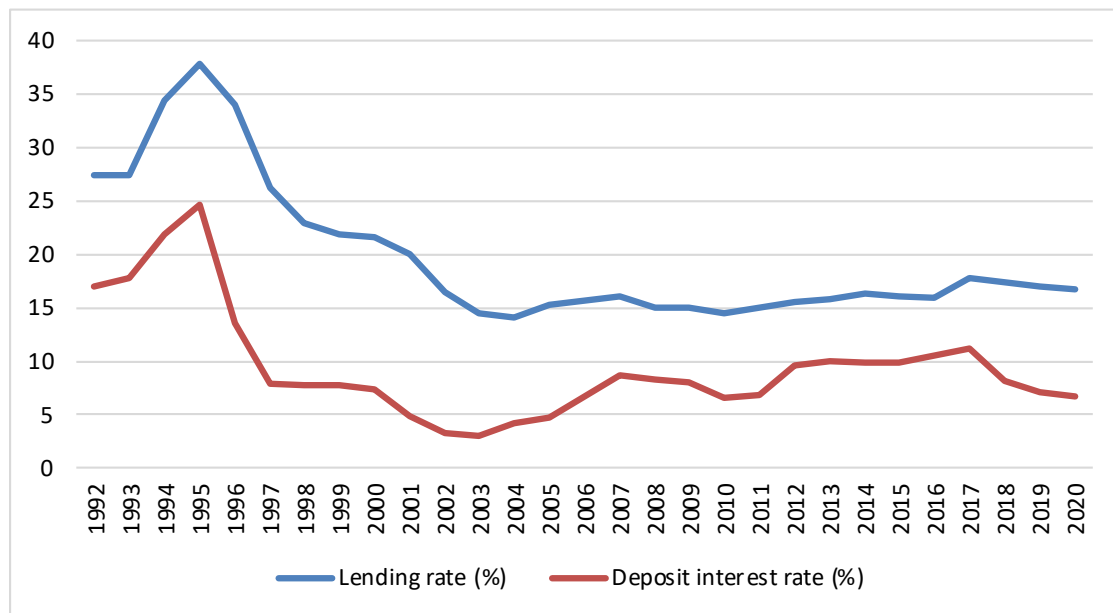
Figure 11: Trends in domestic credit to private sector in Tanzania, 1990–2020



Source: WDI, 2021

Both the deposit interest rate and the lending rate increased over 1992–1995, declined slightly between 1996 and 2004 and then rose sharply up to 2017 (Figure 12). This was attributed in part to credit tightening in the banking system. BOT’s intervention in the credit market in 2017 led to decline in the lending rates from 2017 to 2020 (Mashindano and Kazi, 2021). The intention was to stimulate economic growth and encourage borrowing and investment by the private sector.

Figure 12: Trends in deposit and lending rates in Tanzania, 1992–2020



Source: WDI, 2021

### 3. Literature review

This section examines the theoretical and empirical studies on how public debt affects private sector financing in Tanzania and other countries.

#### 3.1 Theoretical studies

The crowding out effect is one of the main concepts that explain the relationship between public debt and private sector financing, and it has been vastly discussed by different scholars. The literature identifies direct and indirect channels as the pathways of crowding out in an economy (Blinder and Solow, 1973; Anyanwu, Gan and Hu, 2017).

Direct or real crowding out refers to the substitution relationship between public and private spending that occurs not through changes in prices, interest rates or required rates of return in the public sector, but through public sector consumption and investment (Buiter, 1990). It normally occurs when the increase in public investment displaces private capital formation, thereby reducing the physical resources available to the private sector such as credit. It may lead to a fall in private sector borrowing and investment.

Indirect or financial crowding out is a partial loss of private capital formation in the economy due to an increase in interest rates emanating from the pre-emption of financial resources by the government through the bond financing of fiscal deficit (Chakraborty, 2006).

It is a consequence of public actions that affect private behaviour by either altering the budget constraints or influencing the prices faced by private agents through the interest rate, which goes up.

##### 3.1.1 *The interest rate channel*

It has been argued in the literature that public debt affects private sector financing through changes in the interest rate. Neoclassical economists believed that the determination of prices, outputs and income distributions in markets is through supply and demand (Agrawal, Goswami and Chatterjee, 2011). This way, fluctuations in the rates of interest arise from variations in either the demand for loans or supply of loans. In this case, an increase in government debt inhibits private investment since interest rates must increase to bring the market into equilibrium (Vos, 2002). Moreover, financing a budget deficit by government borrowing would imply an increase in the supply of government bonds through lower prices, leading to higher interest rates. The increase in interest rates would discourage the issue of private bonds and private spending. This results in the crowding out of the private investment (Karimi Takanlou, 2014).

According to the Keynesian model, which supports crowding in, private sector decisions sometimes lead to inefficient macroeconomic outcomes that require active fiscal policy responses to stabilize the economy (Blinder, 2016). Several studies such as Pereira, (2000) argue that some public investments could be conducive to private investment and growth by raising the return on private capital. For example, public capital, particularly infrastructure capital, is likely to exhibit a complementary relationship with private capital, in which case higher public investment may raise the marginal productivity of private capital and thereby crowd in private investment.

The Ricardian Equivalence Theorem proposed by Barro (1974) advocates for neutrality in the search that increases in the deficit financed by fiscal spending would be matched with future increases in taxes, leaving interest rates and private investment unchanged. This view assumes that asset holders completely discount future tax liabilities implied in the deficits, which suggests that budget deficits are irrelevant to financial decisions. In other words, a deficit induced by a lumpsum tax cut today followed by a lumpsum tax increase in the future would be fully offset by an increase in private savings, as taxpayers recognize that the tax is merely postponed not cancelled. The offsetting increase in private savings would indicate that the deficit would not affect interest rates (Anyanwu, Gan and Hu, 2017). Likewise, the capital inflow hypothesis proposed by Fleming (1962) and Mundell (1963) supports the idea

that the demand for government debt is infinitely elastic. That is, an increase in the deficit will be financed partly or wholly not by domestic savings but by an inflow of capital from abroad. If the hypothesis holds, there would be no relationship between public debt and interest rate.

### **3.1.2 *The credit channel***

In principle, public debt affects private sector financing through the lending rate, but in financially repressed economies the equilibrium interest rate is slightly insensitive to market perceptions (Anyanwu, Gan and Hu, 2017). Public debt could have a significant effect on private credit but not on the interest rate if there is government intervention for example through administrative controls imposed on interest rates, direct intervention on credit allocation and government control of financial institutions (Reinhart, Kirkegaard and Sbrancia, 2011; Anyanwu, Gan and Hu, 2017).

The degree of quantitative crowding out depends on the nature of the endogenous response of the banks to the higher public debt (Anyanwu, Gan and Hu, 2017). Banks respond to high public debt by adjusting their loan portfolio to the optimal point considering the risk-return characteristics of different assets and liabilities (Emran and Farazi, 2009). For instance, high lending to the government may not reduce credit to the private sector when banks have excess liquidity.

Moreover, access to safe government assets could allow the banks to take more risk and increase their lending to the private sector. Such an endogenous response by banks would crowd in private credit or partially offset the traditional crowding out effect. In addition, a high degree of lending to the government may discourage banks from lending to the risky private sector sections and stifle their incentives to seek out new and profitable investment opportunities in the private sector.

## **3.2 Empirical literature**

### **3.2.1 Studies outside Africa**

Using two-stage least squares (2SLS) approach and two-step efficient generalized method of moments (GMM), Emran and Farazi (2009) examined the crowding out effect of government borrowing on private credit for the period 1975–2006 using a panel data set on 60 developing countries. The results showed a statistically significant negative effect of government borrowing on private credit, with a US\$ 1 increase in government borrowing from domestic banks reducing private credit by more than US\$ 1. Specifically, a US\$ 1 increase in government borrowing from the domestic banking sector reduced private credit by approximately US\$ 1.34. This means that crowding out of bank credit may have significant adverse effects on private investment in developing countries and consequently on their economic growth. Anyanwu, Gan and Hu (2017) quantified the effect of government domestic borrowing on the lending interest rate and private credit among a panel of 28 oil-dependent countries over 1990 to 2012.

The study, which was based on fixed-effects and GMM estimators, found that a 1% increase in government borrowing from domestic banks decreased private sector credit by a significant 0.22% but had no significant impact on the lending rate banks charged the private sector. This suggests that government domestic borrowing causes the shrinking of private sector financing through the credit channel and not the interest rate channel.

Using the error correction model (ECM), Altaylıgil and Akkay (2013) investigated the relationship between domestic debt and financial development of the Turkish economy between the first quarter of 2002 to the second quarter of 2012. The findings showed a negative relationship between domestic indebtedness and financial development. An increase in domestic debt of 1 point on average decreased financial development by 18.804%. The policy implication of this is that decreasing the level of domestic indebtedness would allow the Turkish banking sector to increase private sector credit, which in turn would have a positive effect on economic growth. Likewise, Al-Majali (2018) investigated the effect of government borrowing on private credit in Jordan using the vector error correction model (VECM) based on monthly time series data from 2000 to 2015. That study confirmed that there was a statistically significant negative impact of government borrowing on private credit and crowding out was more than one to one, that is 1.51. This implied that an increase of JOD 1 in government borrowing from the domestic banking sector would reduce private credit by approximately JOD 1.51.

Thilanka and Ranjith (2018) examined the impact of public debt on private investment in Sri Lanka over 1978–2015 using VECM. The study showed a positive long run relationship between public debt and private investment, indicating the existence of a crowding in effect of public debt on private investment. This implies that government borrowing had spurred the private sector and signifies that efficient and productive utilization of public debt would facilitate the private sector and spur investment.

Lau, Tan and Liew (2019) examined the existence of the asymmetric effect of public debt on private investment in Malaysia using nonlinear autoregressive distributed lag (NARDL) estimation with data from 1980 to 2016. The results showed some evidence of a symmetrical effect in the private investment-public debt nexus in both the long run and the short run. Regarding the crowding out effect hypothesis, this study found that high public debt crowds out private investment in both the long run and the short run. A recommendation from the study was that policy-makers maintain public debt at a healthy level to ensure private investment is not crowded out.

Kabir and Flath (2020) examined the effect of government borrowing on bank credit to the private sector using five-year averaged panel data covering 1995 to 2014 for 73 countries, 30 of which were high income countries and 43 were developing countries. They utilized the random-effects and between-effects regression techniques. The results showed that government debt held by banks would crowd out

bank credit to the private sector dollar for dollar in both developing and high income countries. This was congealed around the lazy bank thesis that has the notion that government borrowing from banks may weaken the incentives of the banks to properly attend to their private sector lending. Moreover, the study found that in both high income and developing countries aggregate bank assets at risk were affected little by banks' holdings of government bonds.

### **3.2.2 Studies in Africa**

Using a panel of 27 sub-Saharan African (SSA) countries, Christensen (2005) examined whether domestic borrowing crowded out private sector lending in SSA during 1980–2000. The study found that domestic debt had significantly crowded out private sector lending. Specifically, an expansion in domestic debt of 1% relative to broad money caused the ratio of private sector lending to decline by 0.15%.

Mbate (2013) used GMM to investigate the impact of domestic debt on private sector credit over the period 1985 to 2010 in a panel of 21 SSA countries and found domestic debt to crowd out private sector credit. A 1% increase in domestic debt as a share of GDP was associated with a decline of 0.3% in private sector credit over GDP. In other words, a US\$ 1 issuance of domestic debt reduced private sector credit by US\$ 0.30.

This suggested that excessive government issuance of domestic debt possessed a constraining effect on capital accumulation by reducing domestic borrowing and investment, especially in the presence of weak financial policies.

Benayed and Gabsi (2020) assessed the nonlinear effect of domestic public debt on financial development for a panel of 20 low income SSA countries over 2000 to 2010 and using different econometric techniques such as ordinary least squares, fixed effect, difference GMM and system GMM. The study confirmed the existence of an inverted-U (nonlinear) relationship between domestic public debt and bank credit to the private sector with a threshold at about 52% of GDP. This study supports the hypothesis that domestic public debt has some positive contribution in financial intermediation, but up to a certain point beyond which it may start to be a drag on financial development.

In Egypt, Fyed (2012) used fixed effects and random effects models to investigate the relationship between public borrowing and private for over the period 1995 to 2010. The findings were that there was a statistically significant crowding in effect of government borrowing on private credit, and this positive effect could be reversed by a substantial increase in the treasury bill rate over the lending interest rate.

Using the vector autoregressive model (VAR), Shetta and Kamaly (2014) tested the lazy banking hypothesis in Egypt using quarterly data spanning the first quarter of 1970 to the second quarter of 2009. They found a significant crowding out effect of government borrowing from domestic banks on private credit. The crowding out effect was more than one to one, meaning that E£ 1 invested in government debt reduced the credit available to the private sector by more than E£ 1. This result calls for more prudent central bank policies and regulations to limit the negative externalities coming from banks' motive of profit maximization without consideration of the effects on the health of the financial system.

In Nigeria, using the OLS regression technique, Nduka and Achugbu (2014) investigated the effect of domestic debt on financial deepening over the period 1986 to 2012. They found that domestic debt had a significant positive effect on financial deepening. They concluded that domestic debt had helped to beef up the amount of money in circulation, making available investible funds for the productive sectors. Omodero (2019), who evaluated the influence of domestic borrowing on private sector credit in Nigeria during 1988 to 2018 using the ordinary least squares multiple regression techniques, also found domestic debt to have a robust significant positive impact on private sector credit. The recommendation was that the government's local borrowing should be within the limit that would continue to boost private sector operations.

In another study in Nigeria, Abubakar et al. (2019) examined the effect of public debt on credit to the private sector in the period 1986 to 2018 using impulse response function and Johansen cointegration test. The impulse response function showed that a shock in domestic debt had a significant positive effect on credit to the private sector while a shock in external debt had a significant negative effect on credit to the private sector. This implies that domestic debt crowded in private sector credit, while external debt crowded it out. Policy-makers should, therefore, continue to design sound monetary and credit policies that promote financial discipline and ensure the sustained availability of funds loanable to the private sector. The negative effect of external debt on private credit could have come from the government's need for foreign exchange to service external debt and that would have reduced the foreign exchange available for the private sector.

Using quarterly data for 2000–2019 from Nigeria and the autoregressive distributed lag (ARDL) model, Penzin and Oladipo (2021) investigated the relationship between domestic debt and private investment. The results confirmed the existence of the crowding out effect, since domestic debt had a significant negative effect on private investment in Nigeria. The recommendation was that the government minimize public borrowing, especially from domestic sources, to improve the investment climate in the country.

In Kenya, King'wara (2014) examined the impact of public domestic debt on private investment levels for the period 1967 to 2007 using the Johansen cointegration approach. The results indicated that high levels of domestic borrowing had negatively impacted private investment, pointing to a crowding out effect. A 1% increase in domestic debt led to a 0.17% decrease in private investment. The recommendation called for the government to design appropriate policies to deal with the ever-rising domestic public debt.

Another study in Kenya by Kimani and Olweny (2018) examined the effect of government domestic debt on private sector investment using quarterly data from 2001 to 2017 and the ARDL model. The study established the existence of a long run relationship between private sector credit and treasury bills, treasury bonds and the lending rate and a short run relationship between private sector credit and all the explanatory variables used in the study. It indicated that a 10% change in the value of government debt absorbed through treasury bills would lead to a 0.59% reduction in private sector credit, or a crowding out effect. The study recommended the monitoring of the absorption of debt through treasury bills over the long run and also that the government should focus on absorbing more of its debt through treasury bonds given that that has the potential to crowd in private sector credit. Additionally, the secondary market needs to be more efficient in managing government domestic debt to avoid the crowding out of private sector credit.



In Tanzania, Mabula and Mutasa (2019) used the ARDL model to explore the effect of public debt on private investment for the period of 1970 to 2016. The results showed significant evidence of nonlinear long run and short run relationships between external debt and private investment. An increase in external debt was associated with an increase in private investment up to the threshold of 40.89%, where it turned negative. In addition, the study found a significant effect of public debt, whether domestic or external, on private investment in both the long and short runs, with a threshold of 55.66%. The study suggested that the government should adopt strict policies in project implementations to ensure positive returns for borrowed funds and closely monitor public debt, particularly external debt, to which private investment is more responsive.

Mwakalila (2020) used the ARDL model to examine the impact of domestic borrowing on credit to the private sector in Tanzania using quarterly data from 2004 to 2018. The results showed that domestic borrowing crowded out credit to the private sector by increasing the lending rate in the long run. The positive coefficient indicated that, with all other factors remaining constant, if domestic borrowing increased by 1%, lending rates would increase by 0.0726%, which would eventually decrease credit to the private sector. The study called for the Tanzanian government to reduce some of its domestic borrowing and instead look for ways to increase the tax revenue by using loans from external sources to fund its budget deficit.

## 4. Data and empirical methodology

### 4.1 Theoretical framework

The literature shows that the extent of crowding out depends on how banks respond to high government borrowing and how they alter their balance sheets (Anyanwu, Gan and Hu, 2017). Based on the risk–return characteristics of assets and liabilities, banks respond to high government debt by optimally adjusting their loan portfolios. Hauner (2009) posits that a high degree of lending to the government may discourage banks from lending to the risky private sector and undermine their incentive to seek out profitable investment opportunities. A high interest rate on treasury bills, for example, could encourage banks to invest in government treasury bills as opposed to in the actual intermediation of funds for the private sector. In the mid-1990s, the treasury bill rate reached a high of 62% in Tanzania. This was the period when banks invested heavily in treasury bills as opposed to lending to the private sector (BOT, 2000). Ghana had a similar experience when the treasury bill interest rate jumped from a single digit level to over 15%, encouraging banks to invest in treasury bills, which stifled private sector credit (Anyanwu, Gan and Hu, 2020).

Government borrowing also affects private investment through the lending channel. Although this may not have been relevant during financial repression, where the equilibrium interest rate was normally not sensitive to market perceptions, financial liberalization has revived the use of this channel (Reinhart et al.,(2011).

There are two variant theses on the interest rate channel, the real or direct crowding out and the financial crowding out. When public investment displaces private capital formation, that is real crowding out. This occurs through public sector consumption and investment and not through changes in prices, interest rates or required rates of return in the public sector. Financial crowding out, also termed indirect crowding out, happens when there is partial loss of private capital formation in the economy emanating from the increase in the interest rates stemming from the drain of financial resources by the government through bond financing of fiscal deficits. The level of the interest rate is determined by the level of the capital stock and the level of the government debt. The change in the interest rate is affected by the change in government debt.

The neoclassical theory of interest rates also argues that financing budget deficits implies an increase in the supply of government bonds at a high interest rate, which discourages private investment and results in crowding out (Bahmani-Oskoe, 1999). Standard models of crowding out focus on the interest rate channel. Through this channel an increase in government debt puts pressure on the interest rate which, in turn, leads to lower private investment. Public debt can crowd out private investment through quantities instead of prices. If there is credit rationing and financial friction, government debt can be deleterious for firms that have limited access to credit (Huang, Panizza and Varghese, 2019).

## 4.2 Definition of the variables

### 4.2.1 *Dependent variables*

**Real lending rate** captures the cost of borrowing by the private sector. It measures the bank lending rate that usually meets the short and medium term financing needs of the private sector. Given that most interest rates are highly correlated, the banks' lending rate is used as a proxy for the nominal interest rate ( Bhalla, 1995).

**Bank credit** refers to the financial resources provided to the private sector by financial corporations, for example through loans, purchases of nonequity securities, trade credits and other account receivables that establish a claim for repayment for the creditor. This measure indicates the extent to which funds are channelled into the private sector by financial intermediaries. It is better than other measures of financial development because it is more directly linked to investment and growth (Calderón and Liu, 2003, p. 326; Fitzgerald, 2006).

### 4.2.2 *Independent variables*

**Domestic debt** measures the claims on the central government by the domestic deposit making banks and other financial institutions. It is the debt owed by different tiers of government to the citizens and corporate firms within the country. The value of this variable is expected to be negative because increased government borrowing could crowd out private credit (Christensen, 2005; Emran and Farazi, 2009; Shetta and Kamaly, 2014).

When it is positive, it signifies the existence of the crowding in effect. It is expected to be positive for the lending rate because increased domestic debt could potentially raise this rate (Ford and Laxton, 1999).

**Total debt stock** is the total of all debts owed by the government. It mostly covers bonds and other debt securities but can also include the direct borrowing from international institutions such as the World Bank. It is measured as a percentage of GDP. The sign for this variable is expected to be negative because an increase in its value could crowd out the private credit available to the private sector.

**Debt service** is a traditional indicator of indebtedness and is measured by the interest payments of external debt as a percentage of exports of goods and services. Some empirical studies, for example Ayadi & Ayadi (2008), have used the debt service ratio of exports as a proxy for debt service. This variable is added to the model to capture the crowding out impacts of external debt on private investment. Krugman (1988) argues that a high debt service ratio indicates distress in a country's focus, as, for example, the nation's foreign currency reserves and export receipts are depleted in catering for the accumulated external debt. This study expects to find a negative sign.

**External debt** is that part of a nation's total debt that is owed to foreign creditors (Akamolafe et al., 2015). Foreign debt is considered as necessary to provide desirable resources for financing profitable investment projects especially in developing nations because they lack sufficient savings for capital formation, (Hunt, 2007). The sign may be positive or negative. If it is negative, it means there is crowding out, and if it is positive it indicates a crowding in effect.

#### 4.2.3 Control variables

**GDP per capita:** This study follows the convention in the literature that uses real per capita GDP as an indicator of growth. We control for the income level, as richer countries tend to have a more developed financial sector. Also, per capita income growth is important, as rapidly growing economies are likely to have a greater demand for and supply of credit (see, for example, Djankov et al., 2008; Emran and Farazi, 2009).

**Money supply** measures the sum of the currency outside banks, the demand deposits other than those issued by the central government and the time, savings and foreign currency deposits of resident sectors other than the central government. We control for this variable because increased money supply might lead to liquidity surges and thus to credit expansion.

**Inflation** is the growth rate of the annual consumer price index. It is commonly included as a measure of macroeconomic stability. Its sign is expected to be negative. We control for this variable because high inflation could undermine the supply of loanable funds.

**Government size** is measured by the share of government consumption as a percentage of GDP. It excludes expenditure on capital, transfers and debt servicing. Countries with relatively high government expenditure are more likely to experience lower economic growth, because high government spending requires more tax revenue, which leads to misallocation i.e. resources from the productive sector of the economy are transferred to the government, which uses them without the efficiency of the productive sector

### 4.3 Econometric analysis

#### 4.3.1 Model specification

We use both the credit (quantity) and the interest rate (price) channels' framework. This will allow us to verify whether changes in public debts influence the credit granted to the private sector and which channel is responsible for that influence. We hope to find that changes in the domestic government debt have influence on the credit granted.

The private sector is the price channel most affected by its direct linking to the loan interest rate, and as a result we use the models in equations (1) and (2) to examine the impact of public debt on private sector financing in Tanzania during 1990–2020. Equation (1) specifies the credit to private sector function while Equation (2) specifies the lending rate to the private sector

$$DCPS_t = \alpha_0 + \alpha_1 DD_t + \alpha_2 ED_t + \alpha_3 LR_t + \alpha_4 PCY_t + \alpha_5 INF_t + \alpha_6 MS_t + \alpha_7 DS_t + \alpha_8 GCEXP_t + \alpha_9 GDS_t + \varepsilon_t \dots \dots \dots (1)$$

$$LR_t = \beta_0 + \beta_1 DD_t + \beta_2 ED_t + \beta_3 DCPS_t + \beta_4 PCY_t + \beta_5 INF_t + \beta_6 MS_t + \beta_7 DS_t + \beta_8 GCEXP_t + \beta_9 GDS_t + v_t \dots \dots \dots (2)$$

Where: DD is domestic debt as a percentage of GDP; ED is the external debt as a percentage of GDP; LR is the lending rate; PCY is per capita income; DCPS is domestic credit to private sector; GDS is gross domestic savings; GCEXP is general government final consumption expenditure as a measure of government size; MS is extended broad money supply; DS is total debt services; and INF is inflation rate.  $\varepsilon_t$  and  $v_t$  are stochastic error terms.

#### 4.3.2 Estimation approach

The relationship between domestic debt and private sector credit will be analysed using the ARDL model as proposed by Pesaran et al. (2001). This methodology is chosen as it has certain advantages over other cointegration procedures. It does not require pretests for unit roots unlike other techniques (Nkoro and Uko, 2016). Consequently, the ARDL cointegration technique is preferable when dealing with variables that are integrated of different order, I(0), I(1) or a combination of the two (Pesaran et al., 2001). Other advantages of the ARDL modelling approach are that it can provide reliable and consistent results even when the sample size is small, such as in the current case, it provides unbiased estimates of the long-run model and valid t-statistics even when some of the regressors are endogenous (Odhiambo, 2021); and it can accommodate a greater number of variables than other VAR models.

In the ARDL bounds testing approach to cointegration, the null hypothesis of no cointegration is examined against the alternative hypothesis of cointegration. The study applies a two-step procedure, i.e. the determination of optimal lag length using Akaike information criteria, and the application of the bounds F-test to the same set of equations to establish the existence or non-existence of a long-run relationship among the four variables under study. The calculated F-statistic value is compared with the Pesaran et al. (2001) – unrestricted intercept and no trend critical values at the 1%, 5% and 10% levels. If the calculated F-statistic is greater (lower) than the upper-bound (lower-bound) level of the critical values, the null hypothesis of no cointegration is rejected (accepted), signifying the presence (absence) of a long-run relationship. Should the calculated F-statistic fall within the lower- and the upper-bound levels, the results are considered inconclusive.

#### **4.4 Data sources**

In examining the impact of public debt on private sector financing in Tanzania, the study uses annual time series data from 1990 to 2020. The data are collected from various sources including national data sources such as Bank of Tanzania publications and National Bureau of Statistics office publications, Ministry of Finance and Planning (fiscal accounts and budget publications); and international data sources like IMF government financial statistics, World Bank (data bank, international debt statistics).

## 5. Empirical results and discussion

### 5.1 Descriptive statistics

Table 5 presents the descriptive statistics for the variables. From the results, domestic credit, domestic saving, money supply and exchange rate are negatively skewed while the rest of the variables are positively skewed. The standard deviation, which measures the degree of dispersion of the series from their mean value, is 4.3 for domestic credit to private sector. All the variables except lending rate, inflation rate, domestic debt and debt service ratios are about normally distributed since the Kurtosis is less than 3 and the Jarque-Bera statistic is statistically insignificant and suggests a lack of potential autocorrelation problem.

Table 5: Descriptive statistics

Variable	N	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis	JB test	Prob
Dcps	31	9.37	4.3	0.01	14.61	-0.63	1.98	3.42	0.18
Lr	31	20.18	6.59	14.14	37.8	1.24	3.48	8.25	0.02
Ds	31	11.88	10.95	1.29	40.44	1.29	3.94	9.77	0.07
Ed	31	51.95	42.093	13.27	136.35	1.09	2.61	6.3	0.04
Dd	31	12.04	8.533	5.183	40.26	1.84	5.83	27.83	0
Td	31	92.72	54.78	37.9	240.9	0.88	2.88	4.02	0.13
Lngcexp	31	2.38	0.28	2.05	2.98	0.85	2.73	3.83	0.15
Inf	31	12.07	9.56	3.29	35.83	1.19	3.19	7.41	0.03
m3	31	18.8	3.54	11.4	23.84	-0.82	2.49	3.79	0.15
Gds	31	18.54	11.7	-3.15	34.08	-0.63	2.1	3.08	0.21
Lnpcy	31	14.16	0.25	13.85	14.57	0.27	1.61	2.89	0.24

### 5.2 Unit root test

A data series is said to be non-stationary if its variance is time variant. Most cointegration techniques begin with the pretesting of the stationarity data series to determine the appropriate cointegration technique to be used. However, for the ARDL approach this requirement is not mandatory for cointegration. To ascertain whether the data series are  $I(0)$ ,  $I(1)$  or both, a requirement for ARDL modelling, pretesting of the order of cointegration for each variable was undertaken using two tests, the results from the augmented Dickey-Fuller (ADF) test as shown in Table 6.

Table 6 shows that only per capita income is stationary in level, that is,  $I(0)$ . The other variables of the estimation model are  $I(1)$  in level and first difference stationary. Since the data series were both  $I(0)$  and  $I(1)$ , ADRL modelling was found appropriate as it outweighs other techniques in dealing with such data series. According to Duasa (2007) and Narayan (2004), the ARDL approach works better with small sample sizes where variables are all stationary at level, at first difference or at a mixture of the two.

Table 6: Augmented Dickey-Fuller test results

Variables	Level		1st difference		Conclusion
	Constant, no trend	Constant, no trend	Constant, no trend	Constant, no trend	
Dcps	-1.760	-2.671	- 6.681***	-6.940***	I(1)
Lr	-1.12	-1.32	- 3.15**	-3.11	I(1)
Ds	-2.00	-0.781	- 4.43 ***	-5.77 ***	I(1)
Ed	-2.274	-0.765	- 3.830 ***	-3.96***	I(1)
Dd	-1.606	-1.716	- 4.162 ***	-4.094 ***	I(1)
Td	-1.251	-1.945	- 5.313***	-5.227***	I(1)
Lngcexp	-1.654	-1.575	- 4.758***	-4.776***	I(1)
Inf	-2.56	-2.36	- 4.86 ***	-4.83***	I(1)
m3	-1.400	1.653	- 4.567***	-4.718***	I(1)
Gds	-0.983	-1.561	- 5.188***	-5.172***	I(1)
Lnpcy	2.015	-5.417***			I(0)

Note: The null hypothesis is that the series is non-stationary or contains a unit root. The rejection of the null hypothesis for the ADF test is based on the Mackinnon critical values \*\*5% and \*\*\*1% levels.

### 5.3 Lag selection

Finding the appropriate lag length for each of the underlying variables in the ARDL model is very important because of the need to have Gaussian error terms, i.e. the standard normal error terms that do not suffer from non-normality, autocorrelation, heteroskedasticity etc. To select the appropriate model of the long run underlying equation, it is necessary to determine the optimum lag length (k) by using the proper model order selection criterion such as the Akaike information criterion, Schwarz Bayesian criterion or Hannan-Quinn information criterion (HQC). The optimal lags based on the Schwarz Bayesian criterion are in parenthesis like this: DDCPS (1), LR (2), DS (1), ED (2), DD (1), TD (1), InGCEXP (4), INFL (1), MS (1), GDS (1), and InPCY (3).

#### 5.3.1 Bounds test for cointegration

After establishing the stationarity of the variables, equation (1) was estimated and the bound test carried out in order to examine the long run relationship among the variables. Testing for cointegration is a necessary step to establish if a model empirically exhibits meaningful long run relationships. If it fails to establish cointegration among underlying variables, it becomes imperative to continue to work with the variables in differences instead. The long run relationship of the underlying variables is detected through the F-statistic (Wald test) and the t-statistic (see Table 7).



Table 7: ARDL bound test of cointegration results

	F-statistic	t-statistic
LENDING RATE		
Model 1	5.161**	-3.979**
Model 2	2.781*	-2.993*
CREDIT TO PRIVATE SECTOR		
Model 1	5.610***	-4.448***
Model 2	4.902***	-5.187***
Model 3	6.306***	-5.235***

Notes: \*\*\* p<0.01, \*\* p<0.05 levels

At the 5% level of significance we reject the null hypothesis, which states that there is no cointegration, and therefore there exists a long run relationship among the variables in all the models analysed.

## 5.4 Impact of debt on the lending rate

Table 8 shows that in Tanzania, external debt and domestic debt have a positive and statistically significant effect on the lending rate. The positive coefficient implies that when other factors remain constant if the external debt as a percentage of GDP increases by 1 unit, then lending rates increases by 0.121 units. Likewise, if domestic debt rises by 1 unit, lending rate increases by 0.62 units. These results abide with a priori hypothesis. On a theoretical basis, a positive coefficient on debt implies crowding out effect. These results are consistent with those from the studies by Mwakalila (2020); Anyanwu et al., (2017); and Karanja (2013).

Moreover, the result shows that there is a significant negative relationship between government expenditures and lending rate in Tanzania over the long run. The analysis also shows a positive significant effect of inflation on the lending rate. In short run analysis, the results shows that only external debt was found to have has a significant negative impact on lending rate in Tanzania (Table 9).

Table 8: Long run estimates on the lending rate

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>
ECT	-0.980*** (0.246)	-0.523*** (0.175)
External debt	0.121*** (0.015)	
Domestic debt		0.620*** (0.166)
Ln (government expenditure)	-7.370*** (1.891)	-2.778 (3.935)
Inflation	0.301*** (0.093)	0.336 (0.198)
Observations	28	28
Durbin-Watson d-statistic	1.93	2.26
Breusch-Godfrey LM test for autocorrelation (Chi2 Stat)	0.003	5.97**
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity (Chi2 Stat)	1.41	5.13*
R-squared	0.833	0.800
Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

Source: Own Computations

Table 9: Short run estimates for lending rate

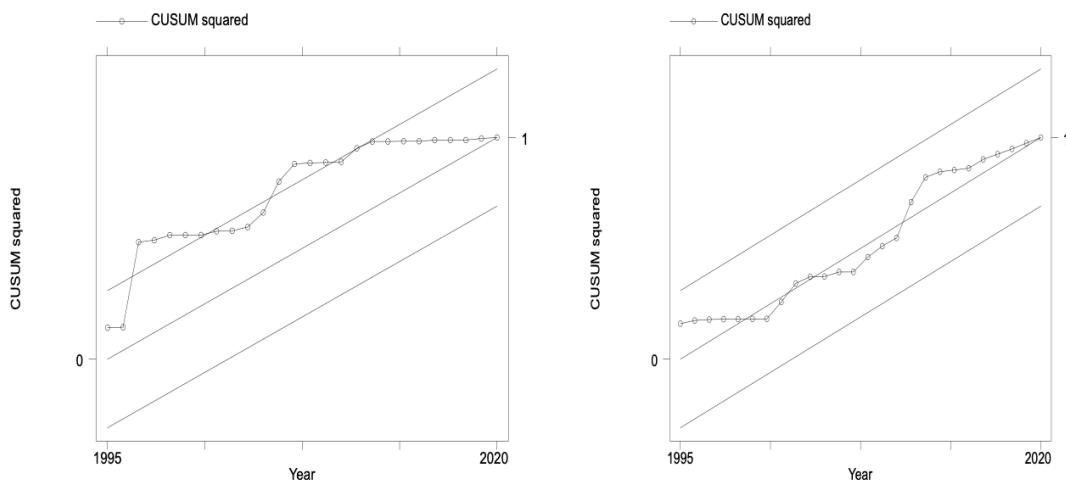
<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>
LD.lr	0.572*** (0.138)	0.129 (0.254)
L2D.lr	-0.011 (0.163)	-0.357 (0.221)
D.ed	-0.102** (0.047)	
LD.ed	-0.083 (0.053)	
D.dd		-0.017 (0.160)
D.Ingcexp	0.875 (2.901)	0.628 (3.083)
D.inf	-0.035 (0.105)	0.100 (0.104)
Constant	27.189*** (8.404)	7.927 (5.493)
Observations	28	28
R-squared	0.833	0.800
Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

Source: Own Computations

Post-estimation tests are very useful in looking at how the model behaves and how the specification is satisfied. Usually, when an analysis involves time series data, the possibility of serial correlation is high. The Durbin-Watson statistic is greater than 2, which means that there is absence of autocorrelation (see Table 8).

It is necessary to test the residuals for serial correlation using the Breusch Godfrey LM test. The results presented in Table 8 reveal that the null hypothesis of no serial correlation can be accepted since the p-value for the test is greater than 0.05, meaning that there is no serial correlation. Furthermore, the test for homoskedasticity using White’s test reports that the data series is homoskedastic. To check the robustness of our results, structural stability assessments of the parameters of the long run results are performed using CUSUM and CUSUMSQ tests (Brown et al., 1975). That procedure has been utilised by Pesaran and Pesaran (1997) and Mohsen et al., (2002) to test the stability of long run coefficients. A graphical representation of CUSUMSQ statistics is shown in Figure 13. All plots for CUSUMSQ are within the boundaries of the 5% significance level, and these statistics confirm the model’s stability.

Figure 13: CUSUM and CUSUMSQ statistics test results for the lending rate



## 5.5 Impact of debt on credit to the private sector

The negative coefficient of the error correction term and its statistical significance at the 1% level give validity to the fact that the dependent variable and the independent variables have a long run equilibrium relationship. This suggests that in the long run, domestic credit to the private sector is cointegrated with other explanatory variables across all the specified models. Specifically, the regression result shows that in the long run, the effect of external debt, domestic debt, and total debt on credit to private sector is negative and statistically significant in Tanzania, signifying the existence of debt crowd out effect on domestic credit (Table 10). These findings are consistent with those of the studies by Imre (2010); Hwang et al. (2010) and Akpansung (2018).

Table 10 shows that gross domestic savings have a negative and significant effect on credit to the private sector in the long run. Also, inflation rate, per capita income, money supply and government expenditure have a positive and significant effect on domestic credit to the private sector in Tanzania in the long run.

Table 10: Long run estimates for credit to the private sector

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
ECT	-1.384*** (0.311)	-1.136*** (0.219)	-0.960*** (0.183)
External debt	-0.106** (0.038)		
Domestic debt		-0.275*** (0.080)	
Total debt			-0.119*** (0.025)
Inflation	0.141 (0.101)	0.266** (0.112)	0.271** (0.106)
Money supply	0.419** (0.144)	0.326* (0.171)	0.395** (0.143)
Ln (per capita income)	18.595*** (4.027)	21.157*** (4.677)	
Gross domestic saving	-0.506** (0.202)	-0.267 (0.157)	
Lending rate			0.319 (0.220)
Observations	29	30	29
Durbin-Watson d-statistic	2.48	2.05	2.35
Breusch-Godfrey LM test for autocorrelation (Chi2 Stat)	4.13*	0.25	2.29
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity (Chi2 Stat)	6.7**	2.89*	0.79
R-squared	0.760	0.675	0.698
Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Source: Authors' computation

In the short run analysis, the results show that external debt, domestic debt, and total debt have a positive significant effect on domestic credit to the private sector (Table 11).

Table 11: Short run estimates for credit to the private sector

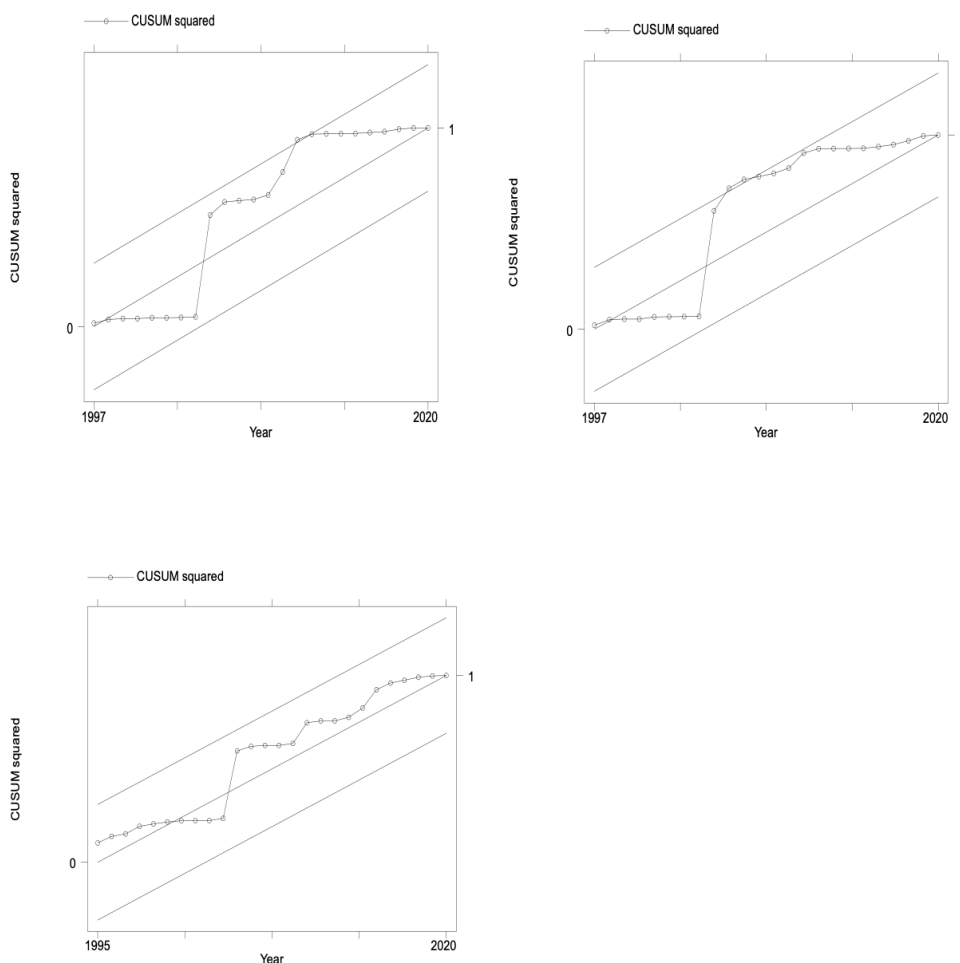
<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
D.ed	0.216** (0.094)		
LD.ed	0.075 (0.051)		
D.inf	-0.109 (0.137)	-0.089 (0.117)	-0.074 (0.137)
D.m3	-0.298 (0.224)	-0.230 (0.229)	-0.081 (0.218)
D.lnpcy	-17.852 (31.701)	8.122 (31.756)	
D.gds	0.402 (0.250)	-0.038 (0.208)	
D.dd		0.211** (0.096)	
D.td			0.077** (0.027)
D.lr			-0.321 (0.225)
LD.lr			-0.039 (0.225)
Constant	-343.620*** (98.848)	-331.042*** (102.345)	3.013 (2.920)
Observations	29	30	29
R-squared	0.760	0.675	0.698
<b>Notes: Standard errors in parentheses *** p&lt;0.01, ** p&lt;0.05, * p&lt;0.1</b>			

Source: Authors' computation

Post-estimation tests are very useful in looking at how the model behaves and how the specification is satisfied. Usually, when an analysis involves time series data, the possibility of serial correlation is high. The Durbin-Watson statistic is greater than 2, which indicates the absence of autocorrelation (see Table 10). It is necessary, therefore, to test the residuals for serial correlation using the Breusch Godfrey LM test. The results presented in Table 9 reveal that the null hypothesis of no serial correlation cannot be rejected and hence there is no serial correlation. Furthermore, the test for homoskedasticity using White's test reports that the data series is homoskedastic (Table 9).

To check the robustness of our results, structural stability assessments of the parameters of the long run results are performed using CUSUM and CUSUMSQ tests (Brown et al., 1975). This procedure has been utilized by Pesaran and Pesaran (1997) and Mohsen et al. (2002) to test the stability of long run coefficients. A graphical representation of the CUSUMSQ statistics is shown in Figure 14. All plots for CUSUMSQ are within the boundaries of the 5% significance level, and they confirm the model's stability.

Figure 14: CUSUMSQ statistics test result for credit to private sector





## 6. Conclusion and policy recommendations

### 6.1 Conclusion

Tanzania's huge external and domestic debt is the result of the government's attempt to achieve the rapid development elucidated in post-independence development projects and plans that promoted excessive government borrowing in an environment of inadequate resources. The main stylized fact emerging from the literature on the evolution of public debt is its increase over the period studied. There is historical prominence of external rather than domestic borrowing. Until recently, foreign liabilities were the largest component of public debt. Foreign debt has been the target of debt relief interventions such as the HIPC, MDRI and Joint Fund–Bank Debt Sustainability Framework initiatives. Under HIPC, Tanzania managed to reduce the burden of foreign debt, benefiting from debt relief initiatives that largely wrote off its financial obligations to official creditors. Tanzania now holds a debt portfolio with a balanced composition of domestic and external liabilities unlike in the past.

Faced with decreasing foreign aid in both loans and grants for its development financing needs, the Tanzanian government had to expand its domestic funding sources. In recent years, Tanzania has made substantial efforts to develop a local public debt market and has increased reliance on domestic sources to finance its budget deficits. This is in response to structural benchmarks in IMF programmes that call for fostering of the development of domestic markets for government securities, ultimately favouring domestic financing. The government securities market is still shallow, featuring limited direct retail or foreign investor participation. Government securities are now held by a few large and increasingly private foreign owned banks after the privatization of the largest retail banks.

This study also examined the impact of public debt on private sector financing in Tanzania using annual time series data for the period 1990–2020. Using the ARDL approach, the study found that in the long run both external debt and domestic debt had a positive and statistically significant effect on the lending rate in Tanzania. Moreover, the study found that external debt had a significant negative impact on the lending rate in the short run. Further in Tanzania, the effect of external debt, domestic debt and total debt on domestic credit was found negative and statistically significant in long run while their effect was found positive in the short run.

## 6.2 Policy recommendations

Several recommendations can be made considering the outcomes of this study:

- Effectively develop the capital market to attract investors and establish secondary markets that are suitable for raising of capital by SMEs in the form of equity securities. Among the actions required are reducing the listing costs in the capital markets and enhancing foreign investors' participation.
- The Bank of Tanzania to implement measures that maintain an efficient financial market via prudent fiscal policy and enhancement of banks' lending capacity while adhering to the debt strategy thresholds.
- Develop the domestic bond market and diversify the government securities' investor base towards institutional and private lenders to reduce holding of securities by banks, which is the main transmission mechanism of crowding out.
- Set up a limit for government borrowing especially from domestic sources by establishing a threshold.
- Further minimize government borrowing by widening its tax base through either identifying new revenue sources or stricting enforcement of legislation to mobilize more revenues.

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