https://doi.org/10.56279/orseaj.v15i1.2

Financial Sector Reforms and Economic Growth-Nexus in Tanzania

John M. Mtui[1]

Abstract

A sound financial system plays an important role in augmenting economic growth by capital accumulation, technological advancement and expansion of economic opportunities. This study is therefore underpinned by quantitative and qualitative methods in uncovering the finance–growth nexus in post reform Tanzania from 1980-2021. The analysis is based on the ARDL and Toda-Yamamoto causality approaches. The findings reveal insignificant, short-run and long-run effects of the financial development index on economic growth in Tanzania. However, the results are significant when ratios of extended broad money, domestic credit to the private sector and banks deposits to GDP are used as proxies for financial development. The coefficients for domestic credit to the private sector and banks deposits are positive and statistically significant at 5% and 10%, respectively, in the long-run.

Likewise, in the short-run all proxies for financial development indicators are statistically significant with the correct sign, except the extended broad money which is negative. Population growth, a proxy for human capital harms growth in the long-run, while in the short-run it promotes economic growth. Inflation exerts a significant short-run effect on economic growth, while in the long-run, it harms growth. The regime change dummy is positive in the long-run. The causality test suggests that the finance-led hypothesis holds for Tanzania. The results call for further financial liberalisation through policies that promote a competitive, efficient, inclusive financial sector, and macroeconomic stability, including low and stable inflation. Indeed, such policies are the pre-requisites for financial development and thus economic growth.

Keywords: Financial Sector Reforms, Economic Growth, ARDL, Tanzania

Introduction

The Tanzanian financial sector, after the Arusha Declaration of 1967, was dominated by state owned financial institutions. These included three commercial banks, two savings institutions, three development/long-term financial institutions, two statutory contractual savings institutions, and two insurance companies. This dominance created a financial system that was narrow and highly specialised, monopolistic in operations and the one that lacked a common supervisory framework (Nyagetera & Tarimo, 1997). The monetary policy implementation was thus characterised by controlled interest rates, foreign exchange rationing and directed credit allocation by the state. The Finance and Credit Plan introduced in 1971 determined credit and foreign exchange quantity and price (Kilindo, 2001). Due to political pressure and lack of competition, credits were allocated to the government itself and to the least productive public sectors, such as

[1] University of Dar es Salaam School of Economics, Tanzania
Email: mtui9@yahoo.co.uk, jmmtui@udsm.ac.tz

inefficient parastatal enterprises, which resulted in financial repression (Brownbridge & Gayi, 1999). As a result of poor capitalisation, the parastatal enterprises relied heavily on the banking system for working capital. Consequently, loss making state enterprises survived on subsidies from the government (Nord et al., 2009). Macroeconomic instability of the late 1970s and early 1980s exacerbated the financial sector problems. These include large budgetary deficits, high inflation, and chronic balance of payment deficits, low real Gross Domestic Product (GDP) growth and overvalued exchange rate (World Bank, 2005). Balele et al. (2018) postulate that in the early 1980s, the banking sector was characterised by non-performing loans, averaged 65% of the loan portfolio, and inefficient payment system. Further, direct and ineffective monetary policy instruments such as fixed interest rates and exchange rates were used (Mtui, 2024). The banking sector also lacked both a legal framework, regulatory and supervisory power (Balele et al., 2018).

The economy's poor performance in the early 1980s forced the government to adopt the Economic Recovery Programme (ERP) I (1986/87-1988/89). The programme aimed to remove structural bottlenecks orderly. This entailed dismantling of inefficient administrative and regulatory controls, as well as liberalising trade and pricing systems to attain macroeconomic stability, thereby stimulating economic growth. On the other hand, the ERP II of 1989/90-1991/92, focused on, among others, overhauling the financial sector, including privatisation of the public enterprises. The programme aimed to create a market-based financial system led by the private sector that could be efficient in resources mobilization and supportive of long-term economic growth. The programme is also called the First-Generation Financial Sector Reforms (FGFSR). Through the FGFSR several supportive legislations were passed in the parliament, these include the Banking and Financial Institutions (BFI) Act of 1991, which opened up a window for private banks, and the Foreign Exchange Act of 1992 passed, referenced exchange rates to the market forces. The auctioning of treasury bills in 1993 paved a way for market-determined interest rates. The Capital Markets and Securities Act (CMSA) of 1994 was also passed. Hence, in 1998, the Dar es Salaam Stock Exchange (DSE) became operational. The Bank of Tanzania (BoT) Act of 1995 was a reversal from direct to indirect monetary policy instruments, focusing on price stability as its primary objective. The Insurance Act of 1996 set the ground for an insurance regulator (Nyagetera & Tarimo, 1997). These legal reforms created supportive institutions, as well as a conducive and competitive environment for the provision of financial services. Furthermore, to address business disputes, the commercial court was established in September 1999 (Finnegan, 2005). Moreover, Tanzania Interbank Settlement System (TISS) was adopted in 2004. TISS is a backbone for other payment systems, including Electronic Fund Transfer and card switches.

The enumerated reforms ushered in macroeconomic stability, which was necessary for the financial institutions to thrive. The competition also increased, while the menu of financial services and products expanded (Satta, 2000). Consequently, real GDP grew at an average rate of 3.1% (1987 to 1995) and 4.2% (1996 to 2000). The improved growth emanated from significant reform measures including introducing private banks, unification of exchange rate, market determined interest rates, use of indirect monetary policy instruments and price liberalization. By the year 2000, private financial institutions were 11 commercial banks, seven savings institutions, eight insurance companies, and five long-term financing institutions (Kilindo, 2001). The Financial Sector Assessment Programme (FSAP) report of 2003 uncovered a number of bottlenecks in the Tanzanian financial system, which shortchanged its contribution to economic

growth (BoT, 2011). Indeed, with a need to improve this state of affairs, the Second Generation Financial Sector Reforms (SGFSR) were undertaken through changes in the existing policies and legislations as well as the introduction of new ones. These included: the BoT Act of 2006, the Banking and Financial Institutions Act of 2006, the Financial Leasing Act of 2008, Mortgage Finance Act of 2008, Social Security Act No. 8 of 2008, Insurance Act of 2009 and the National Payment System Act of 2015, coupled with issuance of credit reference bureau regulations in 2010. These reforms provided the BoT a comprehensive and more responsive framework for carrying out its role of monetary policy implementation and supervision of financial institutions, including the payment system.

The outcomes of the SGFSR include the following: Firstly, more efficient and competitive financial markets were created, where bank branches rose from 328 in 2007 to 810 in 2016, while interest and exchange rates were responding to macroeconomic fundamentals (Balele et al., 2018). Secondly, the introduction of digital financial services (DFS), especially mobile money in 2005 and agency banking[2] in 2013, enhanced outreach and reduced transaction costs to the unbanked rural Tanzania (Were & Joseph, 2022). Thirdly, financial inclusion increased from 11.2% in 2006 to 65.3% in 2017 (Balele et al., 2018). Fourthly, the credit reference system increased efficiency in the credit market by lowering the rate of non-performing loans, thereby enhancing the financial sector stability. Fifthly, payment and settlement systems improved substantially by 2019, whereby internet banking held a share of 56%, point of sales (POS) terminals (32%) and Automatic Teller Machines (ATM) had 12% (BoT, 2022). Other observed achievements and outcomes of the SGFSR are the following: the banking institutions increased to 46 by the year 2020, 35 commercial banks, four microfinance banks five community banks and two development banks. Other financial institutions included two mortgage institutions, three financial leasing companies; two credit reference bureaus, and 40,410 agents banking (Were & Joseph, 2022). Mobile money accounts per 1,000 adults had exceeded the traditional bank deposits accounts per 1,000 adults by 2020, partly due to low number of bank branches and ATMs, low internet connectivity, and frequent internet outage. On the other hand, the capital market in Tanzania has diversified financial instruments including equities, derivatives, government and corporate bonds and real investment trusts. For instance, listing in the DSE has been growing from two companies in 1998 to 29 companies in 2020, with a total market capitalization of TZS 15.3 trillion (Mwakabumbe et al., 2023).

It is worth noting that, all these cited achievements emanated from embracing the use of digital platforms, especially mobile money services. Also friendly regulatory and business environment, as well as huge investments from the private sector contributed a lot to such achievements. These strides in financial sector development have contributed significantly to Tanzania's GDP growth rate over the past two decades, ranging from 6%, to 7% in the period 2001–2019. However, due to Covid19 pandemic, it dropped to 4.8% in 2020 and 4.9% in 2021. This notwithstanding, the finance–growth nexus has been highly debatable in the economic and finance literature (Bist & Read, 2018; Zhuang et al., 2009). The debate hovers on whether the financial development accelerates economic growth through capital accumulation and innovation channels, which are important for long-term growth (Levine, 1997). Moreover, the direction of the causal relationship

[2]Agent banking is an alternative delivery channel to access banking services in a cost-effective way, targeting lower-income market segment in order to enhance financial inclusion.

is highly debated. Thus, this paper is an empirical attempt to uncover the short-term and long-run nexus between financial sector development and economic growth in Tanzania. The current study also attempts to ascertain the causal relationship between the two sectors.

Review of Related Theoretical Literature

A sound financial system plays an important role in augmenting economic growth by capital accumulation, technological advancements and expansion of economic opportunities (Demirgüç-Kunt & Levine, 2008). More importantly, the financial system plays a major role in the monetary policy transmission mechanism (Mishkin, 2016). Thus, a robust and diversified financial system that is broad-based and inclusive, promotes economic growth, creates jobs, reduces inequality and poverty, especially in developing economies (Levine, 2021). Likewise, the growth of the financial sector leads to specialized financial markets, such as banks, capital markets, and dealers. This in turn bridges the information asymmetry gap and promotes investment through: savings mobilization, trading facilitation, hedging, diversification, innovation and risk pooling, thereby making financial transactions affordable (Demirgüç-Kunt & Levine, 2008). The efficiency of a financial system refers to how well it manages its core functions (Khan & Senhadji, 2000). Thus, a country's financial structure could be either bank-based, such as in Germany and Japan, or market-based (equity and bonds) as is the case in the United States and the United Kingdom. In this regard, banks finance debt, while stock markets provide equity. However, these two sources of finance do not substitute but complement each other, given that both of them are needed for the private and the public sectors to thrive (Ndikumana, 2001). However, it is noteworthy that developing countries' financial systems are predominantly bank-based (Égert et al., 2006).

Intermediaries become essential once imperfections or frictions are introduced and thus distinct financial contracts, markets, and institutions. When intermediaries intervene in the flow of loanable funds, the accumulation of financial assets by surplus spending units continues to equal the accumulation of debt by deficit units. However, the total intermediaries debt, including both the direct debt they buy and the indirect debt of their own that they issue, rises at a faster pace relative to income and wealth than when finance is either direct or arranged internally (Gurley & Shaw, 1955; Khan & Senhadji, 2000). The financial depth-growth link was initially studied by Schumpeter (1911), as well as by McKinnon (1973) and Shaw (1973). Schumpeter (1911) underscored the role of financial intermediaries, which drive innovation, thereby fostering economic growth. McKinnon and Shaw focused on the adverse effects of government-imposed controls on the financial sector, including fixing the exchange rates and interest rates, high reserve requirement ratios, and selective credit controls on economic growth. Indeed, these distortions cause inefficient allocation of resources by decreasing savings and undermining capital accumulation. Consequently, a call for the adoption of liberal policies to unlock resources needed for private sector investment. In the same vein, the endogenous growth theorists claim that financial development has positive externalities and spillover effects within the technology and knowledge-based economy, hence fostering economic growth (Levine, 1997).

The causal relationship between financial development and GDP growth is highly debated to the extent that three broad schools of thought have emerged (Zhuang et al., 2009). The first, and the most popular, school of thought is referred to as the finance or supply-led hypothesis. It asserts that economic growth depends on how well the financial sector is deepened or developed. Accordingly, a developed and efficient financial sector is the engine of private sector investment

and growth (Schumpeter, 1911; Levine, 1997; Khan & Senhadji, 2000). The second school is called financial liberalisation, also known as McKinnon–Shaw hypothesis. It was pioneered by McKinnon (1973) and Shaw (1973). It postulates that policies such as a nominal interest rate ceiling and other government distortions may lead to financial repression and hinder financial deepening through low or negative real interest rates. These, consequently lower savings and investment, which ultimately constrain economic growth. McKinnon (1973) and Shaw (1973) advocate for financial liberalisation so that savings and credit prices can be determined by the market forces; hence, more resources for private sector investment and economic growth.

The third school is called growth-led finance or the demand-following hypothesis pioneered by Robinson (1952). It holds that financial development is a consequence and, not a cause of economic growth. This means, enterprise leads, finance follows (Robinson, 1952; Rajan & Zingales, 1998). The empirical studies on demand-following hypothesis assert that this view is stronger in developing countries than in developed economies (Naceur & Ghazouani, 2007; Samargandi et al., 2014). However, Naik and Padhi (2015) contend that increased demand for financial services in advanced economies is basically a call for development of new financial products and institutions. Another view suggests a bi-directional or two-way causal relationship between financial development and economic growth (Jung, 1986; Wolde–Rufael, 2009). However, Patrick (1966) asserts that the supply-led hypothesis has a tight grip in early growth stages and dissipates, paving a way for the demand-following hypothesis as the economy advances. Thus, financial market advances are due to economic development, and economic growth is also spurred by development in the financial sector (Greenwood & Smith, 1997; Luintel & Khan, 1999). The financial services view, also stresses that an efficient and effective financial system demands the presence of a legal environment that facilitates the provision of the best services out of both bank-based and market systems (La Porta et al., 1996). Furthermore, the financial system development depends on positive political changes, as well as political institutions in place; the more democratic the better. Haber (1996) posits that, the robustness of the legal framework is what matters for a growth-promoting financial system.

Review of Selected Empirical Literature

Empirical literature on the financial depth-growth nexus is extensive, in both developed and developing countries. The literature available is underpinned by a variety of methodologies, ranging from cross-country regressions, panel techniques, country case studies, to microeconomic-based approaches. King and Levine (1993) in cross country regression for 77 advanced and less developed economies demonstrated significant positive correlation between capital accumulation and economic growth, which meant that finance leads growth. Levine and Zervos (1998) observed that development levels of equity markets and banks, independently, promote capital accumulation and economic growth. Khan and Senhadji (2000) used four proxies for financial intermediaries and stock market development in 159 countries and confirmed a strong positive correlation between financial development and economic growth. Levine (1997) concludes that financial intermediaries and the stock markets offer complementary services and both impact positively on economic growth. However, in a large cross-country sample of 75 countries in Latin America De Gregorio and Guidotti (1995) and Bloch and Tang (2003) found poor, and insignificant transmission, from financial development to economic growth.

Beck et al. (2003), in a sample of 44 countries, found that an efficient legal system that protects investors' rights is positively related to the firm size. Beck et al. (2007), in a sample of 40 countries, observed that stock market development and banks jointly influence economic growth. Studies by Ram (1999) and Andersen and Tarp (2003) in a sample of 94 and 74 countries, respectively, revealed an insignificant relationship between financial sector development and economic growth. Acaravci et al. (2007) study observed a two-way causality in a panel of 24 Sub-Saharan African economies. Fosu (2013) observed similar results to those of Acaravci et al. (2007) for 28 African countries. In the same vein, Worku (2016) asserted that financial development leads to economic growth in East Africa with a bi-directional causal relationship. Guru and Yadav (2019) found significant positive effect of the size of financial intermediaries, credit to deposit ratio and domestic credit to the private sector on economic growth in BRICS countries. Various studies, such as that conducted by Demirgüç-Kunt and Maksimovic (2002) in 30 countries based on microeconomic or industry/firm level data, found out that the majority of firms fund their long-term obligations from external sources in countries with better legal systems, large banking sector and advanced stock markets. Access to international markets bridges the financing gap, especially for externally financed firms, thereby grow faster with developed financial systems (Beck et al., 2003; Demirgüç-Kunt & Maksimovic, 2002; Rajan & Zingales, 1998). In Chile, Gallego and Loayza (2000) suggested that firm growth was positively correlated with the growth of the stock market for 79 listed firms. Accordingly, industries that are more dependent on small firms technologically, derive disproportionately large positive effect from financial and institutional development (Beck et al., 2005).

Few studies have found non-linear relationship between financial development and economic growth, where the former has a strong positive impact on the latter in early stages. Subsequently, the effect of financial development declines or tends to be negative at a very advanced level. Khan and Senhadji (2000) noted that conditional convergence was a source of observed non-linear relationship in a sample of 159 industrial and developing countries, that is, less developed countries grow faster than advanced economies. In cross section and panel analyses, Arcand et al. (2012) also uncovered a non-linear relationship when the financial sector exceeds the GDP. This is partly due to the higher cost of financial instability, being a result of reallocation of resources to sectors with lower returns or triggering of speculative bubbles in some sectors, such as mortgage. Afonso and Blanco-Arana (2022) found that domestic credit and market capitalisation, as well as the market turnover ratio of domestic shares, lead to a significant positive effect on GDP per capita in 21 OECD countries. Further, evidence from early studies in Africa revealed that financial development impact positively on economic growth through physical capital accumulation, factor productivity growth, and saving mobilisation (Allen & Ndikumana, 2000; Odedokun, 1996). The study by Agarwal (2001), revealed a positive correlation between capital market development and economic growth in 9 African economies. Mwambene (2013) found a short-run positive correlation between capital market indicators and economic growth in 15 African emerging economies, including Tanzania. Wambui's (2016) study observed a unidirectional causal relationship from capital market development to economic growth in five African frontier markets, namely, South Africa, Nigeria, Kenya, Morocco, and Mauritius.

Furthermore, evidence from country case studies reveals the following results. Abu-Bader and Abu-Qarn (2005) found positive relationship between finance and growth in Egypt. Odhiambo's (2008) study in Kenya observed a unidirectional causal effect from economic growth to financial

development. In another study, Odiambo (2010) found a significant contribution of financial depth in reducing poverty. Empirical literature in Nigeria revealed mixed results–demand-following hypothesis, on one hand (Adeyeye et al., 2015), while Ogwumike and Salisu (2012) found the supply-leading hypothesis, on the other hand. A two-way causal relationship was observed in Odeniran and Udeaja's (2010) and Osuji's (2015) studies. However, a study by Ujunwa and Salami (2010) in Nigeria used share value and market capitalisation as proxies for stock market development and found negative effects on growth. In Ghana Ofori-Abebrese et al. (2017) uncovered a significant positive relationship, driven by credit to the private sector, with one way causal relationship, that is, economic growth leads financial development, while Adu et al. (2013) found that financial development undermined economic growth. Some studies have used the financial development index (FD index)[3] introduced by Svirydzenka (2016). Unlike traditional indicators of financial depth, the FD index captures access, depth, and efficiency indicators in both banking and capital markets. In Rwanda, for example Mikebanyi and Kigabo (2022) study used the FD index and modified Toda and Yamamoto's (1995), Granger causality test, which is believed to be superior (Muhamed et al., 2014). The findings suggested that a demand-following hypothesis dominate in Rwanda for the period 1980 to 2018. In Ethiopia, Mengesha and Berde (2023) observed a non-linear relationship for the period 1980 to 2021, with a unidirectional causal relationship, where economic growth leads to financial development.

Evidence from Tanzania can be traced back to Odhiambo's (2005) study. The study found significant positive correlation between financial sector development and growth in real GDP per capita, with a bidirectional causal relationship by using broad money supply (M2), currency to narrow money supply (M1) and private sector credit to GDP. Fille (2013) obtained similar results with M3, domestic credit to the private sector and bank deposits to GDP for the period 1988 to 2012. However, Yona and Inanga (2014) found a weak link between regulation, competitiveness and quality of services in semi-quasi banks. Nonetheless, the performance of private banks was relatively better in a sample of 30 banks. Masawe et al. (2015) found a strong positive correlation between financial development, stability and growth. Other studies such as Twinoburyo and Odhiambo's (2018), revealed that financial reform measures were pivotal for a strong economic growth in Tanzania since the 2000s. Balele et al. (2018) appreciated the remarkable pro-growth financial innovations and inclusion triggered by the adopted financial reforms, especially digital reform. Likewise, Maganya (2018) in Tanzania found that a long-run relationship exist between financial development and economic growth. In the same vein, Kapaya (2021) observed a positive short-run effect between financial depth and economic growth, while in another study, Kapaya (2020) revealed a unidirectional causal relationship from capital market development to economic growth in Tanzania by using quarterly data for 2001 to 2019 period. Mang'ati et al. (2024) revealed a positive correlation between financial development and economic growth, with bidirectional causality. Hungu (2024) observed a long-run positive effect on financial development and growth. Joseph and Kilindo (2024) found positive correlation between financial liberalisation, savings and economic growth, while investment is negatively correlated.

[3] Financial Development (FD) index is updated by the International Monetary Fund (IMF)–it is also called IMF FD index. The index is superior since it overcomes the limitation of single or few variables' considerations in its construction and is a better measure of financial development (Mikebanyi & Kigabo, 2022; Nguyen, 2022).

To sum up, the literature review portrays a mixed trend. While many studies support the positive nexus between financial development and economic growth, others indicate a poor or neutral relationship, especially in developing countries. These differences are explained by, among others, diversities across countries, such as country-specific characteristics, governance issues, as well as institutional frameworks (Puatwoe & Piabuo, 2017). Moreover, findings and conclusions from empirical literature survey vary due to differences in definition and measurement of financial development indicators; sample periods and countries included in the sample; methodologies used; and data frequency (Khan & Senhadji, 2000).

Moreover, some panel data studies for advanced economies include less developed countries for statistical reasons, creating a heterogeneous sample. This is contrary to the admonition that countries to be studied together in cross-country growth regressions should be relatively homogeneous (Aregbeyen, 2007). Furthermore, cross section analysis may fail to address country-specific effects of financial development on growth (Quah, 1993), and the possibility of a nonlinear relationship with more variability in growth indicators compared to financial depth (Khan & Senhadji, 2000). Because of that, it is important to have a country-specific study, as a way of overcoming the social, economic, political, institutional and geographic differences of cross-country studies.

Methodology

Model Specification

The finance–growth nexus builds on the endogenous growth model pioneered by Romer (1990), and other studies on the finance-growth nexus including those by Bist and Read (2018) and Nguyen and Pham (2021), among others. These studies combine the financial deepening factor with a set of control variables in the economic growth equation. The empirical model can be represented as equation 1:

$$y_t = \beta_0 + \beta_1 FD_t + \beta_2 X_t + u_t \qquad (1)$$

where y_t is the rate of growth of real GDP *(RGDP)*[4], *FD* is the financial development index (FD index). However, most studies in developing countries, with bank-based financial structure use the ratio of credit to private sector *(CR)*, extended broad money *(M3)* and bank deposits *(DEP)* as traditional financial development indicators. Unlike the traditional financial development indicators, the FD index captures both banks and capital markets' depth, access and efficiency (Adu et al., 2013; Svirydzenka, 2016), X_t is a vector of macro-control variables, including population growth *(POP),* a proxy for human capital, private investment or gross fixed capital formation *(GFCF),* trade openness *(TOP),* and inflation *(CPI),* while u_t is an error term. A dummy variable is included to capture the financial sector reforms of 1991 *(D1)*. The model can explicitly be specified as:

$$y_t = \beta_0 + \beta_1 FD_t + \beta_2 POP_t + \beta_3 GFCF_t + \beta_4 TOP_t + \beta_5 CPI_t + \beta_6 D1 + u_t \qquad (2)$$

where *β0* indicates the intercept of the model, *β1* is the coefficient of financial development (FD), and the coefficients *β2… β5* represent control variables as defined above.

[4] Real GDP is chosen as a measure of growth because of its reliability and comparability.

Estimation Methods

In estimating the model two methods are used: i) Autoregressive Distributed Lag (ARDL) for co-integration procedure for long-run relationship introduced by Pesaran et al. (2001), and a modified Granger causality test which uses augmented Vector Autoregression model pioneered by Toda and Yamamoto (1995). The ARDL model can accommodate both I(0) and I(1) (Adu et al., 2013). While the Toda and Yamamoto (TY) causality test is superior owing to: its applicability on variable levels and thus reduces bias, and handles variables with different orders of integration and it does not depend on pre-testing for co-integration (Muhamed et al., 2014).

Thus, from equation two (2) the long-run finance–growth nexus is estimated by the ARDL model as:

$$y_t = \beta_0 + \sum_{i=1}^{j} \gamma_{1i}\, y_{t-i} + \sum_{i=0}^{k} \gamma_{2i}\, FD_{t-i} + \sum_{i=0}^{l} \gamma_{3i}\, POP_{t-i} + \sum_{i=0}^{m} \gamma_{4i}\, GFC_{t-i} + \sum_{i=0}^{p} \gamma_{5i}\, TOP_{t-i} + \sum_{i=0}^{q} \gamma_{6i}\, CPI_{t-i} + \partial D1 + \mu_t \qquad t = 1,2 \ldots T \qquad (3)$$

where $\gamma_1, \gamma_2, \gamma_3, \gamma_4$, γ_5, and γ_6 are the longterm impact multipliers, $j, k, l, m, p, and\ q$ are the variables lag lengths.

The short-run dynamics can also be estimated via ARDL model that reads as:

$$\Delta y_t = \alpha + \sum_{i=1}^{j} \delta_i \Delta\, y_{t-i} + \sum_{i=0}^{k} \varphi_i \Delta\, FD_{t-i} + \sum_{i=0}^{l} \omega_i \Delta\, POP_{t-i} + \sum_{i=0}^{m} \vartheta_i \Delta GFCF_{t-i} + \sum_{i=0}^{p} \emptyset\sigma_i \Delta\, TOP_{t-i} + \sum_{i=0}^{q} \theta_i \Delta CPI_{t-i} + \lambda ECT_{t-1} + \mu_t \qquad (4)$$

where, Δ is a first difference operator, $\beta_0, \delta, \varphi, \omega, \vartheta, \emptyset,$ are short-run impact multipliers of the model, the $ECT_{t-1}$is the error correction term, its coefficient (λ) captures the speed of adjustment to long-run equilibrium.

Data analysis

The study analysis is underpinned by annual time series data ranging from 1980 to 2021. The sample period is selected based on data availability. The data were sourced from the Bank of Tanzania and National Bureau of Statistics (NBS) in Tanzania.

Model Estimation, Results and Discussion

Time Series Properties of the Data

Descriptive Statistics

It is worth noting that zero skewness or near zero is an important feature of symmetric data, otherwise, the curve is abnormally skewed to the left or right. Except for M3, banks deposits and population growth, all other variables have skewness close to zero, which means they are normally distributed (Table 1). This is also supported by kurtosis, where the same variables have kurtosis levels above the threshold of 3.

Table 1: Descriptive Statistics of the Raw Data

	RGDP	FD	CR	M3	DEP	CPI	POP	GFCF	TOP
Mean	4.838	0.111	11.990	23.852	13.652	16.479	2.817	25.356	31.534
Maximum	8.460	0.167	18.690	41.900	27.233	35.827	4.553	35.800	55.300
Minimum	0.400	0.048	3.672	17.100	5.224	3.300	1.415	11.300	19.118
Std. Dev	2.200	0.027	4.608	6.881	5.477	11.502	0.714	6.718	10.292
Skewness	-0.392	0.441	-0.678	1.483	1.261	0.337	-1.182	-0.018	0.463
Kurtosis	2.197	2.795	2.166	4.103	3.780	1.482	5.223	1.869	2.340
Observations	42	42	42	42	42	42	42	42	42

Source: Calculated from the study data

Unit Root Test Results

The ADF test uncovers the integration order to avoid estimating explosive series. The results in Table 2 indicate that all variables are integrated of order one, (with intercept and no trend). However, after differencing all the I(1) variables and re-estimate, all of them become stationary; hence, they fit very well the application of the ARDL.

Table 2: ADF Unit Root Test

Variable		with intercept & no trend		with intercept & trend	
		level	1st difference	level	1st difference
Real GDP growth	rgdp	-1.567	-3.308***	-2.671	-3.290**
Financial development index	fd	-0.658	-3.319***	-1.295	-3.226*
Credit to private sector/GDP	cr	-1.623	-3.198**	-1.593	-3.185*
Extended broad money/GDP	M3	-0.687	-4.391***	-1.874	-4.340***
Bank deposit/GDP	dep	-1.551	-4.042***	-1.663	4.708***
Population growth	pop	-0.145	-6.504***	-3.881***	
Inflation	inf	-1.640	-4.991***	-2.862	-5.117 ***
Private investment to GDP	gfcf	-1.758	-5.809***	-2.129	-5.811***
Trade openness to GDP	top	- 0.681	-3.222***	-3.697***	

Note: *** p<0.01, ** p<0.05, * p<0.1

Source: Calculated from the study data

ARDL Cointegration Test

An ARDL bound test revealed the existence of a long-run relationship among the variables (Table 3). The computed F-statistic value (7.259) is higher than the critical values of 4.26 at the 1% level. Thus there is rejection of the null hypothesis of no co-integration between financial development indicators and economic growth in Tanzania.

Table 3: ARDL Bound Test results for Cointegration Results

Ho: No level relationship					F = 7.259; t = -6.821	
	10%		5%		1%	
	I(0)	I(I)	I(0)	I(1)	I(0)	I(1)
F	2.03	3.13	2.32	3.50	2.96	4.26***
T	-2.57	-4.23	-2.86	-4.57	-3.43	-5.19***

Note: *** denotes statistical significance at 1% level

Source: Calculated from the study data

Long-run and Short-run Estimates

Long-run Multipliers

The long-run ARDL estimates presented in Table 4 revealed that in the long-run, the coefficient of the financial development index (FD index) is statistically insignificant in determining economic growth in Tanzania (Model 1). This could be due to low private credit to the domestic sector in bank-based low-income countries (Mohieldin et al., 2019). However, after substituting the FD index with three financial development indicators, extended broad money (M3), bank deposits (DEP), and domestic credit to the private sector (CR) in ratios of GDP, Model 2 reveals plausible results. The coefficient of domestic credit to the private sector and banks deposit are positive and statistically significant at 5% and 10% levels, respectively. The findings are consistent with Puatwoe and Piabuo (2017) in Cameroonian economy and also a study by Fille (2013) in Tanzania. However, extended broad money is statistically insignificant in the long-run.

Table 4: Estimated Static Long-run ARDL Representation[1]

Variable	Model 1		Model 2	
	Coefficient	Std error	Coefficient	Std error
Financial development index	2.238	1.578		
Extended broad money (% GDP)			0.314	0.161
Credit to private sector (% GDP)			0.411**	0.110
Banks deposit (% GDP)			0.603*	0.259
Population growth	-1.146**	0.444		
Gross fixed capital formation	0.233***	0.051		
Trade openness (% GDP)	0.008	0.026		
Inflation	-0.172*	0.038		
Financial reforms dummy 1991	3.355***	0.676		
Constant	19.77***	3.844		
Observations	39		39	
R-squared (AdjR-Squared)	0.91(0.73)		0.99(0.92)	

1: The coefficients for control variables in Model 2 are not reported, however, they have the same sign and level of significance except inflation which is significant at 1% in Model 2

Notes: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Source: Calculated from the study data

As Table 4 indicates, population growth, which captures human capital, is negative and statistically significant at the one percent level. The negative effect of the labour force on growth is partly explained by Tanzania's labour-intensive and large unskilled labour force, which is common in developing countries (Ali & Mustafa, 2012; Bist & Read, 2018; Rahman et al., 2020). The gross fixed capital formation or physical capital coefficient is significant at the 1% level and has the envisioned positive sign. Surprisingly, trade openness has an insignificant association with economic growth in Tanzania, contrary to the trade-led growth hypothesis. Inflation coefficient (-0.172) however, is negative and statistically significant at the 10% level. The rising inflation can increase interest rates and hence adversely impact private investment and economic growth. The dummy for financial sector liberation policy in 1991 is significant at the 1% level. This

suggests that financial sector reforms since the early 1990s contributed positively to economic growth.

Short-run Dynamic Multipliers

The estimated value of an error correction term ($ECT_{(t\_1)}$) in Model 1 has a negative coefficient (-1.531) and is highly significant, suggesting faster convergence. That is, short-run shocks are cleared or adjusted towards the long-run equilibrium at a high speed annually (Table 5). In the short-run the FD index is statistically insignificant. Re-estimating the same model by using the three financial development indicators, the results revealed that the three proxies for financial development are positive and statistically significant in the short-term (Model 2). The finding provides evidence that financial development contributes to increased GDP. However, the coefficient of M3 lagged one period has a negative coefficient and is statistically significant at the 5% level–suggesting an inverse relationship with economic growth in the short-run.

Table 5: The Short-Run Dynamic and Error Correction Model Results

Variable	Model 1		Model 2	
	Coefficient	Std error	Coefficient	Std error
ΔFinancial development index(t-1)	0.0781	1.914		
ΔExtended broad money(t-1)			-1.008**	0.305
ΔCredit to private sector			0.874*	0.396
ΔBanks deposit (% GDP)			1.180*	0.531
ΔBanks deposit (% GDP)(t-1)			1.189*	0.509
ΔPopulation growth	1.805***	0.564		
ΔPopulation growth, (t-1)	1.386***	0.439		
ΔGross fixed capital formation	0.356***	0.091		
ΔGross fixed capital formation,(t-1)	0.280***	0.089		
ΔTrade openness	-0.100*	0.048		
ΔTrade openness,(t-2)	-0.079*	0.045		
ΔInflation	0.215**	0.076		
ΔInflation,(t-1)	0.149*	0.071		
ΔInflation,(t-2)	0.315***	0.072		
Financial reforms dummy (D91)	-5.538***	1.425		
ECT (t-1)	-1.531***	0.281		
Constant (C)	20.877***	2.790		

Notes: No. of obs = 39; R-squared = 0.9207; Adj R-squared 0; *** p<0.01, ** p<0.05, * p<0.1

Source: Calculated from the study data

The results further reveal that all control variables are statistically significant. They positively correlate with economic growth in the short term, except for negative trade openness.

Diagnostic and Stability Test Results

Post estimation diagnostic tests are very crucial for the validity and adequacy of the short and long-run ARDL model estimates. The Breusch-Godfrey test results indicate the absence of serial correlation between the ARDL estimates since the observed p-value (0.2927) exceeds the 0.05 significance level (refer to Table 6). According to the Breusch-Pagan test, the estimated model

was homoscedastic (constant variance) with a probability value of 0.2541, which is greater than the 5% significance level.

Table 6: Diagnostic Tests

Test	F-statistic	Prob.	Decision
Breusch-Godfrey LM test	2.263	0.2927	No Serial correlation
Breusch-Pagan Test	0.138	0.2541	Homoscedastic
CUSUMSQ			Stable

Source: Calculated from the study data

CUSUM-squared at 5% level of significance is commonly used to test for the model stability. Since the curvature of the CUSUM line in Figure 1 lies between the range of 5% confidence intervals, it can be concluded that the model is steady throughout the period. Also the model has at least some long-run equilibrium relationship.

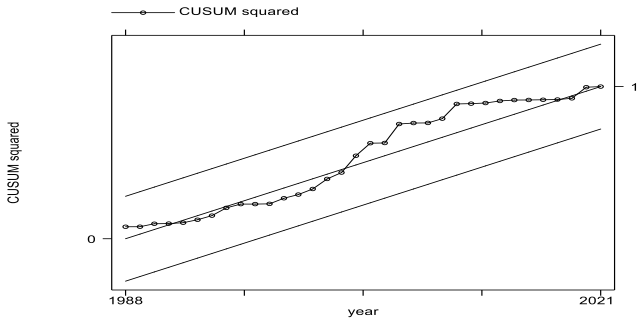

Figure 1: CUSUUMSQ Test Result

The Toda-Yamamoto approach for causality test

The Toda and Yamamoto (TY) results presented in Table 7 reveal unidirectional causal relationship, between financial sector development and economic growth, supporting finance-led or supply leading hypothesis. The findings are consistent with Kapaya (2020) and Mang'ati et al. (2024) in Tanzania.

Table 7: Toda –Yamamoto Causality (modified WALD) Test Results

Null hypothesis	Chi-sq	d.f.	Probability	Granger Causality
RGDP does not Granger cause FD	6.53	3	0.4792	Unidirectional
FD does not Granger cause RGDP	24.95	3	0.0008	FD ⟶ RGDP

Note: RGDP and FD, are real GDP growth, and financial development index, respectively.
Source: Calculated from the study data

Thus, according to the findings in Table 7, economic growth in Tanzania depends on how well the financial sector is deepened or developed.

Conclusion and Implications

The study analysed the quantitative and qualitative nexus between finance and economic growth in post reform Tanzania in 1980-2021 period. The analysis is based on the ARDL and Toda-Yamamoto causality test. The results of ARDL model found an insignificant short and long-run

effect of financial development index on economic growth. However, the results turn out to be significant when ratios of extended broad money, domestic credit to private sector and banks deposits are used as proxies for financial development. The coefficients for domestic credit to the private sector and banks deposits are statistically significant at 5% and 10%, respectively, in the long-run. In the short-run, all financial development indicators are statistically significant except extended broad money which is negative. The control variables, such as population growth adversely affect economic growth in the long-run and their impact is positive in the short-run. Furthermore, inflation promotes economic growth in the short-run, while in the long-run it harms growth. Moreover, regime change dummy suggests that financial sector reforms since early 1990s contributed to economic growth. The causality test suggests that the finance-led or supply leading hypothesis holds for Tanzania, at least during the study period.

Thus, the implication of the study findings points to the need to prioritize policies that promote more financial sector reforms. In this regard, growth of financial sector can stimulate economic growth through use of digital platforms and enhanced competitiveness, among others. This can be done by ensuring availability of affordable credit which is necessary for economic growth, coupled with a conducive macroeconomic environment. Therefore, policymakers need to adopt prudent policies and strategies that promote macroeconomic stability, such as low and stable inflation, as a pre-requisite for financial sector growth and sustainable economic growth.

References

Abu-Bader, S., & Abu-Qarn, A.S. (2005). *Financial Development and Economic Growth: Time Series Evidence from Egypt*. (Discussion Paper No. 05-14). Monaster Center for Economic Research, Ben-Gurion University of the Negev. Munich Personal RePEc Archive. https://mpra.ub.uni-muenchen.de/1113/

Acaravci, A., Ozturk, I., & Acaravci, S.K (2007). Finance–Growth Nexus: Evidence from Turkey. *International Research Journal of Finance and Economics, 11*, 30-42. EuroJournals Publishing. http://dx.doi.org/10.2139/ssrn.1104693

Adeyeye, P.O., Fapetu, O., Aluko, O.A., & Migiro, S.O. (2015). Does Supply-Leading Hypothesis Hold in a Developing Economy? A Nigerian Focus. *Procedia Economics and Finance, 30*, 30–37. https://doi.org/10.1016/S2212-5671

Adu G., Marbuah G., & Mensah J.T. (2013) Financial Development and Economic Growth in Ghana: Does the Measure of Financial Development Matter? *Review of Development Finance 3*(4):192–203. https://doi.org/10.1016/j.rdf.2013.11.001

Afonso, A., & Blanco-Arana, M.C. (2022). Financial and Economic Development in the context of the global 2008-09 Financial Crisis, *International Economics*, *169*, 30-42. https://doi.org/10.1016/j.inteco.2021.11.006

Agarwal, S. (2001). Stock Market Development and Economic Growth: Preliminary Evidence from African Countries. *Journal of Sustainable Development in Africa*. https://www.africabib.org/rec.php?RID=P00001077

Ali, R., & Mustafa, U. (2012). External Debt Accumulation and its Impact on Economic Growth in Pakistan. *The Pakistan Development Review*, *51*(4), 79–95. https://www.jstor.org/stable/23734739

Allen, D.S, & Ndikumana, L. (2000). Financial Intermediation and Economic Growth in Southern Africa. *Journal of African Economies, 9*(2), 132-160. https://doi.org/10.1093/jae/9.2.132

Andersen T.B., & Tarp, F. (2003). Financial Liberalization, Financial Development and Economic Growth in LDCs. *Journal of International Development 15*(2), 189–209. https://doi.org/10.1002/jid.971

Aregbeyen, O. (2007). Public Expenditure and Economic Growth. *African Journal of Economic Policy. Ibadan (Nigeria): University of Ibadan Press 1*(1), 4-9

Balele, N., Nicholaus, N., Zegezege, M., Frank, A., Sije, G., & Mung'ong'o, E. (2018). *Financial Sector Reforms and Innovations and their Implications on Monetary Policy Transmission in Tanzania* (Working Paper Series No 23). Bank of Tanzania.

Bank of Tanzania (2011). *Tanzania Mainland's 50 Years of Independence: A Review of the Role and Functions of the Bank of Tanzania (1961-2011)*. Bank of Tanzania. https://www.bot.go.tz/Adverts/PressRelease/sw/20200313072403423 9.pdf

Bank of Tanzania (2022). *National Payment System.* Annual Report. https://www.bot.go.tz/Publications/Regular/Annual%20Report/en/2024082116493467.pdf

Beck, T., A. Demirgüç-Kunt, and M. S. Martinez Peria. (2007) Access to and Use of Banking Services across Countries. *Journal of Financial Economics*, *85*(1), 234-266. https://doi.org/10.1016/j.jfineco.2006.07.002

Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2003). *Financial and Legal Institutions and Firm Size* (Policy Research Working Paper, No. 2997). World Bank. https://documents1.worldbank.org/curated/en/595331468739475331/pdf/multi0page.pdf

Beck, T., Demirgüç-Kunt, A., & Maksımovıc, V. (2005). Financial and Legal Constraint to Growth: Does Firm Size Matter? *The Journal of Finance*, *60*(2), 137–177. https://doi.org/10.1111/j.1540-6261.2005.00727.x

Bernard, A.U., & Austin, A. (2011). The Role of Stock Market Development on Economic Growth in Nigeria:a time-series analysis. *African Research Review, 5*(6):213–230

Bist, J.P, & Read, R. (2018). Financial Development and Economic Growth: Evidence from a Panel of 16 African and non-African Low-Income Countries. *Cogent Economics & Finance, 6*(1), 1–17. https://doi.org/10.1080/23322039.2018.1449780

Bloch, H., & Tang, S.H.K. (2003). The role of Financial Development in Economic Growth. *Progress in Development Studies,* 3(3), 243-251. https://doi.org/10.1191/1464993403ps063pr

Brownbridge, M., & Gayi, S. (1999). *Progress, Constraints and Limitations of Financial Sector Reforms in the Least Developed Countries* (Finance and Development Research Programme Working Paper No. 7). Institute for Development Policy and Management, University of Manchester. https://hummedia.manchester.ac.uk/institutes/gdi/publications/workingpapers/archive/fd/fdwp07.pdf

Chijoriga M. M., & Robert, R. (2004). Impact of Financial Sector Reforms on Domestic Savings, Investment and Cost of Intermediation in Tanzania. *African Journal of Finance and Management, 12* (2), 1–16. https://doi.org/10.4314/ajfm.v12i2.24377

De Gregorio, J., & Guidotti, P.E. (1995). Financial Development and Economic Growth. *World Development 23*(3):433–448. https://doi.org/10.1016/0305-750X(94)00132-I

Demirgüç-Kunt, A., & Levine, R. (2008). Finance, Financial Sector Policies, and Long-Run Growth. (World Bank Policy Research Working Paper No 4469). World Bank. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1081783

Demirgüç-Kunt, A., & Maksimovic, V. (2002). Law, Finance, and Firm Growth. *The Journal of Finance,* 53(6), 2107–2137. https://doi.org/10.1111/0022-1082.00084

Égert, B., Backé, P., & Zumer, T. (2006). *Credit Growth in Central and Eastern Europe: New (Over) Shooting Stars*? *(*ECB Woking Paper No. 687). European Central Bank. https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp687.pdf

Fille, C.T. (2013) *Financial Development and Economic Growth in Tanzania* (Master's Thesis). University of Nairobi

Finnegan, D. L. (2005). *Judicial Reform and Commercial Justice: The Experience of Tanzania's Commercial Court* (Background Paper for World Development Report, 2005, No. 31352). World Bank. https://documents1.worldbank.org/curated/en/503661468778496241/pdf/313520judicial11bkgd0paper0WDR20051.pdf

Gallego F., & Loayza, N. (2000). Financial Structure in Chile: Macroeconomic Developments and Microeconomic Effects (Central Bank of Chile Working Paper No. 75). Banco Central de Chile. https://www.bcentral.cl/documents/33528/133326/DTBC_75.pdf

Gurley, J.G., & Shaw, E.S. (1955). Financial Aspects of Economic Development. The American Economic Review, 45(4). 515–538. https://www.jstor.org/stable/1811632

Guru, B.K., & Yadav, I.S. (2019). Financial Development and Economic Growth: Panel Evidence from BRICS. *Journal of Economics, Finance and Administrative Science, 24*(47), 113-126. https://doi.org/10.1108/JEFAS-12-2017-0125

Greenwood, J., & Jovanovic, B. (1990). Financial Development, Growth, and the Distribution of Income, *Journal of Political Economy*, *98*(5, Part 1), 1076–1107. https://www.jstor.org/stable/2937625

Greenwood, J., & Smith, B. (1997). Financial Markets in Development, and the Development of Financial Markets, *Journal of Economic Dynamics and Control*, *21*(1): 145–181. https://econpapers.repec.org/article/eeedyncon/v_3a21_3ay_3a1997_3ai_3a1_3ap_3a145-181.htm

Haber, S. (1996). *Capital Immobilities and Industrial Development: A Comparative Study of Brazil, Mexico, and the United States, 1840-1930* [Unpublished Manuscript].Stanford University

Hungu, O.A. (2024). Impact of Financial Liberalization on Economic Growth: An Empirical Evidence from Tanzania. *Journal of African Economic Perspectives, 2*(1). https://doi.org/10.58548/2024jaep21.7190

Joseph, C., & Kilindo, A.A.L. (2024). Assessment of Macroeconomic Effects of Financial Liberalization in Tanzania: An ARDL Approach *Journal of Humanities and Social Sciences*, *13*(2). https://duce.ac.tz/jhss/index.php/jhss/article/view/362

Jung, W.S. (1986). Financial Development and Economic Growth: International Evidence. *Economic Development and Cultural Change*, *34*(2), 333–346. https://doi.org/10.1086/451531

Kapaya, S.M. (2020). Stock Market Development and Economic Growth in Tanzania: An ARDL and Bound Testing Approach. *Review of Economics and Political Science, 5*(3), 187–206. https://doi.org/10.1108/REPS-11-2019-0150

Kapaya, S.M (2021). Financial Development and Economic Growth in Tanzania: An ARDL and bound testing approach. *Asian Journal of Economics and Banking,* 5(1), 46–65. https://doi.org/10.1108/AJEB-09-2020-0063

Khan, M.S. & Senhadji, A.S. (2000). *Financial Development and Economic Growth: An Overview* (IMF Working Paper No. 00/209). International Monetary Fund.

https://www.imf.org/en/Publications/WP/Issues/2016/12/30/Financial-Development-and-Economic-Growth-An-Overview-3926

Kilindo, A.A.L. (2001). Financial Liberalisation and its Implications for Poverty Reduction in Tanzania. Retrieved from https://journals.co.za/doi/pdf/10.10520/AJA08562253_71

King, R.G., & Levine, R. (1993). Finance and Growth: Schumpeter Might be Right. *The Quarterly Journal of Economics, 108(3), 717–737.* https://doi.org/10.2307/2118406

La Porta, R., Lopez – de–Silanes, F., Shleifer, A., & Vishny, R.W. (1996). *Law and Finance*. (NBER Working Paper No. 5661). National Bureau of Economic Research. https://www.nber.org/papers/w5661

Levine, R., & Zervos, S. (1998). Stock Markets, Banks, and Economic Growth. *The American Economic Review, 88*(3): 537-558. https://www.jstor.org/stable/116848

Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature, 35* (2), 688-726. https://www.jstor.org/stable/2729790

Levine, R. (2021). *Finance, Growth, and Inequality* (IMF Working Paper No. WP/21/164). International Monetary Fund. https://www.imf.org/en/Publications/WP/Issues/2021/06/25/Finance-Growth-and-Inequality-461779

Luintel, K.B., & Khan, M. (1999). A Quantitative Reassessment of the Finance-Growth Nexus: Evidence from a Multivariate VAR. *Journal of Development Economics,* 60(2), 381-405. https://doi.org/10.1016/S0304-3878(99)00045-0

Maganya, M.H (2018). Financial Development and Economic Growth in Tanzania: An Empirical Investigation. *International Journal of Academic Research in Business and Social Sciences*, *8*(8), 291–307. https://doi.org/10.6007/IJARBSS/v8-i8/4470

Mang'ati, F.P., Agyei, B.A, & Ampedu, R. (2024). Financial Development and Economic Growth in Tanzania. International Journal of Research and Innovation in Social Science (*IJRISS) 8*(3)*, 2113-2125*. https://doi.org/10.47772/IJRISS.2024.803148

Masawe, J.L., Nyella, J., Kessy, P., Hotay, A., & Mbowe, W. (2015). *The Interaction between Finance, Financial Stability and Economic Growth* (Working Paper No. 2). Bank of Tanzania. https://www.bot.go.tz/Publications/Other/Working%20Papers%20Series/en/2020021122482930238.pdf

McKinnon, R.I. (1973). *Money and Capital in Economic Development*. The Brookings Institution.

Mengesha, T., & Berde, E. (2023). Financial Development and Economic Growth in Ethiopia: Is there a Causal Link? *Cogent Economics & Finance, 11*(2). https://doi.org/10.1080/23322039.2023.2245309

Mikebanyi, P., & Kigabo, T.R. (2022). Financial Development and Economic Growth: The Case of Rwanda. *BNR Economic Review, 18*(1). https://www.ajol.info/index.php/BNRER/article/view/224003

Mishkin, F.S. (2016). *The Economics of Money, Banking, and Financial Markets* (11th Ed.).Pearson.

Mohamed, M. B. H., Saafi, S., & Farhat, A. (2014). Testing the causal relationship between exports and imports using a Toda-Yamamoto approach: Evidence from Tunisia. *In Economics & Strategic Management of Business Process 2*, 75–80). Proceedings of the International Conference on Business, Economics, Marketing & Management Research (BEMM'13). IPCO.

Mohieldin, M., Hussein, K., & Rostom, A. (2019). On Financial Development and Economic Growth in Egypt. *Journal of Humanities and Applied Social Sciences, 1*(2), 70-86. https://doi.org/10.1108/JHASS-08-2019-0027

Mtui, J.M. (2024). Inflation Dynamics in Tanzania's Post-reform Period. *Tanzania Journal of Development Studies, 22*(2), 133–152. https://dx.doi.org/10.56279/NJIY8787/TJDS.v22i2.7

Mwakabumbe, C.A., Temu, S.S., & Kazungu, I. (2023). *Stock Market Indicators and Domestic Market Capitalization of Emerging Markets*. ORSEA Journal, 13(1). https://doi.org/10.56279/orseaj.v13i1.5

Mwambene, T., (2013). *Stock Market Development and Economic Growth: African Emerging Market Countries and Policy Implications for Tanzania* (Master's Thesis). KDI School of Public and Management.

Ndikumana, L. (2001). *Financial Markets and Economic Development in Africa* (PERI Working Paper No. 17). University of Massachusetts Amherst, Political Economy Research Institute

Nguyen, P. T., & Pham, T. T. (2021). The Impact of Financial Development on Economic Growth: Empirical Evidence from Transitional Economies. *Journal of Asian Finance, Economics & Business*, *8* (11), 191–201. https://doi.org/10.13106/JAFEB.2021.VOL8.NO11.0191

Naceur, S., & Ghazouani, S. (2007). Stock Markets, Banks, and Economic Growth: Empirical Evidence from the MENA Region. *Research International Business and Finance*, 21(2), 297–315. https://doi.org/10.1016/j.ribaf.2006.05.002

Naik, P.K., & Padhi, P. (2015). On the Linkage Between Stock Market Development and Economic Growth in Emerging Market Economies: Dynamic Panel Evidence, *Review of Accounting and Finance,* 14(4)363-381. https://doi.org/10.3390/economies10060138

Nguyen, T.A.N. (2022). Financial Development, Human Resources, and Economic Growth in Transition Countries. *Economies, 10*(6), 138. https://doi.org/10.3390/economies10060138

Nord, R., Sobolev, Y., Dunn, D., Hajdenberg, A., Hobdari, N., & Maziad, S. (2009). *Tanzania: The Story of an African Transition* (Working Paper). International Monetary Fund. https://www.imf.org/external/pubs/ft/books/2009/tanzania/tanzania.pdf

Nyagetera, B. M., & Tarimo, B. (1997). Financial and Monetary Sector Management During and After Reform in Tanzania. In D. Bol, N. Luvanga, & J. Shitundu (Eds.), Economic Management in Tanzania (pp. 71-100). Dar es Salaam: Tema Publishers.

Odedokun, M.O. (1996). Alternative Econometric Approaches for Analyzing the Role of the Financial Sector in Economic Growth: Time-Series Evidence from LDCs. *Journal of Development Economies, 50*(1), 119-135. https://doi.org/10.1016/0304-3878

Odeniran, S., & Udeaja, E. (2010). Financial Sector Development and Economic Growth: Empirical Evidence from Nigeria. *Economic and Financial Review*, *48*(3), 91-124.

Odhiambo, N.M. (2005). Financial Development and Economic Growth in Tanzania: A Dynamic Causality Test. *African Finance Journal, 7*(1)1-17.

Odhiambo, N.M. (2010). Finance-Investment-Growth Nexus in South Africa: An ARDL-bounds Testing Procedure, *Econ Change Restructuring, 43*(3), 205–219. https://doi.org/10.1007/s10644-010-9085-5

Odhiambo, N. M. (2008). Financial Development in Kenya: A Dynamic Test of the Finance-Led Growth Hypothesis. *Economic Issues, 13*(2), 21-36. https://www.economicissues.org.uk/Files/208Odhiambo.pdf

Ofori-Abebrese, G., Pickson, R.B., & Diabah, B.T. (2017). Financial Development and Economic Growth: Additional Evidence from Ghana: *Modern Economy*, *8*(2), 282-297. https://doi.org/10.4236/me.2017.82020

Ogwumike, F. O., & Salisu, A. (2012). Financial Development and Economic Growth in Nigeria. *Journal of Monetary and Economic Integration*, *12*(2), 91-119. https://www.researchgate.net/publication/364328919_Financial_Development_and_Economic_Growth_in_Nigeria

Osuji, O. (2015). Financial Development and Economic Growth in Nigeria. *Journal of Economics and Sustainable Development, 6* (20), 1–15. https://www.iiste.org/Journals/index.php/JEDS/article/view/26587/27235

Quah, D.T. (1993). Empirical Cross-Section Dynamics in Economic Growth. *European Economic Review, 37*, 426–434. https://doi.org/10.1016/0014-2921 (93)90031-5

Patrick, H. (1966). Financial Development and Economic Growth in Underdeveloped Countries., *Economic Development and Cultural Change, 14*(2),174–89. http://dx.doi.org/10.1086/450153

Pesaran, M.H, Shin, Y., & Smith, R.J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships, *Journal of Applied Econometrics, 16*(3), 289–326. https://www.jstor.org/stable/2678547

Puatwoe, J.T, & Piabuo, S.M. (2017). Financial Sector Development and Economic Growth: Evidence from Cameroon. *Financial Innovation, 3*(25), pp. 1-18 https://doi.org/10.1186/s40854-017-0073-x

Rahman. A., Khan, M.A., & Charfeddine, L. (2020). Financial Development–Economic Growth Nexus in Pakistan: New Evidence from the Markov Switching Model. *Cogent Economics & Finance, 8*(1), 1716446. https://doi.org/10.1080/23322039.2020.1716446

Rajan, R. G., & Zingales, L. (1998). Financial Dependence and Growth. *The American Economic Review, 88*(3), 559–586. https://www.jstor.org/stable/116849

Ram, R. (1999). Financial Development and Economic Growth: Additional Evidence. *The Journal of Development Studies*, *35*(4), 164–174. https://doi.org/10.1080/00220389908422585

Robinson, J. (1952). *The Generalization of the General Theory, in the Rate of Interest, and Other Essays* (2nd Ed.). Macmillan. https://ia902906.us.archive.org/19/items/in.ernet.dli.2015.132251/2015.132251.The-Generalisation-Of-The-General-Theory.pdf

Romer, P. M. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98(5, Part 2), S71–S102. http://dx.doi.org/10.1086/261725

Samargandi, N., Fidrmuc, J., & Ghosh, S. (2015). Is the Relationship between Financial Development and Economic Growth Monotonic? Evidence from a Sample of Middle-income Countries. *World Development*, *68*, 66–81. https://doi.org/10.1016/j.worlddev.2014.11.010

Samargandi, N., & Fidrmuc, J., & Ghosh, S. (2014). Financial Development and Economic Growth in an Oil-rich Economy: The case of Saudi Arabia, *Economic Modelling, 43*, 267-278. https://doi.org/10.1016/j.econmod.2014.07.042

Satta, T, (2000). Financial Sector Reforms and Development of Financial Intermediaries in Tanzania: 1985-1997. *The African Journal of Finance and Management, 7*(2), 128–140. http://www.tzonline.org/pdf/financialsectorreforms.pdf

Schumpeter, J.A. (1911). *The Theory of Economic Development.* Harvard University Press, Cambridge.

Shaw, E. (1973). *Financial Deepening in Economic Development*. Oxford University Press, New York. https://archive.org/details/financialdeepeni0000shaw_l8k4

Svirydzenka, K. (2016). *Introducing a New Broad-based Index of Financial Development* (IMF Working Paper No.16/05). International Monetary Fund. https://www.imf.org/external/pubs/ft/wp/2016/wp1605.pdf

Toda, H. Y., & Yamamoto, T. (1995). Statistical Inference in Vector Autoregressions with Possibly Integrated Processes. *Journal of Econometrics*, 66(1-2), 225–250. https://doi.org/10.1016/0304-4076 (94)01616-8

Twinoburyo, E.N., & Odhiambo, N.M. (2018). Monetary Policy and Economic Growth: A Review of International Literature. *Journal of Central Banking Theory and Practice,* 7(2), 123-137. https://doi.org/10.2478/jcbtp-2018-0015

Ujunwa, A., & Salami, O. (2010). Stock Market Development and Economic Growth: Evidence from Nigeria. *European Journal of Economics, Finance and Administrative Sciences*, *25*, 44–53. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1976406

Wambui, N. (2013). *Stock Market Development and Economic Growth in African Frontier Markets* (Unpublished MA Thesis, Strathmore University. Nairobi). Retrieved from Strathmore University institutional repository:
https://su-plus.strathmore.edu/bitstreams/e44a95fa-ebda-4a08-bbe3-ad45fd83b5e1/download

Were, M., & Joseph, C. (2022). *Determinants of Domestic Savings in Tanzania: Empirical Evidence* (WIDER Working Paper No. 2022/166). United Nations University World Institute for Development Economics Research. https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2022-166-determinants-domestic-savings-Tanzania.pdf

Wolde–Rufael, Y. (2009). Re-examining Financial Development and Economic Growth-Nexus in Kenya. *Economic Modelling, 26*(6), 1140–1146. https://doi.org/10.1016/j.econmod.2009.05.002

Worku, U. R. (2016). The Contribution of Financial Sector Development for Economic Growth in East Africa. *Applied Economics and Finance, 3*(2), 44–53. https://doi.org/10.11114/aef.v3i2.1251

World Bank (2005). Tanzania Private Sector Competitiveness Project: Project Appraisal Document (Report No. 34082–TZ).World Bank. https://documents.worldbank.org/curated/en/695891554411693994/pdf/Tanzania-Private-Sector-Competitiveness-Project.pdf

Yona, L., & Inanga, E. (2014). Financial Sector Reforms in Bank Regulations and Supervision and its Impact on Service Quality of Commercial Banks in Tanzania, *European Journal of Business and Management, 6*(2), 45-57. Retrieved from https://core.ac.uk/download/pdf/234625207.pdf

Zhuang, J., Gunatilake, H., Niimi, Y., & Khan, M.E., Jiang, Y., Hasan, R., Khor, N., Lagman Martin, A., Bracey, P., & Huang, B. (2009). *Financial Sector Development, Economic Growth, and Poverty Reduction: A Literature Review* (ADB Economics Working Paper Series No. 173). Asian Development Bank. https://doi.org/10.2139/ssrn.1617022