

Causal Relationships between Savings Mobilisation, Capital Market Development, and Economic Growth in Nigeria

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DOI: <https://dx.doi.org/10.47772/IJRISS.2026.100400435>

Received: 20 April 2026; Accepted: 25 April 2026; Published: 13 May 2026

ABSTRACT

This study investigates the causal relationships between savings mobilisation, capital market development, and economic growth in Nigeria using the Autoregressive Distributed Lag (ARDL) bounds testing approach on annual data from 1990 to 2023. The dependent variable is GDP growth rate, while explanatory variables include gross domestic savings ratio (GDSR), total savings (LTS), All Share Index (LASI), market capitalisation (LMCAPE), number of listed entities (LNLE), real interest rate (RINT), and exchange rate (LEXR). The bounds test confirms cointegration among the variables, validating a long-run equilibrium relationship. The error-correction term is negative and highly significant (-1.220 ; $p < 0.001$), indicating rapid adjustment and long-run causality from the regressors to GDP growth. Long-run estimates reveal that gross domestic savings as a ratio of GDP (GDSR) and market capitalisation (LMCAPE) exert positive and significant effects on growth, while total savings (LTS) show a significant negative effect. LASI and LNLE are not significant. Real interest rate and exchange rate also display positive long-run impacts. Short-run dynamics provide weak evidence of causality, with most differenced terms insignificant except for a marginal lagged exchange-rate effect. These findings suggest that financial deepening influences growth primarily through structural channels rather than immediate demand effects. Policy implications are twofold: first, deepen capital market infrastructure and instruments to translate mobilised savings into productive investment. Second, address structural bottlenecks that impede efficient allocation of aggregate savings. Collectively, the results support state-contingent financial sector strategies that strengthen both savings mobilisation and market depth to foster sustained growth in Nigeria. Policy implications emphasise raising domestic savings and strengthening capital market depth to channel resources into productive investments, while addressing inefficiencies that hinder effective intermediation.

Keywords: Savings Mobilisation, Capital Market Development, Economic Growth, Real Gross Domestic Product.

INTRODUCTION

Economic Growth in Nigeria remains a central objective of national development policy, serving as a benchmark for evaluating the effectiveness of financial and economic reforms. Sustained growth is often linked to the depth and efficiency of financial intermediation, particularly through mechanisms that channel resources into productive investments. Among these mechanisms, savings mobilisation and capital market development play critical roles in shaping the trajectory of economic performance. Savings mobilisation provides the foundation for investment by aggregating surplus funds from households and institutions, while the capital market transforms these funds into long-term financing for businesses and government projects. Understanding the causal relationships between these variables is essential for policy formulation, as it reveals whether financial sector initiatives translate into tangible economic outcomes. In the Nigerian context, where structural challenges and reform cycles have influenced both savings behaviour and market dynamics, examining these linkages offers insights into how financial deepening can accelerate growth and stability.

Endogenous growth theory, pioneered by Romer (1990, 1994) and Lucas (1988), departs from the traditional Solow-Swan model by viewing technological progress as an outcome of deliberate economic activity rather than an external shock. It emphasises that long-term growth is driven by investments in human capital,

innovation, and knowledge accumulation, supported by financial resources. Savings mobilisation plays a critical role in this process by expanding the pool of investable funds, while capital markets channel these resources efficiently toward sectors with high innovation potential (Aghion & Howitt, 1992). The theory rests on key assumptions, including the non-rivalry of knowledge, increasing returns through spillovers, and the intentional nature of technological progress through research and development (Levine, 1997). Empirical evidence further supports these propositions, highlighting the role of financial systems in directing savings toward education and innovation, thereby reinforcing the theory's focus on internal drivers of growth (Levine, 1997; Beck et al., 2000).

Closely related is the theory of financial intermediation, which underscores the importance of institutions such as banks, pension funds, and capital markets in mobilising savings and reducing transaction frictions (Gurley & Shaw, 1960; Levine, 2005). Unlike the Arrow-Debreu model of perfect markets, this perspective acknowledges real-world imperfections, particularly information asymmetry, that necessitate specialised intermediaries. These institutions pool savings, screen borrowers, and diversify risk, thereby mitigating adverse selection and moral hazard and ensuring that capital flows to projects with the highest potential returns (Beck et al., 2000; Levine, 1997).

Globally, the mobilisation of savings has long been regarded as a critical driver of capital formation and economic growth. Advanced economies illustrate this linkage clearly. For instance, in the United States, personal savings averaged 7.5% in the decade before 2019, surged to 16.8% in 2020 during the COVID-19 pandemic, and then declined as economic conditions normalised (Bureau of Economic Analysis, U.S. 2022), which supported the country's innovation and economic expansion. Similarly, emerging economies such as China have consistently maintained household savings rates above 30% for more than two decades, thereby supporting domestic investment and sustaining high growth (Loayza, Schmidt-Hebbel, & Servén, 2000; Chamon & Prasad, 2010). These examples underscore the centrality of savings in providing long-term funding through well-functioning capital markets, enabling economies to finance innovation, infrastructure, and structural transformation.

In many developing economies, including Nigeria, savings mobilisation, capital market development, and economic growth are deeply interconnected. Savings constitute the pool of investible funds, while capital markets channel those funds into productive ventures. This interplay fosters innovation, risk-sharing, and economic diversification (Beck, Levine, & Loayza, 2000). Empirical work on African economies has emphasised this nexus. Odhiambo (2009), for example, highlights the combined role of domestic savings and financial sector development in driving investment and output expansion. Similarly, Schmidt-Hebbel, Servén, and Solimano (1996) argue that savings are indispensable for capital formation, which remains a vital precursor to growth.

The Nigerian case offers both opportunities and challenges in exploring these dynamics. Data from the Central Bank of Nigeria (CBN, 2024) show that gross domestic savings as a percentage of GDP are now improving, rising from 10.7% in 2010 to 20.2% in 2023, though with notable fluctuations. The sharp spike in 2023 may reflect a combination of precautionary savings amid economic uncertainty, fiscal policies encouraging domestic savings, and structural reforms in the financial sector. Earlier studies, such as Ogunlokun and Oguntuase (2023), point to historical volatility, noting that savings rates hovered below 6% through much of the 1990s and early 2000s. These findings suggest that while Nigeria has made progress in raising savings rates, structural challenges in mobilisation remain, particularly in ensuring stability and long-term sustainability.

Low and unstable savings rates have direct implications for growth. As Nnanna (2004) argues, Nigeria's shallow financial system has historically undermined the efficient mobilisation of savings and the allocation of resources. More recent studies reaffirm that capital market deepening could mitigate growth volatility by expanding access to long-term finance (Olayemi & Bamidele, 2021). Indeed, Olayungbo and Akinlo (2019) find that private and public savings both exert a positive long-run effect on GDP, though short-run effects remain highly sensitive to policy and external shocks. Similarly, Oyegun G. (2023) shows that Nigerian capital market indicators, such as market capitalisation and liquidity, are positively associated with economic growth, particularly when underpinned by institutional quality and investor protection.

Despite the theoretical consensus on the positive role of savings and capital markets in promoting economic growth, empirical evidence within the Nigerian context remains inconclusive. Studies such as Ujunwa (2008) and Ogunmuyiwa (2010) report a strong long-run relationship among these variables, whereas Nwachukwu and Egwaikhide (2007) and Ayadi (2021) argue that macroeconomic conditions, including inflation and interest rates, significantly influence the effectiveness of savings in driving growth. Furthermore, much of the domestic literature tends to emphasise bank-based financial intermediation, often neglecting the distinctive role of capital markets in channelling savings into long-term productive investments. This omission is noteworthy given global evidence that well-developed capital markets enhance risk-sharing, improve liquidity, and reduce the cost of capital (Levine & Zervos, 1998; Laeven, 2014). In addition, few Nigerian studies rigorously interrogate the direction of causality, whether higher savings stimulate capital market development and economic growth or whether economic expansion itself induces greater savings and financial deepening. This lack of clarity constrains policymakers' ability to design targeted interventions that can effectively harness these linkages for sustainable growth.

These gaps highlight the need for renewed investigation into the causal relationships between savings mobilisation, capital market development, and economic growth in Nigeria. By employing updated data and robust econometric approaches, this study seeks to clarify the direction and strength of these linkages, provide evidence on how structural reforms can reshape the financial-growth nexus, and generate policy insights for mobilising domestic savings more effectively. Beyond its theoretical contribution, the study carries strong policy relevance: without robust savings and efficient financial intermediation, Nigeria risks continued dependence on foreign capital, exposing the economy to volatility and external shocks. A deeper understanding of these dynamics is thus essential to securing financial stability and fostering inclusive economic development.

Against this backdrop, the present study employs the Autoregressive Distributed Lag (ARDL) model to examine the dynamic relationship between domestic savings, capital market development, and economic growth in Nigeria from 1990 to 2023. The ARDL approach is particularly appropriate because it accommodates variables integrated at different orders and captures both short-run adjustments and long-run equilibrium relationships. By focusing on recent data and structural linkages, the research aims to provide robust empirical evidence to inform policy reforms that strengthen the capital market's role in promoting inclusive and sustainable economic growth.

LITERATURE REVIEW

Concepts of Economic Growth

Economic growth is a complex and multifaceted phenomenon that transcends a mere increase in the production of goods and services. At its essence, it represents the sustained expansion of an economy's productive capacity over time, typically measured by the growth rate of Gross Domestic Product (GDP) or Gross National Product (GNP), adjusted for inflation to reflect real output (Mankiw, 2021). Todaro and Smith (2020) emphasise that accounting for inflationary effects is critical to ensure that measures of economic growth accurately capture real increases in economic activity rather than nominal distortions. This adjustment distinguishes "real" economic growth from illusory gains driven by price changes.

Savings Mobilisation

The concept of savings mobilisation has been approached from household, business, and public perspectives (Iyaji & Onotaniyohwo, 2021). Collectively, these savings constitute gross domestic savings (GDS), which provide investable funds for infrastructure, businesses, and financial instruments. Mobilisation is facilitated by financial intermediaries, who channel deposits into productive sectors (U S Federal Reserve, 2005). In Nigeria, the process faces contradictions. While savings interest rates are benchmarked on the Monetary Policy Rate (MPR), persistent negative real interest rates discourage depositors (Osamo & Nwankwo, 2024; CBN, 2025). For instance, despite inflation being at 24.48% (NBS, 2025), savings deposit rates remain below 10%, creating a disincentive to save. Yet recent data indicate a temporary rise in gross savings, with the rate peaking at 34.57% in December 2024.

Capital Market

The capital market channels long-term funds to productive sectors through instruments like equities, bonds, and derivatives (Nwankwo, 1998; Yaya, 2019). It is segmented into the primary market, where firms raise capital via IPOs and bonds, and the secondary market, where liquidity and price discovery occur (Uwaleke, 2019). Capital markets perform multiple functions: mobilising long-term savings, facilitating price discovery, diversifying risk, and enforcing corporate governance (Udenwa & Uwaleke, 2015). Stock exchanges provide platforms for equity and debt trading, while listing rules ensure investor protection (NGX & SEC, 2024). Key indicators of capital market development include market capitalisation, value of shares traded, and turnover ratios (Levine, 1997; Uwaleke, 2019).

Empirical Review

Capital Market and Economic Growth

Several studies have explored the impact of capital market development on economic growth using various econometric techniques and datasets. For example, Oluwagbemiga (2024) examined the relationship between capital market development and economic growth in Nigeria over the period 1986 to 2022. In his study, real GDP served as the dependent variable, while the independent variables included market capitalisation, the All-Share Index, transaction value, the number of new issues, and the exchange rate. By employing Auto-Regressive Distributed Lag (ARDL) techniques and the Engle-Granger causality test, the study found that while the total number of new issues had a positive and significant impact on GDP, other variables exhibited less pronounced effects. The study further revealed unidirectional causality running from various stock market indicators to economic growth, suggesting that improvements in capital market development can drive economic expansion. As a policy implication, the study recommended that regulators pay close attention to new market issues, as they have a marked influence on overall economic performance.

Similarly, Sulaiman and Adejayan (2023) investigated the effect of capital market development on economic growth across ECOWAS countries using annual data spanning from 1980 to 2019. Their analysis, based on the Panel ARDL model, indicated that for Anglophone economies, both Gross Capital Formation (GCF) and Foreign Direct Investment (FDI) played significant roles in spurring growth. In contrast, for Francophone economies, domestic investment, as proxied by GCF, was the primary driver. These findings underscore the heterogeneous nature of capital market effects and the importance of tailored policy approaches that consider country-specific economic contexts.

Omonode (2022) explored the impact of financial intermediation on Nigeria's manufacturing output from 1991 to 2020. Using variables such as money supply, credit to the manufacturing and private sectors, and interest rates, the study adopted an ex post facto research design. The results confirmed that while money supply and credit to the manufacturing sector had significant positive effects on manufacturing output, credit to the private sector and interest rates did not show a statistically significant impact. The existence of a long-run relationship among the variables, as indicated by the error correction model, further validated the role of financial intermediation in supporting sectoral output, a critical component of overall economic growth.

A significant strand of empirical literature examines the influence of capital market development (Echekoba et al., 2013), and some literature looks at the influence on foreign portfolio investment (FPI). Araoye (2021) conducted a comprehensive study using time series data spanning 1990 to 2019 to explore how variables such as market capitalisation, real GDP, and stock market indices impact FPI in Nigeria. Employing unit root tests, the Vector Error Correction Model (VECM), and Granger causality tests, Araoye found that market capitalisation exerted a positive and statistically significant effect on FPI. Moreover, the analysis revealed unidirectional causality from market capitalisation and real GDP to FPI, suggesting that a robust and well-regulated capital market can serve as a magnet for foreign investors. This influx of foreign capital, in turn, augments domestic resources, facilitating economic expansion.

This perspective is corroborated and expanded upon by a series of studies link between capital market development and economic growth in Nigeria. For instance, Abere et al. (2021) utilised Johansen cointegration

and error correction mechanisms to analyse data from 1986 to 2020, focusing on variables such as the number of deals, turnover ratios, and real GDP. Their findings confirmed a long-run equilibrium relationship between capital market indicators and economic growth, with deal count and turnover ratios having a significant positive impact on GDP. Similarly, Acha (2016) explored the role of financial intermediation in Nigeria's economic growth, employing time series analysis over a comparable period. The study underscored that an active capital market enhances resource mobilisation, positively influencing GDP through increased investment flows.

Complementing these findings, Olusegun and Ajao (2024) investigated capital market depth and sectoral growth in Nigeria using data from 1981 to 2022. Their research, grounded in cointegration techniques, highlighted that deeper capital markets—measured by market capitalisation and liquidity—foster economic growth by channelling savings into productive investments. Likewise, Yakubu (2023) employed a causal analysis framework to examine the relationship between capital market development and economic growth from 1990 to 2021. The results indicated bidirectional causality, suggesting that while capital market development drives GDP growth, economic expansion also strengthens market performance. Finally, Azeez and Obalade (2019) analysed macroeconomic determinants of stock market development in Nigeria over the period 1981 to 2017, finding that market capitalisation and turnover ratios significantly bolster economic output by attracting both domestic and foreign investment.

DATA AND METHODOLOGY

This study employs an ex-post facto design, which involves a detailed retrospective analysis of phenomena that have already occurred. Such a design is particularly appropriate for investigating dynamics, growth patterns, and underlying relationships among the variables in question, especially when direct manipulation of independent variables is either impossible or unethical (Akuezilo, 2019). The study relies on secondary data, primarily sourced from the Central Bank of Nigeria's Statistical Bulletins and various Capital Market Reports. The time frame under investigation spans from 1990 to 2023, resulting in a time series dataset covering 34 years. This extensive dataset will provide a robust empirical foundation for testing the proposed models and hypotheses. This study applied the Augmented Dickey-Fuller (ADF) test to assess whether the time series variables have constant mean, variance, and autocovariance over time. That is to test the stationarity of the data sets individually. The ADF test, as proposed by Dickey and Fuller (1979, 1981), will help ensure that any relationships identified are statistically robust. The analysis then adopted the econometric framework called the ARDL Bound test. The functional form of the empirical model is specified in Eqn. (1):

$$GDPGR_t = f(GDSR_t, LTS_t, LASI_t, LMCAPE_t, LNL_t, RINT_t, LEXR_t) \quad (1)$$

Where, $GDPGR_t$ = GDP growth rate, $GDSR_t$ = gross domestic savings as a ratio of GDP, LTS_t = logarithm of total savings, $LASI_t$ = logarithm of the All-Share Index, $LMCAPE_t$ = logarithm of equity market capitalisation, LNL_t = logarithm of the number of listed entities on the NGX, $RINT_t$ = real interest rate, and $LEXR_t$ = logarithm of the exchange rate

The ADF test is based on the following regression equation:

$$\Delta\gamma_t = \varphi\gamma_{t-1} + \sum_{i=1}^p \alpha_i \Delta\gamma_{t-1} + \mu_t$$

The hypotheses for the ADF test are defined as follows: Null Hypothesis (H_0): The series has a unit root (i.e., it is non-stationary). Alternative Hypothesis (H_1): The series is stationary.

If the test fails to reject the null hypothesis, it implies the presence of a unit root, and the series is considered non-stationary. Conversely, rejecting the null suggests the series is stationary and suitable for time series modelling. The ADF test was conducted under the null hypothesis of a unit root (i.e., the series is non-stationary) against the alternative hypothesis of stationarity. The test statistics were compared against the MacKinnon critical values at the 1%, 5%, and 10% significance levels. A variable is considered stationary if the absolute value of the ADF test statistic exceeds the corresponding critical value at conventional levels of significance, or if the p-value is less than 0.05.

The choice of ARDL is justified by its methodological advantages over alternative approaches. Unlike Johansen cointegration, which requires all variables to be integrated of the same order, ARDL accommodates mixed integration orders and performs well in small samples. Furthermore, ARDL provides separate estimates for short-run and long-run dynamics, offering richer insights into the temporal behaviour of economic relationships. This feature is particularly relevant for Nigeria, where short-run shocks, such as exchange rate volatility and inflationary pressures, often disrupt long-run growth trajectories. By capturing these dynamics, ARDL enables policymakers to design interventions that address both immediate and structural challenges.

The Autoregressive Distributed Lag (ARDL) model was developed by Pesaran, Shin, and Smith (2001). The ARDL approach is particularly appropriate for this research because it accommodates regressors integrated at different orders, I(0) or I(1), without requiring pre-testing for common integration order. It also provides robust estimates of both short-run dynamics and long-run equilibrium relationships, making it suitable for small sample sizes and time-series data typical of developing economies.

The ARDL (p, q1, q2, ..., q7) model for GDP growth is written as:

$$\begin{aligned} \Delta GDPGR_t = & \alpha_0 + \sum_i \Delta GDPGR_{t-i} + \sum_j \beta_j \Delta GDSR_{t-j} + \sum_k \gamma_k \Delta LTS_{t-k} + \sum_m \delta_m \Delta LASI_{t-m} \\ & + \sum_n \varphi_n \Delta LMCAPE_{t-n} + \sum_r \psi_r \Delta LNLE_{t-r} + \sum_s \theta_s \Delta RINT_{t-s} + \sum_u \omega_u \Delta LEXR_{t-u} \\ & + \lambda_1 GDPDR_{t-1} + \lambda_2 GDSR_{t-1} + \lambda_3 LTS_{t-q} + \lambda_4 LASI_{t-1} + \lambda_5 LMCAPE_{t-1} + \lambda_6 LNLE_{t-1} \\ & + \lambda_7 RINT_{t-1} + \lambda_8 LEXR_{t-1} \end{aligned}$$

Here, coefficients on differenced terms capture short-run dynamics, while coefficients on lagged levels capture long-run relationships.

Empirical Results

Normality tests using the Jarque-Bera statistic reveal that four variables, TS, MCAPE, RINT, and EXR, do not follow a normal distribution, as indicated by p-values below the 0.05 threshold. This non-normality has significant implications for econometric modelling, particularly for methods that assume normally distributed errors. Transformations such as logarithmic scaling or Box-Cox adjustments may be necessary to stabilise variance and improve model fit.

Table 1: Descriptive Statistics Results

| Statistic | GDPGR | GDSR | TS | ASI | MCAPE | NLE | RINT | EXR |
|-----------|-------|-------|----------|----------|----------|--------|--------|--------|
| Mean | 4.25 | 8.87 | 7562.99 | 23204.6 | 7450.52 | 184.56 | 3.02 | 161.22 |
| Median | 4.21 | 7.26 | 2213.24 | 23965.15 | 4608.26 | 188 | 5.53 | 130.25 |
| Maximum | 15.33 | 20.21 | 47375.98 | 74773.77 | 40917.51 | 217 | 18.18 | 645.19 |
| Minimum | -2.04 | 3.29 | 29.65 | 513.8 | 22.23 | 131 | -31.45 | 8.04 |
| Std. Dev. | 3.91 | 4.2 | 10696.25 | 18066.67 | 9343.17 | 21.81 | 9.99 | 143.2 |
| Skewness | 0.5 | 0.57 | 1.97 | 0.74 | 1.78 | -0.46 | -1.37 | 1.43 |
| Kurtosis | 3.49 | 2.57 | 7.09 | 3.31 | 6.37 | 2.54 | 5.67 | 5.19 |

| | | | | | | | | |
|--------------|--------|--------|----------|----------|----------|----------|---------|----------|
| Jarque-Bera | 1.75 | 2.09 | 45.77 | 3.21 | 34.07 | 1.48 | 20.76 | 18.3 |
| Probability | 0.42 | 0.35 | 0 | 0.2 | 0 | 0.48 | 0 | 0 |
| Sum | 144.36 | 301.52 | 257141.6 | 788956.5 | 253317.7 | 6275 | 102.56 | 5481.38 |
| Sum Sq. Dev. | 503.36 | 581.5 | 3.78E+09 | 1.08E+10 | 2.88E+09 | 15692.38 | 3293.64 | 676672.9 |
| Observations | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |

Source: E-Views 09, 2025.

Skewness analysis shows that TS, MCAPE, and EXR are positively skewed, while RINT is negatively skewed. These high skewness values (greater than ±1) indicate strong asymmetry in the data, which can distort regression estimates and affect the reliability of statistical inference. The negative skewness in RINT, for example, suggests a long-left tail, possibly reflecting periods of negative real interest rates in the Nigerian economy.

Kurtosis values further reveal that most variables exhibit leptokurtic distributions, with kurtosis values exceeding 3. This indicates heavier tails than a normal distribution and a higher likelihood of extreme values. Variables such as GDPGR, TS, ASI, MCAPE, RINT, and EXR fall into this category, underscoring the need for robust estimation techniques that can accommodate fat-tailed distributions and mitigate the influence of outliers.

Overall, the descriptive statistics indicate significant non-normality, skewness, and kurtosis, particularly among financial variables. These characteristics necessitate careful consideration in model specification, including the use of robust standard errors, non-linear models, or volatility-adjusted frameworks such as GARCH. Additionally, diagnostic tests following model estimation will be essential the inferences.

Table 2: Augmented Dickey-Fuller (ADF) Unit Root Test Results

| Variable | ADF Statistic | p-value | Critical Value 1% | Critical Value 5% | Critical Value 10% |
|----------|---------------|---------|-------------------|-------------------|--------------------|
| GDPGR | -3.646811 | 0.0409 | -4.262735 | -3.552973 | -3.209642 |
| D(GDPGR) | -9.282261 | 0.0 | -4.273277 | -3.557759 | -3.212361 |
| GDSR | -1.459226 | 0.8233 | -4.262735 | -3.552973 | -3.209642 |
| D(GDSR) | -3.86754 | 0.0255 | -4.273277 | -3.557759 | -3.212361 |
| LTS | -2.038792 | 0.5587 | -4.273277 | -3.557759 | -3.212361 |
| D(LTS) | -3.465322 | 0.0606 | -4.273277 | -3.557759 | -3.212361 |
| NLE | -3.067829 | 0.1304 | -4.262735 | -3.552973 | -3.209642 |
| D(NLE) | -4.680384 | 0.0037 | -4.273277 | -3.557759 | -3.212361 |

Source: E-Views 09, 2025.

The ADF unit root findings indicate that the GDP growth rate (GDPGR) is stationary at the 5% significance level, while all other variables, Gross Domestic Savings Ratio (GDSR) and Log of Total Savings (LTS), are non-stationary but become stationary after first differencing. This mix of I(0) and I(1) variables justifies the application of ARDL Bound Test to Cointegration.

This section presents a comprehensive analysis of the long-run and short-run dynamics of GDP growth rate (GDPGR) in relation to several key macroeconomic indicators. The study utilises an Autoregressive Distributed Lag (ARDL) model, which is well-suited for time-series analysis involving variables with different orders of integration, and is based on a dataset spanning from 1990 to 2023. The explanatory variables under consideration include the gross domestic savings rate (GDSR), the log of total savings (LTS), the log of the All-Share Index (LASI), the log of equity market capitalisation (LMCAPE), the real interest rate (RINT), and the log of the exchange rate (LEXR). The primary objective is to identify and quantify the significant drivers of long-term economic growth and to assess the short-run adjustment process toward this equilibrium.

Table 3: ARDL Regression Output

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|------------|-------------|------------|-------------|--------|
| GDPGR(-1) | -0.220 | 0.217 | -1.016 | 0.327 |
| GDSR | -0.961 | 0.972 | -0.988 | 0.340 |
| GDSR(-1) | 2.913 | 1.091 | 2.670 | 0.018 |
| LTS | 1.981 | 12.838 | 0.154 | 0.880 |
| LTS(-1) | -34.702 | 13.161 | -2.637 | 0.019 |
| LTS(-2) | 8.215 | 5.092 | 1.613 | 0.129 |
| LASI | 12.562 | 8.451 | 1.486 | 0.159 |
| LASI(-1) | -20.204 | 9.317 | -2.169 | 0.048 |
| LMCAPE | -7.565 | 8.098 | -0.934 | 0.366 |
| LMCAPE(-1) | 24.139 | 9.368 | 2.577 | 0.022 |
| LMCAPE(-2) | 4.193 | 3.069 | 1.366 | 0.193 |
| LNLE | 11.500 | 9.268 | 1.241 | 0.235 |
| RINT | 0.130 | 0.088 | 1.480 | 0.161 |
| RINT(-1) | 0.191 | 0.077 | 2.480 | 0.026 |
| LEXR | 1.136 | 2.634 | 0.431 | 0.673 |
| LEXR(-1) | 4.007 | 3.128 | 1.281 | 0.221 |
| LEXR(-2) | 5.161 | 2.561 | 2.015 | 0.064 |
| C | -20.541 | 56.459 | -0.364 | 0.721 |

Model Fit: $R^2 = 0.804$; Adjusted $R^2 = 0.567$; F-statistic = 3.39 ($p = 0.0129$); Durbin–Watson = 2.24

The selected ARDL model, specified as ARDL (1, 1, 2, 1, 2, 0, 1, 2), demonstrates a robust fit to the data. The model's high R-squared value of 0.804 indicates that it accounts for approximately 80% of the variance in the GDP growth rate. The adjusted R-squared of 0.567 further confirms the model's explanatory power. The F-statistics of 3.39, with an associated p-value of 0.0129, demonstrate that the overall model is statistically

significant. Additionally, a Durbin-Watson statistic of 2.24 suggests no significant autocorrelation in the residuals.

Prior to analysing the coefficients, a bounds test for cointegration was conducted to confirm the presence of a stable long-run relationship among the variables. The F-statistics from the test is 4.27. Since this value exceeds the 5% upper bound critical value of 3.50, the null hypothesis of no long-run relationship is rejected. This result provides strong evidence that the variables are cointegrated and will converge to a long-run equilibrium over time.

The bounds test was conducted to verify the existence of a long-run equilibrium relationship among the variables. The computed F-statistic of 4.27 exceeds the 5% upper bound critical value of 3.50, leading to the rejection of the null hypothesis of no cointegration. This result confirms that GDP growth and its determinants converge to a stable long-run path despite short-run fluctuations, validating the theoretical expectation of interdependence between savings, capital market development, and economic growth.

Table 4: ARDL Bounds Test for Cointegration

| Test Statistic | Value | k (Regressors) |
|----------------|------------|----------------|
| F-statistic | 4.2700 | 7 |
| Significance | I(0) Bound | I(1) Bound |
| 10% | 2.03 | 3.13 |
| 5% | 2.32 | 3.50 |
| 1% | 2.96 | 4.26 |

Decision: Since the F-statistic (4.27) exceeds the 5% upper bound, the null hypothesis of no long-run relationship is rejected.

The short-run dynamics are captured by the error correction model. A key finding is the highly significant and negative error correction term (CointEq(-1)) with a coefficient of -1.22 and a p-value of 0.0001. This coefficient is a crucial indicator of the speed at which the system corrects itself from short-run deviations back to its long-run equilibrium. The value suggests a rapid and efficient adjustment process, with about 122% of the disequilibrium being corrected per year. In the short term, the lagged exchange rate, D(LEXR (-1)), also exhibits a marginally significant negative effect on GDPGR (p = 0.0635).

The long-run coefficients provide insight into the equilibrium elasticities of GDPGR with respect to the explanatory variables.

Table 5: Cointegrating Form (Short-Run Dynamics)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|-------------|-------------|------------|-------------|-------|
| D(GDSR) | -0.961 | 0.972 | -0.988 | 0.340 |
| D(LTS) | 1.981 | 12.838 | 0.154 | 0.880 |
| D(LTS (-1)) | -8.215 | 5.092 | -1.613 | 0.129 |
| D(LASI) | 12.562 | 8.451 | 1.486 | 0.159 |
| D(LMCAPE) | -7.565 | 8.098 | -0.934 | 0.366 |

| | | | | |
|----------------|--------|-------|--------|--------|
| D(LMCAPE (-1)) | -4.193 | 3.069 | -1.366 | 0.193 |
| D(LNLE) | 11.500 | 9.268 | 1.241 | 0.235 |
| D(RINT) | 0.130 | 0.088 | 1.480 | 0.161 |
| D(LEXR) | 1.136 | 2.634 | 0.431 | 0.673 |
| D(LEXR(-1)) | -5.161 | 2.561 | -2.015 | 0.064 |
| CointEq(-1) | -1.220 | 0.217 | -5.634 | 0.0001 |

The error-correction term is negative and statistically significant, confirming the existence of a stable long-run adjustment process.

Table 6: Long-Run Coefficients

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| GDSR | 1.600 | 0.553 | 2.892 | 0.012 |
| LTS | -20.087 | 6.351 | -3.163 | 0.007 |
| LASI | -6.264 | 4.871 | -1.286 | 0.219 |
| LMCAPE | 17.022 | 7.157 | 2.378 | 0.032 |
| LNLE | 9.426 | 7.007 | 1.345 | 0.200 |
| RINT | 0.263 | 0.084 | 3.132 | 0.007 |
| LEXR | 8.446 | 2.376 | 3.555 | 0.003 |
| C | -16.837 | 45.786 | -0.368 | 0.719 |

The results confirm that several key macroeconomic factors are significant drivers of long-term economic growth. The gross domestic savings rate (GDSR) has a positive and significant long-run impact, with a coefficient of 1.60. This indicates that a 1% increase in the gross domestic savings rate is associated with a 1.60% rise in the GDP growth rate in the long run. Conversely, the log of total savings (LTS) exhibits a large, counterintuitive negative coefficient of -20.09. This could suggest that while a higher savings rate is beneficial, the absolute volume of savings may be channelled into unproductive investments or face significant misallocation, thereby hindering economic growth.

The depth of the capital market, proxied by the log of equity market capitalisation (LMCAPE), is a powerful positive driver of growth. Its coefficient of 17.02 suggests that a one per cent increase in market capitalisation leads to a remarkable 17.02% boost in GDPGR. Furthermore, the real interest rate (RINT) has a positive long-run effect, with a coefficient of 0.26. This indicates that a 1 percentage point rise in real interest rates increases GDPGR by 0.26%, suggesting a positive investment response. Lastly, the exchange rate (LEXR) has a strong positive long-run coefficient of 8.45. Since the exchange rate is in logarithmic form, a depreciation of the currency (an increase in the exchange rate) significantly enhances GDP growth, possibly by improving the competitiveness of the nation's exports.

The results of this study are largely consistent with a significant body of empirical literature. The ARDL Bounds test, which indicates a stable long-run relationship among the variables, is a common finding in studies using cointegration and error correction models. The highly significant and negative coefficient of the error

correction term (CointEq(-1)) further validates this long-run equilibrium adjustment, a result that mirrors findings from studies on financial intermediation and economic growth. The positive and significant long-run effect of the log of equity market capitalisation (LMCAPE) on GDP growth is also well-supported by prior research. Similarly, the positive long-run relationship between the gross domestic savings rate (GDSR) and economic growth is consistent with several studies, including Joseph and Ibrahim (2014) and Fombang and Wanzala (2024), which confirm a positive and significant long-run link.

However, certain findings from this study are at variance with established research, highlighting the complexities of these relationships. The most significant divergence is the large negative long-run effect of the total savings (LTS) on GDP growth. This result, in which a 1% increase in total savings volume leads to a substantial decrease in long-run GDP growth, runs counter to the majority of the literature, which typically finds a positive relationship between savings and economic growth. This counterintuitive finding may suggest inefficiencies or misallocation within the financial system, where increased savings are not being effectively channelled into productive investments. Furthermore, the study's finding that the short-run effects of most variables are not statistically significant contrasts with some research, such as Okoye et al. (2016), which found negative short-run effects of market capitalisation and turnover ratios on aggregate GDP. These variations underscore the context-specific nature of the relationships and the potential influence of methodological differences and variable selection on the observed outcomes.

The ARDL model effectively captures a stable and significant long-run relationship between GDP growth and its determinants. The analysis reveals that the economy possesses a strong error correction mechanism, ensuring rapid adjustment back to equilibrium following any short-term shocks. The long-run drivers of economic growth are robustly identified as the savings rate, capital market development, the real interest rate, and the exchange rate. These findings provide clear policy implications. To foster sustained long-term economic growth, policymakers should focus on strategies that promote a higher domestic savings rate and deepen capital markets. Additionally, prudent exchange-rate management to maintain export competitiveness, along with policies that encourage a positive investment response to real interest rates, are essential. The negative long-run effect of total savings warrants further investigation to understand the specific channels through which savings might be misallocated, and to inform policies that redirect capital toward more productive uses.

CONCLUSION AND POLICY RECOMMENDATIONS

The empirical findings affirm the theoretical proposition that savings and capital market development are critical engines of growth. However, the negative effect of total savings highlights structural bottlenecks in financial intermediation, suggesting that increased savings volumes do not automatically translate into productive investment. This anomaly may reflect weak institutional frameworks, limited financial literacy, and dominance of informal savings channels. The strong positive impact of market capitalisation reinforces the need for policies that deepen capital markets, enhance liquidity, and broaden investor participation. Similarly, the significance of real interest rates and exchange rates underscores the need for prudent monetary and exchange-rate management to sustain macroeconomic stability and competitiveness.

The empirical evidence supports a causal narrative in which mobilising domestic savings relative to GDP and deepening the equity market's size are growth-enhancing in the long run, while aggregate savings scale, absent effective intermediation, may coincide with lower growth. The absence of short-run causality from the financial variables to growth in the ECM suggests that the transmission from financial deepening to real activity operates predominantly through gradual, structural channels rather than immediate demand effects. For policy and institutional design, the results emphasise the centrality of policies that raise the savings rate and convert those savings efficiently into productive capital via deep, well-functioning primary and secondary equity markets, while guarding against configurations in which savings accumulate without being channelled into investment.

In summary, the ARDL model confirms a stable long-run relationship between GDP growth and its determinants, with rapid adjustment to equilibrium. Policy measures should prioritise strengthening financial intermediation, promoting innovative savings instruments, and implementing reforms that enhance capital

market efficiency. Addressing structural inefficiencies in savings allocation and fostering an enabling environment for investment will be pivotal in leveraging financial systems for sustainable economic growth.

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APPENDIX:

Summary of Causality Inference from ARDL–ECM

| Channel | Short-Run Evidence (ECM Δ -terms) | Long-Run Evidence (ECT and Levels) | Causality Conclusion |
|------------------------------|---|---|---|
| Savings mobilization (GDSR) | No statistically significant short-run effect at 5% | Positive and significant long-run coefficient; ECT negative and significant | Long-run causality from GDSR to GDPGR (positive); no strong short-run causality |
| Savings scale (LTS) | No statistically significant short-run effect at 5% | Negative and significant long-run coefficient; ECT negative and significant | Long-run causality from LTS to GDPGR (negative); no strong short-run causality |
| Capital market size (LMCAPE) | No statistically significant short-run effect at 5% | Positive and significant long-run coefficient; ECT negative and significant | Long-run causality from LMCAPE to GDPGR (positive); no strong short-run causality |
| Market performance (LASI) | No statistically significant short-run effect at 5% | Long-run coefficient not significant | No causal effect detected in this specification |
| Market breadth (LNLE) | No statistically significant short-run effect at 5% | Long-run coefficient not significant | No causal effect detected in this specification |