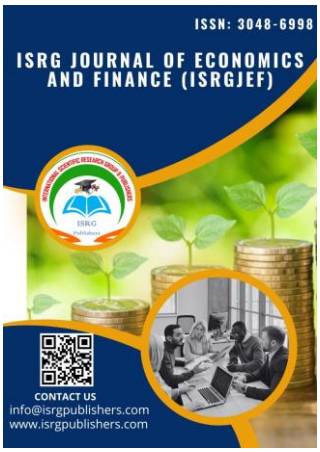
ISRG JOURNAL OF ECONOMICS AND FINANCE (ISRGJEF)



ISRG PUBLISHERS
Abbreviated Key Title: ISRG J Econ Fin.
ISSN: 3048-6998 (Online)
Journal homepage: https://isrgpublishers.com/isrgjef-2/
Volume – III Issue - VI (November-December) 2026
Frequency: Bimonthly



Beyond Financial Deepening: Identifying Growth-Maximising Thresholds of Financial Deepening Ratios in Nigeria

RIKWENTISHE, Rimamnyang Nyikan[1], AMADI, Kingsley Wobilor[2] & DANJUMA Irinyang Joro[3]

[1, 2, 3] Department of Economics, Federal University Wukari.

| **Received:** 18.11.2026 | **Accepted:** 22.11.2026 | **Published:** 23.11.2026

***Corresponding author:** RIKWENTISHE, Rimamnyang Nyikan

Abstract

This study examines the growth-maximising thresholds of financial deepening ratios in Nigeria, focusing on monetary depth (M2/GDP), stock market capitalisation (MCAP), private sector credit (PSC/GDP), and gross savings (GS/GDP). Annual time-series data covering 1981–2025 obtained from secondary sources, mainly the periodic publications of the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS), published journals and news dailies. were employed. The study adopts the Bai–Perron threshold regression technique to investigate the nonlinear and regime-dependent relationships between financial deepening and economic growth. The findings reveal an M2/GDP threshold of 11.27%, below which money supply has a negative and significant effect on economic growth, while its effect becomes insignificant beyond the threshold. Similarly, stock market capitalisation has a threshold of 6.60%, below which its effect is negative and significant but becomes insignificant thereafter. Private sector credit has a threshold of 8.11% of GDP, below which it positively and significantly influences economic growth, but its effect becomes insignificant beyond this level. Gross savings exhibit two thresholds at 33.16% and 47.99% of GDP, with positive and significant growth effects below the first threshold, negative but insignificant effects within the intermediate regime, and negative and significant effects at or above the second threshold. The study concludes that the relationship between financial deepening and economic growth in Nigeria is nonlinear and depends on the level of financial development. It therefore recommends strengthening financial intermediation, improving credit allocation, enhancing capital market efficiency, and channelling savings towards productive investments to promote sustainable economic growth.

Keywords: Financial Deepening, Economic Growth & Threshold Regression.

This is an open access article under the CC BY-NC license..

DOI: 10.5281/zenodo.24461379

1. INTRODUCTION

The financial sector plays a fundamental role in promoting economic growth through the mobilisation of savings, allocation of financial resources, facilitation of investment and provision of credit to productive economic activities. A well-developed financial system enhances the efficiency of resource allocation, reduces transaction costs, improves risk management and facilitates capital accumulation, thereby supporting productivity and output expansion. The conventional finance-led growth argument, associated with the works of Schumpeter (1911), McKinnon (1973) and Shaw (1973), maintains that financial development stimulates economic growth by improving the availability and efficiency of financial services. In this regard, financial deepening, commonly measured through indicators such as broad money supply, private-sector credit, domestic savings and stock market capitalisation relative to gross domestic product (GDP), is widely regarded as an important driver of economic development. However, the extent to which increases in these indicators translate into sustained economic growth remains an important empirical and policy question.

Recent developments in financial economics have increasingly challenged the assumption that greater financial deepening necessarily produces higher economic growth. Although financial expansion can stimulate investment and productivity at relatively low levels of financial development, excessive or inefficient financial expansion may generate resource misallocation, speculative activities, financial instability and unproductive credit allocation. Arcand, Berkes and Panizza (2015), for instance, advanced the too much finance argument, suggesting that the positive relationship between private-sector credit and economic growth may weaken or become negative beyond a particular threshold. This perspective implies that the relationship between financial deepening and economic growth may be nonlinear, with the growth effect depending on the prevailing level of financial development. Consequently, identifying the threshold at which each financial deepening indicator maximises its contribution to economic growth is essential for formulating appropriate financial-sector policies.

The relevance of this issue is particularly evident in Nigeria, where financial-sector expansion has not consistently translated into corresponding improvements in productive investment and economic performance. Despite reforms aimed at strengthening financial institutions, expanding access to finance and deepening the capital market, significant constraints remain in the country's financial intermediation process. The World Bank (2025), in its Nigeria Development Update, reported that banking-sector credit to the public and private sectors stood at 26.6% of GDP in 2024, one of the lowest levels among comparator countries. The report also observed that Nigeria's stock market capitalisation remained modest relative to those of several peer economies. These developments suggest that the challenge confronting Nigeria may not simply be the expansion of financial resources but also the extent to which available resources are efficiently mobilised and channelled towards productive economic activities.

Empirical studies on the relationship between financial deepening and economic growth in Nigeria have produced mixed findings. For instance, Ayeni et al. (2024) found that broad money supply had a negative effect on economic growth, whereas private-sector credit exerted a positive influence in their ARDL analysis covering 1986–2022. Similarly, Orji et al. (2025), in their comparative study of Nigeria and South Africa, reported that the effects of stock market development and financial deepening indicators on economic growth varied across countries and estimation periods. These differing outcomes suggest that the growth implications of financial deepening may depend on the particular indicator employed, the level of financial development and the prevailing economic environment.

More importantly, some studies have explicitly examined the nonlinear and threshold dimensions of the finance–growth relationship. Adeniyi, Oyinlola, Omisakin and Egwaikhide (2015) found evidence of threshold effects in the relationship between financial development and economic growth in Nigeria, with the relationship changing after accounting for threshold-type effects. Similarly, Alenoghena, Saibu and Adeoye (2020), using nonlinear ARDL and threshold regression techniques, estimated switching points of 17.73% of GDP for broad money and 6.03% of GDP for private-sector credit in Nigeria. These findings demonstrate the importance of identifying critical levels of financial development beyond which its contribution to economic growth may change. Nevertheless, the estimated thresholds are specific to the indicators, sample periods and methodologies employed in those studies and should not automatically be treated as permanent policy benchmarks. Furthermore, Luintel, Li and Khan (2024) questioned the robustness and general applicability of the widely cited threshold argument, highlighting the need for careful empirical investigation rather than assuming that excessive financial development necessarily reduces growth.

Despite these contributions, further investigation remains necessary to establish the growth-maximising levels of different financial deepening ratios in Nigeria. In particular, examining broad money supply, private-sector credit, domestic savings and stock market capitalisation within a common analytical framework can provide a broader understanding of the threshold behaviour of monetary, banking and capital-market indicators. This is important because each indicator captures a different dimension of financial deepening and may therefore have a distinct growth-maximising level. For instance, the level of broad money supply that supports monetary liquidity and productive transactions may differ from the optimal level of private-sector credit required to stimulate investment. Similarly, the threshold for domestic savings may depend on the efficiency of financial institutions in converting savings into productive investment, while the growth effect of stock market capitalisation may depend on the market's capacity to mobilise long-term funds for real-sector development.

Against this background, this study examines the optimal thresholds of various financial deepening ratios consistent with economic growth in Nigeria. Specifically, it seeks to identify the growth-maximising levels of broad money supply, private-sector credit, domestic savings and stock market capitalisation relative to GDP. By moving beyond the conventional examination of whether financial deepening has positive or negative effects on economic growth, the study focuses on determining the levels at which the different financial deepening indicators contribute most favourably to economic performance. The study is expected to provide evidence-based policy guidance for monetary authorities, financial regulators and capital-market institutions on the appropriate levels of financial deepening required to strengthen financial intermediation, promote productive investment and achieve sustainable economic growth in Nigeria.

This is an open access article under the CC BY-NC license..
DOI: 10.5281/zenodo.24461379

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Conceptual Review

2.1.1Financial Deepening

Financial deepening refers to the expansion and increasing sophistication of financial institutions and markets relative to the size of an economy. It reflects the extent to which the financial system mobilises savings, provides credit, facilitates financial transactions and channels resources towards productive investment. Financial deepening is therefore not limited to an increase in the volume of money circulating in an economy; it also encompasses the capacity of financial institutions and markets to improve access to finance, allocate resources efficiently and support economic activities.

The World Bank (2016) conceptualises financial development through four major dimensions: financial depth, access, efficiency and stability. These dimensions apply to both financial institutions, such as commercial banks and insurance companies, and financial markets, including stock and bond markets. Financial depth measures the size of financial institutions and markets relative to economic output, while access reflects the availability of financial services, efficiency captures the effectiveness of financial intermediation, and stability concerns the resilience of the financial system.

Similarly, Svirydzenka (2016) explains that financial development is multidimensional and cannot be adequately represented by a single indicator. The author therefore developed a broad-based financial development index incorporating the depth, access and efficiency of financial institutions and markets. This perspective is particularly relevant to the present study because it recognises that increases in individual financial ratios may not necessarily indicate improvements in the overall effectiveness of the financial system.

Financial deepening is measured using several financial indicators that capture different aspects of financial institutions and markets. The World Bank (2016) identifies broad money-to-GDP, private-sector credit-to-GDP and stock market capitalisation-to-GDP among the commonly employed indicators of financial depth. Svirydzenka (2016) also emphasises that individual ratios capture specific dimensions of financial development and should therefore be interpreted within their respective institutional and economic contexts. In line with the objective of identifying growth-maximising thresholds, this study focuses on four major financial deepening ratios: broad money supply, private-sector credit, domestic savings and stock market capitalisation, each measured relative to GDP.

2.1.2Economic Growth

Economic growth refers to a sustained increase in the production of goods and services within an economy over a given period. Roser (2021) describes it as an increase in the quantity of economic goods and services produced in one period compared with a previous period, commonly measured using gross domestic product (GDP) or gross national product (GNP). For meaningful assessment, however, economic growth is measured in real terms to account for changes in the general price level and isolate actual improvements in productive output.

Similarly, Kuznets (2019) conceptualises economic growth as a long-term increase in an economy's capacity to supply a wider variety of goods and services to its population. He emphasises that this process depends not only on technological advancement but also on the institutional and ideological adjustments required to facilitate the effective adoption and utilisation of new technologies. This perspective highlights the importance of technological progress, institutional efficiency and productive capacity in sustaining economic growth. In addition, Anokhin et al. (2016) underscore the significance of economic growth in strengthening national competitiveness, improving economic stability and creating conditions for addressing socioeconomic challenges.

Economic growth may also be examined from the perspective of per capita income, which reflects the average economic output or income attributable to each person in a country (Jelilove et al., 2015). Although growth in per capita income provides an indication of improvements in average economic welfare, it differs from aggregate economic growth because changes in population size can influence the relationship between total output and income per person. Thus, GDP growth and GDP per capita growth measure related but distinct dimensions of economic performance.

For the purpose of this study, economic growth is conceptualised as the sustained increase in the inflation-adjusted value of goods and services produced within an economy over a given period. It is measured by the annual percentage growth rate of real gross domestic product (real GDP). This measure is appropriate because it captures changes in actual economic output while excluding the effects of inflation. Accordingly, the study examines economic growth in Nigeria in relation to financial deepening, with particular attention to whether the depth of monetary, credit, savings and capital market activities contributes to improved productive performance.

2.1.3Growth-Maximising Threshold of Financial Deepening

The concept of a growth-maximising threshold refers to the level of a financial development indicator at which its contribution to economic growth reaches its optimum. It recognises that the relationship between financial deepening and economic growth may be nonlinear rather than consistently positive. At relatively low levels of financial development, increases in financial resources can stimulate economic growth by improving access to finance, mobilising savings and facilitating productive investment. However, as financial deepening increases beyond an optimal level, its marginal contribution to growth may decline or become negative.

This perspective is closely associated with the *too much finance hypothesis*, which challenges the conventional assumption that continuous financial expansion necessarily promotes economic growth. Arcand, Berkes and Panizza (2015) argued that financial development may become detrimental to economic growth beyond a certain level of private-sector credit. Their argument suggests that excessive financial expansion can divert skilled labour and financial resources from productive sectors, encourage speculative investment and increase the vulnerability of the financial system.

More recently, Arcand, Berkes and Panizza (2026), in their reassessment of the too-much-finance hypothesis, found a robust inverted-U relationship between private-sector credit and economic growth. Their results indicate that financial depth enhances growth at low and moderate levels but exhibits diminishing returns and

This is an open access article under the CC BY-NC license..
DOI: 10.5281/zenodo.24461379

may become detrimental at higher levels. They estimated that the growth-maximising private-credit threshold generally falls between 70% and 120% of GDP, although the precise threshold varies across sample periods and specifications.

The implication is that financial deepening should not be pursued simply by increasing the volume of money, credit, savings or stock market capitalisation. Rather, policymakers should identify the levels at which these financial indicators contribute most effectively to economic growth. Importantly, the optimal threshold may differ across financial indicators because broad money supply, private-sector credit, domestic savings and stock market capitalisation perform different functions within the financial system.

2.2 Theoretical Framework

2.2.1McKinnon–Shaw Financial Liberalisation Theory (1973)

The McKinnon–Shaw Financial Liberalisation Theory, independently developed by McKinnon (1973) in *Money and Capital in Economic Development* and Shaw (1973) in *Financial Deepening in Economic Development*, provides the primary theoretical foundation for this study. The theory explains the relationship between financial deepening and economic growth by emphasising the role of financial institutions and markets in mobilising savings, facilitating investment and promoting efficient allocation of financial resources. McKinnon and Shaw argue that financial repression, characterised by government-imposed interest rate ceilings, restrictive credit policies and excessive controls over financial institutions, constrains economic growth by discouraging savings and limiting the availability of funds for productive investment. According to the theory, financial liberalisation promotes higher real interest rates, encourages savings mobilisation and strengthens financial intermediation. Consequently, financial institutions become better positioned to channel available funds towards productive sectors of the economy, thereby stimulating capital accumulation, investment and economic growth.

The theory further suggests that financial deepening enhances economic performance through the expansion of financial assets and credit facilities relative to the size of the economy. In this regard, the broad money supply-to-GDP ratio (M2/GDP) reflects the depth of monetary resources available within the financial system, while private-sector credit-to-GDP (CPS/GDP) captures the extent to which financial intermediaries provide credit for private investment and productive activities. Similarly, savings-to-GDP (SVG/GDP) indicates the economy's capacity to mobilise domestic resources for investment, while stock market capitalisation-to-GDP (MCAP/GDP) reflects the development of capital markets and their potential to facilitate long-term financing.

Although the McKinnon–Shaw theory provides a strong explanation for the growth-enhancing role of financial deepening, its central propositions do not sufficiently establish whether continuous expansion of the financial sector produces corresponding improvements in economic growth. In particular, excessive financial expansion may encourage inefficient credit allocation, speculative activities and financial instability, thereby weakening the contribution of finance to productive activities. This limitation provides justification for considering the possibility that financial deepening may have a growth-maximising level rather than an indefinitely positive effect.

2.2.2The Too Much Finance Hypothesis

To address the possibility of diminishing or negative returns from financial expansion, the study is further supported by the Too Much Finance Hypothesis advanced by Arcand, Berkes and Panizza (2015). The hypothesis challenges the conventional assumption that increasing financial depth invariably promotes economic growth. It argues that although financial development can stimulate growth at relatively low and moderate levels, its marginal contribution may decline and eventually become negative when financial deepening exceeds an economy's absorptive and productive capacity.

Arcand et al. (2015) provide empirical evidence of a nonlinear relationship between financial depth and economic growth, suggesting that the positive effect of private-sector credit may become negative when credit reaches excessively high levels relative to GDP. Their findings highlight the possibility that excessive financial expansion can divert resources towards less productive activities, increase financial-sector risks and weaken the efficiency of investment. Subsequent IMF analysis by Sahay et al. (2015) also emphasises that the growth benefits of financial development are not unlimited and that the quality of financial intermediation, institutional environment and regulatory framework influence the relationship between finance and growth.

The relevance of this hypothesis to the present study lies in its explanation of why the relationship between financial deepening and economic growth may exhibit an inverted-U pattern. At relatively low levels of financial deepening, increases in monetary resources, private-sector credit, domestic savings and stock market development may improve financial intermediation and investment. However, beyond certain levels, additional financial expansion may generate diminishing returns or exert negative effects on economic growth due to inefficient resource allocation, excessive borrowing and speculative investment.

Importantly, the hypothesis does not imply that all financial deepening indicators share an identical threshold. The growth-maximising level of broad money, private-sector credit, domestic savings and stock market capitalisation may differ according to their respective functions and the institutional and macroeconomic conditions of the economy. Consequently, each financial deepening ratio should be examined independently to establish its corresponding growth-maximising level.

Although the McKinnon–Shaw Financial Liberalisation Theory provides the fundamental explanation for the relationship between financial deepening and economic growth, the Too Much Finance Hypothesis provides the more direct theoretical justification for the study's central objective**.** Therefore, this study adopts the McKinnon–Shaw theory as its primary theoretical foundation, complemented by the Too Much Finance Hypothesis to explain the possibility of nonlinear effects and growth-maximising thresholds.

The combined theoretical perspective suggests that financial deepening promotes economic growth when financial resources are adequately mobilised and efficiently allocated to productive activities. However, excessive expansion of financial depth may reduce its growth-enhancing contribution. This provides the theoretical basis for estimating separate growth-maximising thresholds for M2/GDP, CPS/GDP, SVG/GDP and MCAP/GDP in Nigeria. The framework is particularly appropriate because the study moves beyond examining whether financial deepening promotes or constrains economic growth to identifying the levels

This is an open access article under the CC BY-NC license..
DOI: 10.5281/zenodo.24461379

of individual financial deepening indicators at which their contributions to economic growth are maximised. It therefore provides a sound theoretical justification for employing a nonlinear or threshold-based empirical specification.

2.3 Empirical Review

Empirical evidence generally suggests that the relationship between financial deepening and economic growth is nonlinear, with the growth effects varying across financial indicators and levels of financial development. In Nigeria, Ayadi (2021) found that broad money-to-GDP had a negative and significant effect on economic growth, while other financial development indicators produced more favourable effects. The study further reported evidence of a threshold-type relationship in the savings–growth nexus. Similarly, Alenoghena et al. (2020), using NARDL and threshold regression techniques, established a long-run nonlinear relationship between financial development and economic growth in Nigeria. Their findings identified threshold levels of 17.73% of GDP for broad money and 6.03% for private-sector credit, indicating that the growth effects of financial development depend on the prevailing levels of these indicators.

Evidence from other economies reinforces the importance of financial development thresholds. Gnoleba (2024) identified a U-shaped relationship between stock market development and economic growth in Côte d'Ivoire, with a stock market capitalisation threshold of 7.91% of GDP. Jose (2017), using dynamic panel threshold analysis across 116 economies, found that economic growth differed significantly across financial development regimes, while institutional investors positively influenced growth in industrialised economies. Similarly, Botev et al. (2019) established that the growth effect of bank credit depends on stock market development, suggesting that the contribution of one financial indicator may be conditioned by the depth of other components of the financial system.

Furthermore, Tala et al. (2024) found a positive and significant relationship between domestic savings and economic growth in the Southern African Customs Union (SACU), identifying a domestic savings-to-GDP threshold of 16% consistent with a 6% GDP growth target. Eshun and Tweneboah (2024) also demonstrated that the contribution of stock market development to economic growth in ECOWAS depends on institutional quality, with weak institutional conditions constraining the growth-enhancing role of financial markets.

Overall, these studies establish that the growth effects of financial deepening are neither uniform nor necessarily linear, as they vary across financial indicators, institutional conditions and levels of financial development. However, existing evidence remains limited in its simultaneous consideration of monetary depth, private-sector credit, domestic savings and stock market capitalisation in determining their respective growth-maximising thresholds within Nigeria. This study therefore extends the existing literature by estimating separate optimal thresholds for these four financial deepening ratios, thereby providing indicator-specific evidence on the levels of financial deepening consistent with economic growth in Nigeria.

3. METHODOLOGY

The study adopted ex post facto research design to determine the optimal threshold for the various financial deepening ratios consistent with economic growth in Nigeria. The data were obtained from secondary sources, mainly the periodic publications of the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS), published journals and news dailies over a 45-year period from 1981 to 2025. The study employed Phillips–Perron (P-P) for unit root test. The study employed threshold regression to determine optimal threshold for the various financial deepening ratios consistent with economic growth in Nigeria.

Threshold regression models are a diverse set of non-regular regression models that all depend on change points or thresholds. They provide a simple but elegant and interpretable way to model certain kinds of nonlinear relationships between the outcome and a predictor. Threshold extends linear regression to allow coefficients to differ across regions. Those regions are identified by a threshold variable being above or below a threshold value. The model may have multiple thresholds, and can either specify a known number of thresholds or let threshold find that number for you through the Bayesian information criterion (BIC), Akaike information criterion (AIC), or Hannan–Quinn information criterion (HQIC) (Raymond, Olufemi & Babatunde, 2020). In its basic form, a threshold regression model is of the form;

$$y_t = \alpha + \beta_0 x_t + \beta_1 x_t h(q_t;\theta) + \in_t \ldots\ldots\ldots\

H_0: $y=y_0$

H_1 :$y \neq y_0$

To effectively test the hypothesis, equation (3.10) will be estimated;

$$LR_1(y) = \frac{SSS1(y) - SSE1(\gamma)}{\delta 2} \quad \ldots\ldots\ldots\

Table 2: Estimated Threshold for the Various Financial Deepening Indicators

Threshold Regimes	Observations	Coefficient	P-Value	Interpretation
M2 < 11.27	9	-0.7465	0.0044	Negative and significant
M2 ≥ 11.27	36	-0.2239	0.1139	Negative but insignificant
MCAP < 6.60	7	−1.3310	0.0010	Negative and significant
MCAP ≥ 6.60	38	0.0087	0.9327	Positive but insignificant
CPS/GDP < 8.11%	21	2.078955	0.0019	Positive and significant
CPS/GDP ≥ 8.11%	24	0.088187	0.6748	Positive but insignificant
SVG < 33.16%	20	0.3344	0.0001	Positive and significant
33.16% ≤ SVG < 47.99%	11	-0.0703	0.3708	Negative and insignificant
SVG ≥ 47.99%	14	-0.3163	0.0000	Negative and significant

Source: Author's Computation using E-Views 9.0 Version (2026)

The threshold regression reveals a non-linear relationship between money supply and economic growth in Nigeria. The Bai–Perron threshold procedure identifies an M2/GDP threshold of 11.27%. Below this threshold, money supply has a negative and statistically significant effect on economic growth, with a coefficient of −0.7465 (p = 0.0044). However, when M2/GDP reaches or exceeds 11.27%, its coefficient declines in magnitude to −0.2239 and becomes statistically insignificant (p = 0.1139). The finding suggests that the adverse relationship between money supply and economic growth is more pronounced when financial deepening is relatively low, while the relationship becomes statistically weaker beyond the threshold. Thus, 11.27% may be regarded as the estimated critical level of M2/GDP associated with a change in the M2–economic growth relationship in Nigeria.

In addition, the threshold regression result indicates that stock market capitalisation has a regime-dependent relationship with economic growth in Nigeria. The Bai–Perron threshold procedure identifies a critical MCAP level of 6.60%. Below this threshold, MCAP has a negative and statistically significant effect on economic growth, with a coefficient of −1.3310 and probability value of 0.0010. This implies that a one-percentage-point increase in MCAP is associated with an estimated 1.331-percentage-point decline in GDP growth when stock market capitalisation is below 6.60%. However, when MCAP reaches or exceeds 6.60%, the coefficient changes to 0.0087 and becomes statistically insignificant (p = 0.9327). This suggests that the negative relationship between stock market capitalisation and economic growth observed at low levels of market capitalisation disappears once MCAP reaches the estimated threshold. Therefore, 6.60% represents an important empirical threshold at which the nature of the MCAP–economic growth relationship changes in Nigeria.

Furthermore, the threshold regression establishes a nonlinear relationship between financial deepening, measured by private sector credit to GDP, and economic growth in Nigeria. The estimated threshold is 8.11% of GDP. Below this threshold, private-sector credit exerts a positive and statistically significant effect on economic growth, with a coefficient of 2.079 (p = 0.0019). However, once private-sector credit reaches or exceeds 8.11% of GDP, its marginal effect declines sharply to 0.088 and becomes statistically insignificant (p = 0.6748).

More so, the threshold regression provides evidence of a nonlinear relationship between gross savings and economic growth in Nigeria. Two threshold values of 33.16% and 47.99% were identified, separating the relationship into three distinct regimes. Below 33.16%, gross savings exerted a positive and statistically significant effect on economic growth; between 33.16% and 47.99%, the effect became negative but statistically insignificant; while at or above 47.99%, gross savings exerted a negative and statistically significant effect on economic growth. The findings therefore suggest that the growth-enhancing effect of financial deepening through savings mobilisation is conditional on the level of savings relative to GDP. In particular, increasing savings beyond a certain level without corresponding productive investment opportunities may not enhance economic growth.

4.3 Diagnostic Test Estimates

The study employed post-estimation test to diagnose the residuals of the estimated ARDL model for valid and reliable outcomes. The test of serial correlation, Heteroskedasticity, Stability and normality test, CUSUM, Single and double threshold effect were conducted and the results presented in table 3

Table 4.8: Diagnostic Test Results

Diagnostic test	Null hypothesis	F-statistic / Statistic	Prob. Value
Breusch–Godfrey Serial Correlation LM Test	No serial correlation	0.461911	0.6378
Breusch–Pagan–Godfrey Heteroskedasticity Test	No heteroskedasticity	0.939894	0.5574

This is an open access article under the CC BY-NC license..
DOI: 10.5281/zenodo.24461379

Ramsey RESET Test	No model misspecification	0.197888	0.6617
Jarque–Bera Normality Test	Residuals are normally distributed	2.502288	0.2862
CUSUM Stability Test	Model parameters are stable	Within 5% critical bounds	Stable
CUSUM of Squares Test	Model parameters are stable	Within 5% critical bounds	Stable
Single threshold effect test	No threshold effect	18.624	0.012
Double threshold effect test	No additional threshold	5.318	0.284

Source: Author's Computation using E-Views 9.0 Version (2026)

The diagnostic results indicate that the estimated threshold regression model satisfies the major residual diagnostic requirements. The Breusch–Godfrey serial correlation LM test produces an F-statistic of 0.461911 with a probability value of 0.6378, suggesting that the null hypothesis of no serial correlation cannot be rejected. Similarly, the Breusch–Pagan–Godfrey test yields an F-statistic of 0.939894 and a probability value of 0.5574, indicating the absence of significant heteroskedasticity.

Furthermore, the Ramsey RESET test reports an F-statistic of 0.197888 and a probability value of 0.6617, suggesting no evidence of functional-form misspecification. The Jarque–Bera statistic of 2.502288, with a probability value of 0.2862, also indicates that the residuals are approximately normally distributed. Subject to confirmation of the actual CUSUM and CUSUM of Squares plots, the model may also be considered stable over the estimation period.

The results further suggest that the single-threshold effect is statistically significant at the 5% level, while the double-threshold effect is insignificant. This supports the adoption of a single-threshold specification rather than a double-threshold model.

4.4 Discussion of Findings

The threshold regression results provide evidence of nonlinear and regime-dependent relationships between financial deepening and economic growth in Nigeria. The findings show that the effect of financial deepening varies according to the level of each financial deepening indicator.

For M2/GDP, the Bai–Perron procedure identifies a threshold of **11.27%**. Below this level, M2/GDP has a negative and statistically significant effect on economic growth ($\beta = -0.7465$; $p = 0.0044$). However, at or above 11.27%, the negative coefficient falls substantially in magnitude and becomes statistically insignificant ($\beta = -0.2239$; $p = 0.1139$). This suggests that the adverse effect of monetary deepening is strongest at relatively low levels of M2/GDP and weakens beyond the threshold. Thus, 11.27% represents an important regime-switching point in the M2–growth relationship. In contrast to this finding, Alenoghena, Saibu and Adeoye (2020) whose threshold regression analysis in their study on nonlinear relationship between financial development and economic growth in Nigeria, covering the period from 1980 to 2018, reveals that the switching point for broad money is 17.73%.

For stock market capitalisation (MCAP/GDP), the estimated threshold is 6.60%**.** Below this level, MCAP has a negative and significant effect on economic growth ($\beta = -1.3310$; $p = 0.0010$). However, when MCAP reaches 6.60% or higher, its effect becomes statistically insignificant ($\beta = 0.0087$; $p = 0.9327$). This indicates that the adverse growth effect associated with low levels of stock-market development disappears once market capitalisation reaches the estimated threshold. Hence, 6.60% can be regarded as the critical MCAP level associated with a change in its relationship with economic growth**.** This evidence is supported by the study of Gnoleba (2024) for the Ivorian economy who established that, the stock exchange's size trigger threshold is 7.91% of GDP of the economy.

For private-sector credit-to-GDP (CPS/GDP)**,** the threshold is 8.11%**.** Below this level, private-sector credit has a positive and statistically significant effect on economic growth ($\beta = 2.079$; $p = 0.0019$). Above the threshold, however, the coefficient falls sharply to **0.088** and becomes statistically insignificant ($p = 0.6748$). This suggests that private-sector credit contributes most strongly to economic growth when it is below 8.11%, while additional credit beyond this level produces no statistically discernible growth effect. The result points to possible declining marginal growth benefits of credit expansion beyond the threshold. The finding agrees with the empirical evidence reported by Alenoghena, Saibu and Adeoye (2020) whose discrete threshold regression analysis reveals that the switching point for credit to the private sector is 6.03% of GDP for the Nigerian economy.

Finally, gross savings-to-GDP (SVG/GDP) exhibits a more complex nonlinear relationship, with thresholds at 33.16% and 47.99%**,** producing three regimes. Below 33.16%, savings have a positive and significant effect on economic growth. Between 33.16% and 47.99%, the effect becomes negative but insignificant**,** while at or above 47.99%, savings have a negative and significant effect. This indicates that savings contribute positively to growth at relatively moderate levels, but excessive savings without corresponding productive investment opportunities may weaken the growth effect. The result lends support to the conclusion reached by Ayadi (2021) whose quadratic analysis indicated that the savings-growth relationship for the Nigerian economy was non-uniform, providing evidence of a threshold-type relationship. Unlike the present study, Tala, Anyikwa and Roux (2024) identified a 16% domestic-savings-to-GDP threshold consistent with a 6% GDP growth target in the Southern African Customs Union (SACU).

Overall, the threshold results demonstrate that financial deepening does not have a uniform effect on economic growth in Nigeria. Rather, its growth impact depends critically on the level and form of financial deepening. The estimated critical levels; 11.27% for M2/GDP, 6.60% for MCAP/GDP, 8.11% for CPS/GDP, and 33.16% and 47.99% for SVG/GDP provide useful evidence that financial deepening policies should be regime-specific rather than based solely on continuous expansion of financial indicators**.**

5. Conclusion and Recommendations

The study concludes that the relationship between financial deepening and economic growth in Nigeria is nonlinear and regime-dependent. The estimated thresholds are 11.27% for M2/GDP, 6.60% for MCAP/GDP, 8.11% for CPS/GDP, and

This is an open access article under the CC BY-NC license..
DOI: 10.5281/zenodo.24461379

33.16% and 47.99% for SVG/GDP. While private-sector credit positively influences growth below its threshold, monetary deepening and stock market capitalisation exert negative effects below their respective thresholds. Domestic savings also exhibit a three-regime relationship, with positive growth effects at lower levels but negative effects at higher levels. Overall, financial deepening does not automatically promote economic growth; its effectiveness depends on the level, composition and productive allocation of financial resources. Based on the findings, the study recommends that:

1. The Central Bank of Nigeria should promote productive monetary expansion and efficient allocation of financial resources, guided by the estimated M2/GDP threshold.
2. Capital market regulators should strengthen market liquidity, investor confidence and access to long-term finance to enhance the growth contribution of stock market development.
3. Deposit money banks should prioritise productive private-sector lending, effective credit monitoring and investment efficiency rather than indiscriminate credit expansion.
4. Government should improve the mobilisation and productive utilisation of domestic savings by directing funds towards infrastructure, agriculture, manufacturing and small businesses.
5. Policymakers should adopt indicator-specific, threshold-informed financial deepening policies and periodically reassess the estimated thresholds to reflect changing economic conditions

References

1. Alenoghena, R. O. ., Saibu, O. M. ., & Adeoye, B. W. . (2020). Financial development and economic growth in Nigeria: asymmetric cointegration and threshold analysis. *Forum Scientiae Oeconomia*, *8*(4), 43–63.
2. Gnoleba. M.Z. (2024). Analysis of the threshold level effect between the stock exchange and economic growth: an application to the Ivorian economy. *Revue Française d'Economie et de Gestion, 5(5),454 –.472.*
3. Jose, L.R. (2017). Financial development, institutional investors, and economic growth. Available at: https://www.sciencedirect.com /science/article/abs/ pii/S105905601 7302332 ?utm_source=chatgpt.com
4. Tala, L., Anyikwa, I.C. & Roux, P. (2024). Savings and growth nexus in the context of Southern African Customs Union countries. Available at: https://journals. co.za/doi/epdf/ 10.4102 /jef. v17i1.884
5. Raymond, O. A., Olufemi, M. S. & Babatunde, W. A. (2020). Financial development and economic growth in Nigeria: Asymmetric Cointegration and Threshold Analysis. *Forum Scientiae Oeconomia, 8(4), 44-53.*
6. Fong, Y., Huang, Y., Gilbert, P. B., & Permar, S. R. (2017). chngpt: Threshold regression model estimation and inference. *BMC Bioinformatics, 18*, Article 454. *Available at: https://doi.org/10.1186/s12859-017-1863-x*
7. Hansen, B. E. (2000). Sample splitting and threshold estimation. *Econometrica, 68*(3), 575–603.
8. Botev, J., Égert, B., & Jawadi, F. (2019). The nonlinear relationship between economic growth and financial development: Evidence from developing, emerging and advanced economies. *International Economics, 160*, 3–13.
9. Adeniyi, O., Oyinlola, A., Omisakin, O., & Egwaikhide, F. O. (2015). Financial development and economic growth in Nigeria: Evidence from threshold modelling. *Economic Analysis and Policy*, *47*, 11–21.
10. Alenoghena, R. O., Saibu, O. M., & Adeoye, B. W. (2020). Financial development and economic growth in Nigeria: Asymmetric cointegration and threshold analysis. *Forum Scientiae Oeconomia*, *8*(4), 43–63.
11. Arcand, J.-L., Berkes, E., & Panizza, U. (2015). Too much finance? *Journal of Economic Growth*, *20*(2), 105–148.
12. Ayeni, A. F., Alexander, A. A., Alfa, Y., Saheed, Z. S., & Ikubor, J. (2024). Impact of financial development on economic growth in Nigeria. *ABUAD Journal of Social and Management Sciences*, *5*(2), 422–440.
13. Luintel, K. B., Li, G., & Khan, M. (2024). The threshold effect of finance on growth: Reassessing the burden of evidence. *Open Economies Review*, *35*, 887–953.
14. McKinnon, R. I. (1973). *Money and capital in economic development*. Brookings Institution.
15. Orji, A., Onah, C. J., Anthony-Orji, O. I., Ogbuabor, J. E., & Nevo, C. H. (2025). Analysis of stock market development, financial deepening and economic growth nexus in Nigeria and South Africa. *Journal of Financial Economic Policy*, *17*(6), 793–817.
16. Schumpeter, J. A. (1911). *The theory of economic development*. Harvard University Press.
17. Shaw, E. S. (1973). *Financial deepening in economic development*. Oxford University Press.
18. World Bank. (2025). *Nigeria development update: Building momentum for inclusive growth*. World Bank Group.
19. World Bank. (2016). *Global financial development report 2015/2016: Long-term finance*. World Bank.
20. Svirydzenka, K. (2016). *Introducing a new broad-based index of financial development* (IMF Working Paper No. 16/5). International Monetary Fund. *Available at: https: //doi.org/10.5089/9781513583709.001*
21. Roser, M. (2021). *What is economic growth? And why is it so important?* Our World in Data. Available at: https://ourworldindata.org/economic-growth
22. Kuznets, S. (2019.) Prize Lecture. NobelPrize.org. Nobel Media AB. Available at https:// www. nobelprize.org/prizes/economic-sciences/1971/kuznets/lecture/
23. Anokhina, M., Zinchuk, G. M. & Petrovskaya, S. A. (2016). The development of the concept of economic growth of the agro-industrial complex. *Journal of Internet Banking and Commerce. 21(3),159- 172.*
24. *Jelilove, G. & Muhammad, Y., M., (2015). Economic growth and energy consumption in Nigeria. The Empirical Economics Letters, 1(1),1187-1196.*
25. Ayadi, F. S. (2021.). Financial development, savings and economic growth in Nigeria." *Savings and Development* 43(1), 18–30.

This is an open access article under the CC BY-NC license..
DOI: 10.5281/zenodo.24461379