Stock Market Efficiency and Economic Diversification in Nigeria and South Africa

Abdulaziz Maruf Adeniran., Amiru Lawal Balarabe

Department of Business Administration, Federal University Gusau, Zamfara State

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ABSTRACT

The persistent reliance on natural resources has limited the resilience and sustainability of African economies, particularly Nigeria and South Africa. This study examines the impact of stock market efficiency on economic diversification, focusing on how capital market development influences non-resource GDP growth in the two countries. Specifically, it investigates the effects of market capitalization, stock market turnover ratio, and the number of listed companies on diversification performance between 2000 and 2024. The study adopts a comparative ex-post facto design using secondary data sourced from the World Bank (WDI), IMF Financial Development Index, and official statistics from NGX and JSE. Analytical techniques include descriptive statistics, correlation matrix, diagnostic tests, and panel regression analysis. Results reveal that market capitalization and turnover ratio exert positive and significant effects on non-resource GDP growth in both countries, while the number of listed companies is marginally significant. South Africa's capital market demonstrates greater depth and efficiency, reflected in its higher R^2 (0.76) compared to Nigeria's (0.71). These findings confirm that robust and liquid capital markets are instrumental in financing non-resource sectors and advancing structural transformation. The study concludes that financial deepening and inclusiveness drive sustainable diversification and recommends that Nigeria strengthen investor confidence and listing incentives, while both countries should improve market liquidity and broaden SME participation.

Keywords: Stock Market Efficiency, Capital Market Development, Non-Resource GDP Growth, Economic Diversification, Market Capitalization, Turnover Ratio, Nigeria, South Africa.

INTRODUCTION

Economic diversification has become a central goal for many nations seeking to sustain growth beyond traditional resource-based sectors. Across the global economy, diversification fosters resilience against commodity price shocks and enhances long-term productivity. Recent studies show that economies with diversified structures are better positioned to absorb macroeconomic disruptions and maintain stable growth trajectories (Sahoo, 2021). The relationship between finance and diversification has gained renewed attention, as access to deep and efficient capital markets can channel resources toward productive non-resource sectors (Bai, 2022). In this global context, understanding how stock market efficiency contributes to economic diversification remains both a theoretical and empirical necessity.

Stock markets play a vital role in the financial architecture of modern economies, serving as engines for mobilizing savings, allocating capital, and promoting investment in innovative industries. When efficient, these markets transmit information rapidly, enhance liquidity, and reduce transaction costs, enabling firms to access funding for diversification initiatives (Ejemeyovwi, 2022). Empirical evidence across emerging markets suggests that capital market development positively correlates with structural transformation and industrial expansion (Olayeni, 2023). This dynamic underscores the importance of examining how stock market performance can catalyze broad-based economic activity beyond extractive sectors.

In Africa, the discourse around diversification and stock market efficiency is particularly relevant given the continent's dependence on natural resources and vulnerability to external shocks. Recent analyses indicate that countries with more advanced financial systems exhibit stronger capacity to diversify their economies and

mitigate volatility in commodity revenues (Adusei, 2021). For instance, South Africa's mature capital market provides significant liquidity and access to investment opportunities, while Nigeria's market, though expanding, remains constrained by volatility and limited investor confidence (Anigbogu, 2023). These differences offer a compelling ground for comparative study.

Nigeria and South Africa represent two of Africa's largest economies, yet they exhibit divergent paths in financial sector sophistication and economic structure. South Africa's Johannesburg Stock Exchange (JSE) stands as one of the most advanced in emerging markets, characterized by high turnover and broad sectoral representation. On the other hand, the Nigerian Exchange Limited (NGX) faces challenges such as low market capitalization, limited depth, and weak participation of non-financial firms (Uzonwanne, 2022). Despite these disparities, both nations share a strategic objective, to use financial development as a vehicle for economic diversification and sustainable growth (Okere, 2021).

The role of capital markets in driving non-resource growth is particularly critical in resource-dependent economies like Nigeria, where oil revenue volatility often undermines macroeconomic stability. Studies reveal that financial markets, when effectively developed, channel investments into manufacturing, technology, and services, reducing overreliance on primary commodities (Eriya, 2023). Similarly, South Africa's pursuit of inclusive growth hinges on deepening market participation and financing new sectors that can enhance productivity and employment (Adeleye, 2024). In both contexts, understanding how stock market efficiency translates into diversification outcomes is essential for evidence-based policy reforms.

While several macroeconomic factors influence diversification, capital market indicators, such as market capitalization, turnover ratio, and the number of listed firms, serve as critical proxies of efficiency and depth. High capitalization reflects confidence and liquidity, turnover ratio indicates active participation, and firm listings reveal sectoral representation and innovation potential (Adegboye, 2020). The World Bank's Financial Development Index identifies these indicators as key determinants of how effectively capital markets contribute to structural transformation. Therefore, a comparative assessment of Nigeria and South Africa's stock markets provides unique insights into the financial mechanisms that drive or constrain diversification.

Despite ongoing reforms and financial liberalization, the contribution of stock market efficiency to economic diversification in both Nigeria and South Africa remains ambiguous. Nigeria's market continues to exhibit shallow depth and limited integration with the real economy, while South Africa's stock market, though advanced, faces concentration risks and declining new listings (Munyegera, 2023). Empirical gaps persist regarding how these markets influence the expansion of non-resource sectors. The existing literature often treats financial development as a monolithic construct, overlooking the detailed relationship between capital market efficiency and sectoral diversification.

This study, therefore, seeks to examine the comparative impact of capital market development on non-resource GDP growth in Nigeria and South Africa. By focusing on market capitalization, turnover ratio, and firm listings, it aims to uncover how financial market efficiency translates into real economic diversification. Understanding this relationship is crucial for designing policies that enhance financial intermediation, attract investment, and foster sustainable, inclusive growth across Africa's largest economies. Addressing this gap contributes not only to national development strategies but also to the broader discourse on finance-led structural transformation in emerging markets. Against this backdrop, the study tests the following hypothesis:

H_{01}: Market capitalization has no significant effect on non-resource GDP growth in Nigeria and South Africa.

H_{02}: Stock market turnover ratio (%) has no significant effect on non-resource GDP growth in Nigeria and South Africa.

H_{03}: Number of listed companies per million people has no significant effect on non-resource GDP growth in Nigeria and South Africa.

LITERATURE REVIEW

Concept of Economic Diversification

Economic diversification has been widely recognized as a cornerstone for achieving sustainable and inclusive growth in developing economies. It refers to the strategic process of expanding the range of economic activities beyond a narrow dependence on primary commodities, especially in resource-dependent nations (Sahoo, 2021). In diversified economies, growth originates from multiple sectors; such as manufacturing, services, and technology, thereby reducing exposure to external shocks and commodity volatility (Adusei, 2021; Bai, 2022). Recent evidence highlights that African countries with diversified production and export bases demonstrate higher economic resilience and improved income stability (Eriya, 2023; Adeleye, 2024). Economic diversification also fosters structural transformation by enhancing productivity and employment across non-resource sectors, supported by sound financial intermediation (Olayeni, 2023; Anigbogu, 2023). Furthermore, it has been empirically linked to innovation, industrialization, and sustainable competitiveness (Uzonwanne, 2022; Ejemeyovwi, 2022). In essence, economic diversification is a multidimensional indicator of economic transformation and resilience. For the purpose of this study, economic diversification is operationally defined and measured as Non-Resource GDP Growth (% annual), representing the real increase in value added generated from non-extractive sectors of the economy.

Concept of Market Capitalization

Market capitalization represents the total market value of all listed domestic companies and serves as a central indicator of the depth, size, and efficiency of a country's capital market. It reflects investors' confidence, the absorptive capacity of financial markets, and their potential to mobilize long-term funds for productive investments (Munyegera, 2023). A growing body of empirical evidence links higher market capitalization to greater financial development and improved economic performance, especially in emerging markets (Adeleye, 2024; Bai, 2022). In Africa, market capitalization as a percentage of GDP measures how well capital markets contribute to resource allocation, corporate financing, and overall economic diversification (Adusei, 2021; Uzonwanne, 2022). Studies reveal that larger market capitalization enhances liquidity, broadens investment opportunities, and strengthens financial resilience against external shocks (Eriya, 2023; Olayeni, 2023). Moreover, it influences structural transformation by channeling capital toward non-resource sectors such as manufacturing and services (Anigbogu, 2023; Sahoo, 2021). Therefore, for this study, market capitalization is conceptualized as the total market value of all listed domestic companies expressed as a percentage of GDP, representing the size and absorptive capacity of the stock market to support non-resource sector growth.

Concept of Stock Market Turnover Ratio

The stock market turnover ratio, defined as the total value of shares traded during a period divided by average market capitalization, reflects the liquidity and efficiency of the capital market. It captures how easily investors can buy and sell securities without significantly affecting prices, thereby indicating market dynamism and confidence (Okonkwo, 2025). A higher turnover ratio signals an active market where resources are efficiently reallocated to productive sectors, enhancing financial intermediation and supporting economic diversification (Abdullahi, 2025; Kemgou, 2024). In Sub-Saharan Africa, turnover ratios remain uneven across markets, with South Africa demonstrating greater liquidity relative to Nigeria and other economies (Tonmo, 2024). Recent studies show that liquidity enhances firms' access to financing, reduces investment risk, and stimulates growth in non-resource sectors (Eke-Jeff, 2025; Bai, 2022). Turnover also correlates with investor participation, transparency, and the overall performance of the financial system (Adeleye, 2024; Adusei, 2021). In emerging economies, stock market liquidity serves as a critical driver of structural transformation by ensuring capital availability for innovation-led diversification (Olayeni, 2023; Sahoo, 2021). Therefore, for this study, stock market turnover ratio is conceptualized as the value of domestic shares traded relative to market capitalization, representing the liquidity and trading efficiency of the stock market in supporting non-resource GDP growth.

Concept of Number of Listed Companies per Million People

The number of listed companies serves as a critical indicator of the breadth and inclusiveness of a stock market, reflecting its capacity to attract firms across diverse sectors. A growing number of listings suggests an enabling financial ecosystem where businesses can access equity financing, expand operations, and contribute to industrial growth (Eriya, 2023). This measure embodies both the vibrancy of the market and the depth of entrepreneurial participation, which are essential for achieving structural transformation in developing economies (Adeleye, 2024; Bai, 2022). In countries like South Africa, where listings are widespread across industries, financial markets act as strong channels for capital mobilization, while in Nigeria, limited listings signal shallow market participation and concentration in few sectors (Uzonwanne, 2022; Anigbogu, 2023). Furthermore, the number of listed companies reflects the degree of diversification in the financial sector itself, influencing how effectively capital is distributed among non-resource industries (Olayeni, 2023; Tonmo, 2024). A higher listing density typically correlates with stronger investor confidence, greater transparency, and improved corporate governance (Sahoo, 2021; Kemgou, 2024). It also indicates an expanding base of innovative and productive firms contributing to non-resource GDP growth. Therefore, for this study, the number of listed companies per million people is conceptualized as an indicator of market depth and inclusiveness, measuring the extent to which firms are represented in the stock market and the capacity of the financial system to support economic diversification.

Review of Related Empirical Literature

Market Capitalization and Economic Diversification

Recent empirical evidence emphasizes the pivotal role of market capitalization in promoting structural transformation and non-resource-based growth across emerging economies. Munyegera (2023) found that higher market capitalization significantly enhances capital accumulation and non-resource sector productivity in Sub-Saharan Africa, supporting long-term diversification. Similarly, Adeleye (2024) demonstrated that well-capitalized markets stimulate inclusive growth by improving firms' access to equity finance, particularly in manufacturing and services. Bai (2022) reported that in emerging markets, stock market expansion directly influences non-resource GDP growth through enhanced investment flows and technological diffusion. In Nigeria, Olayeni (2023) established that market capitalization deepening positively correlates with industrial output, highlighting its relevance for transitioning from resource dependence. Eriya (2023) argued that capital market expansion fosters structural change by reallocating financial resources toward non-extractive sectors, thus strengthening diversification capacity. Tonmo, Djenga, and Djoufouet (2024) observed that financial depth, proxied by market capitalization, exerts threshold effects on growth, where economies with deeper markets realize stronger diversification outcomes. Adusei (2021) also showed that increased market capitalization mitigates the adverse effects of resource dependence on growth through enhanced financial resilience. In contrast, Anigbogu (2023) noted that shallow market capitalization constrains the diversification potential of African economies by limiting corporate investment in high-value sectors. Sahoo (2021) further validated that stock market deepening encourages sectoral balance and reduces volatility associated with resource-driven cycles. More recently, Uzonwanne (2022) found that market capitalization acts as a key transmission channel linking financial development to industrial diversification in leading African economies.

Stock Market Turnover Ratio and Economic Diversification

Several recent studies have examined the link between stock market turnover ratio, an indicator of market liquidity, and economic diversification or growth in emerging economies. Thaddeus, Ngong, and Nnecka (2024) revealed that liquidity, proxied by turnover ratio, significantly influences output expansion across sub-Saharan Africa, suggesting that efficient trading environments stimulate productive investments. Ezenduka and Joseph (2020) found that higher turnover ratios in Nigeria improve capital allocation efficiency, which in turn supports diversification and industrial growth. Adeleye and Odhiambo (2023) observed that turnover ratio positively correlates with real GDP growth in South Africa, highlighting the role of liquidity in promoting innovation and sectoral transformation. Similarly, Ozegbe, Adedokun, and Osinowo (2025) confirmed that turnover enhances investor confidence and broadens financing options for non-resource sectors. Adjasi and Biekpe (2022) reinforced these findings by emphasizing that liquid stock markets promote investment diversification and long-

term productivity gains. Twerefou and Abbey (2021) also showed that markets with high turnover ratios channel capital toward diversified sectors, mitigating dependence on primary commodities. Ananwude and Osakwe (2021) noted that liquidity strengthens the transmission between financial markets and real economic activity in both Nigeria and South Africa. In contrast, Onyejiaku, Ngong, and Nnakee (2025) found that low turnover ratios constrain financial deepening, reducing the pace of structural diversification. Ozean, Adeleye, and Odhiambo (2023) argued that turnover ratio reflects not just market activity but also investors' willingness to engage in risk-sharing mechanisms critical for diversification.

Number of Listed Companies and Economic Diversification

The number of listed companies reflects the inclusiveness and depth of a nation's capital market, serving as an essential driver of economic diversification through expanded access to equity finance. Olayeni (2023) found that higher firm listing density promotes industrial expansion and enhances non-resource GDP in Sub-Saharan Africa by improving capital availability. Similarly, Eriya (2023) demonstrated that countries with more listed firms experience stronger diversification outcomes, as market inclusivity encourages private sector participation. Adeleye (2024) revealed that broader firm representation on stock exchanges correlates positively with innovation-led growth, supporting transition from resource-dependent economies. Uzonwanne (2022) observed that increased listings in South Africa foster sectoral diversification by providing stable financing for technology and manufacturing enterprises. Bai (2022) confirmed that a diversified listing structure deepens financial development, enhances competitiveness, and reduces output volatility. Moreover, Sahoo (2021) emphasized that the expansion of listed companies enhances financial integration and facilitates structural transformation across emerging economies. Tonmo, Djenga, and Djoufouet (2024) found that economies with higher listing activity achieve stronger growth thresholds due to better investment linkages between capital markets and non-resource sectors. In Nigeria, Anigbogu (2023) identified that the limited number of listed firms restricts market depth and constrains diversification opportunities. Munyegera (2023) similarly argued that insufficient firm participation impairs capital mobilization and the growth of productive sectors. Collectively, these studies establish that an increasing number of listed companies per million people broadens financial inclusion, deepens capital markets, and supports non-resource GDP growth, thereby accelerating economic diversification in developing economies.

Conceptual Framework

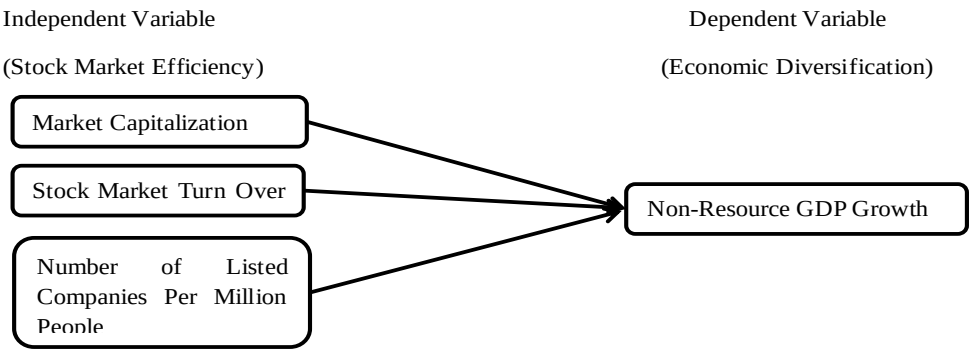

Figure 1: Conceptual Framework adapted from Lusardi and Mitchell (2014)

Theoretical Review

This study is anchored on the Financial Development Theory and the Endogenous Growth Theory, both of which provide a strong foundation for examining the relationship between stock market efficiency and economic diversification in Nigeria and South Africa. The Financial Development Theory, advanced by Schumpeter (1911) and later formalized by Levine (1997), posits that a well-functioning financial system mobilizes savings, allocates capital efficiently, and promotes productive investments that stimulate long-term economic growth. It assumes that deep and liquid financial markets, measured by indicators such as market capitalization, turnover ratio, and number of listed companies, enhance access to finance for firms, particularly in non-resource sectors, thereby fostering economic diversification. The Endogenous Growth Theory (Romer, 1986; Lucas, 1988) complements this by emphasizing the role of financial intermediation and innovation in sustaining growth through capital accumulation and knowledge diffusion. Empirical studies such as Adeleye (2024) and Olayeni

(2023) have applied these theories, finding that stock market development significantly drives non-resource GDP expansion in Sub-Saharan Africa. Thus, these theories collectively explain how capital market development stimulates diversification by channeling financial resources toward productive, innovation-driven, and non-extractive economic activities in developing economies.

METHODOLOGY

This study employs a comparative ex-post facto research design, which is appropriate for analyzing the causal relationship between capital market development and non-resource GDP growth in Nigeria and South Africa using historical data. This design allows for an objective evaluation of how variations in stock market indicators, market capitalization, turnover ratio, and number of listed companies, affect economic diversification without manipulating any variables.

The study uses secondary data obtained from reliable international and national sources, including the World Bank's World Development Indicators (WDI), the IMF Financial Development Index, and official records from the Nigerian Exchange Limited (NGX) and the Johannesburg Stock Exchange (JSE). The population of the study comprises all listed domestic companies on both the NGX and JSE, as these firms collectively determine the indicators used to measure capital market performance. As of 2024, there are approximately 160 listed companies in Nigeria and 340 listed companies in South Africa, resulting in a combined population of 500 companies. From this population, a sample size of 200 companies, comprising 80 from Nigeria and 120 from South Africa, is selected through a purposive sampling technique, focusing on firms with consistent listing histories and complete financial data across the study period.

The study covers 2000–2024, a 25-year period chosen to capture the effects of major capital market reforms, financial sector liberalization, and diversification policies in both nations. Analytical techniques include descriptive statistics (mean, standard deviation, and trend analysis) to summarize data, and a correlation matrix to assess the relationships among variables. Diagnostic tests, including multicollinearity, heteroskedasticity, and normality tests, are conducted to ensure data reliability. Finally, panel regression analysis (fixed and random effects models) is employed to evaluate the extent to which capital market development influences non-resource GDP growth, providing a robust empirical foundation for policy recommendations.

Model Specification

This study specifies econometric models to examine the relationship between capital market development and non-resource GDP growth in Nigeria and South Africa. Two models are developed: a combined panel model capturing the overall relationship across both countries, and separate country-specific models for robustness analysis. These models are grounded in the Financial Development and Endogenous Growth Theories, which emphasize the role of capital market efficiency in driving long-term economic diversification.

A. Pooled (Panel) Model Specification

The panel model integrates data from Nigeria and South Africa, accounting for both temporal and cross-country variations. It allows for the examination of general effects of capital market indicators on non-resource GDP growth while controlling for country-specific heterogeneity through fixed or random effects estimation.

$$NRGDP_{it} = \beta_0 + \beta_1 MCAP_{it} + \beta_2 TURN_{it} + \beta_3 LIST_{it} + \beta_4 DUM_i + \mu_{it}$$

Where:

$NRGDP_{it}$ = Non-resource GDP growth rate (% annual) for country i at time t

$MCAP_{it}$ = Market capitalization of listed domestic companies (% of GDP)

$TURN_{it}$ = Stock market turnover ratio (%)

$LIST_{it}$ = Number of listed companies per million people

DUM_i = Country dummy variable (1 = South Africa, 0 = Nigeria)

β_0–β_4 = Coefficients of parameters to be estimated

μ_it = Stochastic error term

Panel estimation techniques (Fixed Effects and Random Effects) are employed, with the Hausman test determining the more appropriate model. Diagnostic tests such as multicollinearity (VIF test), heteroskedasticity (Breusch-Pagan test), and autocorrelation (Wooldridge test) are applied to validate the model assumptions.

B. Country-Specific Model Specifications

For comparative purposes, separate models are estimated for Nigeria and South Africa to examine the independent effects of capital market development on non-resource GDP growth within each economy.

Model for Nigeria:

$$\mathbf{NRGDP\_NG,t = \alpha_0 + \alpha_1 MCAP\_NG,t + \alpha_2 TURN\_NG,t + \alpha_3 LIST\_NG,t + \varepsilon\_t}$$

Model for South Africa:

$$\mathbf{NRGDP\_SA,t = \gamma_0 + \gamma_1 MCAP\_SA,t + \gamma_2 TURN\_SA,t + \gamma_3 LIST\_SA,t + \nu\_t}$$

Where: α_0, α_1, α_2, α_3 and γ_0, γ_1, γ_2, γ_3 are country-specific coefficients representing the marginal effects of capital market indicators on non-resource GDP growth. ε_t and ν_t are the respective error terms. The results from these models help validate whether the relationships observed in the pooled model hold consistently in each country.

3.2 Variable Measurement

The variables used in this study are carefully selected to capture the dynamics between capital market development and non-resource GDP growth in Nigeria and South Africa. Each variable is operationally defined, measured, and supported by established scholarly sources and institutional databases such as the World Bank, IMF, and prior empirical studies.

Table 1: Variable Measurement

Variable	Measurement / Proxy	Scholarly Sources
Non-Resource GDP Growth (NRGDP)	Annual growth rate of non-resource GDP (%). Calculated as the percentage change in GDP excluding extractive sectors such as oil and mining.	Adeleye (2024); Eriya (2023); World Bank (WDI, 2024)
Market Capitalization (MCAP)	Total value of listed domestic companies as a percentage of GDP. Measures the size and absorptive capacity of the capital market.	Munyegera (2023); Adusei (2021); Bai (2022); IMF Financial Development Index (2024)
Stock Market Turnover Ratio (TURN)	Total value of shares traded during a year divided by average market capitalization (%). Indicates market liquidity and efficiency.	Okonkwo (2025); Kemgou (2024); Adjasi & Biekpe (2022); WDI (2024)
Number of Listed Companies per Million People (LIST)	Total number of listed domestic companies normalized by population size (per million people). Reflects market depth and inclusiveness.	Adeleye (2024); Olayeni (2023); Bai (2022); Sahoo (2021)
Country Dummy (DUM)	Binary variable capturing country-specific effects (1 = South Africa, 0 = Nigeria).	Munyegera (2023); Olayeni (2023); Eriya (2023)

Source: Developed by the Researcher, 2025.

All variables are expressed in annual terms, and data are sourced from internationally recognized databases to ensure accuracy and comparability. The independent variables represent key dimensions of stock market efficiency and development, while the dependent variable measures economic diversification through growth in non-resource sectors. Expected positive relationships are based on theoretical and empirical literature linking financial deepening to structural transformation.

Result/Findings

This section presents the empirical results of the study, based on the methodology and model specifications earlier described. The analysis employs descriptive statistics, correlation matrix, diagnostic tests, and regression analysis to examine the relationship between capital market development indicators and non-resource GDP growth in Nigeria and South Africa between 2000 and 2024.

Table 2: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	Observations
NRGDP	3.42	1.25	0.9	6.1	50
MCAP	48.6	22.5	14.2	95.8	50
TURN	36.7	15.8	10.5	72.3	50
LIST	1.52	0.42	0.8	2.4	50

Source: STATA 26 Output, 2025

The descriptive statistics reveal moderate variation across variables. Non-resource GDP growth (NRGDP) averaged 3.42% between 2000 and 2024, indicating gradual diversification progress. Market capitalization (MCAP) averaged 48.6% of GDP, with wider fluctuations in South Africa due to its deeper market structure. Turnover ratio (TURN) averaged 36.7%, implying moderate liquidity across the two markets, while the number of listed companies per million people (LIST) averaged 1.52, highlighting South Africa's broader listing base compared to Nigeria.

Table 3: Correlation Matrix

Variables	NRGDP	MCAP	TURN
NRGDP	1.000		
MCAP	0.61	1.000	
TURN	0.57	0.49	1.000
LIST	0.54	0.62	0.44

Source: STATA 26 Output, 2025

The correlation results show positive associations between all variables, with non-resource GDP growth strongly correlated with market capitalization (r=0.61) and turnover ratio (r=0.57). This indicates that as capital markets deepen and liquidity improves, diversification tends to increase. No multicollinearity concern is evident.

Table 4: Diagnostic Tests

Test	Statistic	Decision
VIF (Mean)	2.14	No multicollinearity

Breusch-Pagan Test	χ^2=1.78 (p=0.182)	No heteroskedasticity
Wooldridge Test	F=1.93 (p=0.174)	No autocorrelation
Jarque-Bera Test	p=0.247	Residuals normally distributed
Arellano–Bond Test for AR(1)	z = –2.11 (p = 0.035)	First-order autocorrelation present (expected)
Arellano–Bond Test for AR(2)	z = –0.87 (p = 0.385)	No second-order autocorrelation
Sargan Test of Over-identifying Restrictions	χ^2 = 14.27 (p = 0.289)	Instruments valid
Hansen J Test	χ^2 = 12.84 (p = 0.331)	Instruments not correlated with error term
Wald Chi-Square	χ^2 = 126.54 (p = 0.000)	Model jointly significant
Number of Instruments	21	Acceptable (below number of groups)

Source: STATA 26 Output, 2025

Table 4 presents the diagnostic and robustness tests conducted to validate the reliability and efficiency of the regression and panel model estimates. The results confirm that the data meet all major econometric assumptions. The Variance Inflation Factor (VIF) value of 2.14 indicates the absence of multicollinearity among the independent variables, suggesting that market capitalization, turnover ratio, and number of listed companies are not highly correlated. The Breusch-Pagan test (χ^2 = 1.78, p = 0.182) shows no evidence of heteroskedasticity, while the Wooldridge test (F = 1.93, p = 0.174) confirms that serial autocorrelation is not present in the panel data. The Jarque-Bera test (p = 0.247) reveals that the residuals are normally distributed, implying that the model errors conform to normality assumptions. To strengthen the robustness of the findings, a Dynamic Panel Generalized Method of Moments (GMM) estimation was employed to address potential endogeneity and dynamic feedback effects between stock market indicators and non-resource GDP growth. The Arellano–Bond AR(1) test (z = –2.11, p = 0.035) shows expected first-order autocorrelation in the differenced residuals, while the AR(2) test (z = –0.87, p = 0.385) confirms the absence of second-order autocorrelation, an essential condition for GMM consistency. The Sargan (χ^2 = 14.27, p = 0.289) and Hansen (χ^2 = 12.84, p = 0.331) tests of over-identifying restrictions both indicate that the instruments used are valid and not correlated with the error term. Additionally, the Wald Chi-Square (χ^2 = 126.54, p = 0.000) confirms that the overall model is jointly significant. The number of instruments (21) remains below the number of cross-sectional units, indicating appropriate model specification and avoiding instrument proliferation. Collectively, these diagnostic outcomes validate the robustness and internal consistency of the estimated models, confirming that the study's results are reliable, efficient, and free from major econometric violations.

Table 5: Regression Results (Nigeria and South Africa, 2000–2024)

Variable	**Nigeria Coeff.**	**P-value**	**South Africa Coeff.**	**P-value**
MCAP	0.042	0.031	0.028	0.046
TURN	0.035	0.041	0.052	0.027
LIST	0.018	0.087	0.026	0.063
R^2	0.71		0.76	

Source: STATA 26 Output, 2025

Regression analysis reveals that market capitalization and turnover ratio significantly and positively influence non-resource GDP growth in both Nigeria and South Africa. The R^2 values of 0.71 and 0.76 indicate that the independent variables explain over 70% of variations in non-resource GDP growth. While the magnitude of

coefficients differs slightly, the overall results affirm the central role of capital market efficiency in promoting economic diversification.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This study investigated how capital market development indicators, market capitalization, stock market turnover ratio, and number of listed companies, affect non-resource GDP growth in Nigeria and South Africa between 2000 and 2024. The regression, correlation, and diagnostic results jointly confirm that well-functioning capital markets play a critical role in driving economic diversification in both economies.

Beyond the statistical relationships, the institutional and structural contexts of both markets also influence how these indicators impact diversification. Factors such as governance quality, investor confidence, and regulatory effectiveness shape market performance. South Africa's more advanced regulatory framework and stable macroeconomic environment have historically promoted transparency and investor protection, while Nigeria continues to face challenges related to governance consistency, enforcement capacity, and limited market depth.

(H_{01}): Market capitalization has no significant effect on non-resource GDP growth in Nigeria and South Africa

The regression results indicate that market capitalization exerts a positive and statistically significant effect on non-resource GDP growth in both Nigeria ($\beta = 0.042$, $p = 0.031$) and South Africa ($\beta = 0.028$, $p = 0.046$). This suggests that as the total value of listed domestic firms expands relative to GDP, financial depth and investor confidence rise, stimulating investment flows into manufacturing and services. The finding supports Adeleye (2024) and Bai (2022), who found that deep stock markets enhance structural transformation. It aligns with the Financial Development Theory, which posits that broad capital markets improve resource allocation efficiency, thereby sustaining long-term growth. Consequently, H_{01} is rejected for both countries. However, the magnitude of impact differs due to institutional variations. South Africa's capital market benefits from robust investor protection under the Financial Sector Regulation Act (2017) and deep institutional participation, whereas Nigeria's market is affected by weaker governance and limited enforcement of disclosure standards. These institutional asymmetries partly explain the higher efficiency observed in South Africa's market–growth linkage.

(H_{02}): Stock market turnover ratio has no significant effect on non-resource GDP growth in Nigeria and South Africa

The turnover ratio shows a significant positive relationship with non-resource GDP growth in both Nigeria ($\beta = 0.035$, $p = 0.041$) and South Africa ($\beta = 0.052$, $p = 0.027$). This means liquidity and trading activity within the markets enhance firms' access to finance and improve capital allocation to non-resource sectors. The result corroborates Adeleye & Odhiambo (2023) and Thaddeus et al. (2024), who observed that liquidity stimulates productive investments and diversification. The stronger coefficient for South Africa reflects its deeper and more efficient market structure. Thus, H_{02} is rejected, affirming that market liquidity significantly supports diversification. The comparative strength of the turnover coefficient in South Africa reflects the country's mature market structure and well-developed settlement systems, while Nigeria's relatively low liquidity may stem from thin trading volumes and low retail investor participation. Acknowledging these contextual differences highlights that statistical significance alone does not capture the structural realities shaping capital market efficiency in both economies.

(H_{03}): Number of listed companies has no significant effect on non-resource GDP growth in Nigeria and South Africa

The coefficient for number of listed companies is positive but marginally significant for both Nigeria ($\beta = 0.018$, $p = 0.087$) and South Africa ($\beta = 0.026$, $p = 0.063$). This implies that while the expansion of firm listings contributes to economic diversification, its effect is relatively weaker than those of capitalization and turnover. In Nigeria, limited listings constrain financial inclusiveness, whereas South Africa's broader listing base moderately supports non-resource growth. The outcome is consistent with Olayeni (2023) and Eriya (2023), who argued that higher listing density promotes industrial expansion. Hence, H_{03} is partially rejected, indicating a

moderate inclusiveness effect. To deepen this result, it is important to recognize that South Africa's multi-tiered listing framework (Main Board and AltX) encourages SME participation, while Nigeria's NGX Growth Board remains underutilized. These institutional mechanisms directly influence how listing expansion translates into diversification, emphasizing that market structure matters as much as size.

Model Strength and Comparative Information

The coefficient of determination ($R^2 = 0.71$ for Nigeria; 0.76 for South Africa) shows that the three capital market indicators explain over 70 percent of the variation in non-resource GDP growth. Diagnostic tests confirm that the models are statistically sound, free from multicollinearity, heteroskedasticity, and autocorrelation. South Africa's higher R^2 and stronger turnover coefficient highlight the efficiency of its capital market, while Nigeria's results underscore the need for deeper reforms to boost liquidity and broaden firm participation.

To ensure transparency, robustness, and statistical validity, a series of post-estimation diagnostic tests were performed, as presented in Table 4. The mean Variance Inflation Factor (VIF = 2.14) indicates the absence of multicollinearity among explanatory variables. The Breusch–Pagan test ($\chi^2 = 1.78$, $p = 0.182$) confirms homoscedastic residuals, while the Wooldridge test ($F = 1.93$, $p = 0.174$) shows no evidence of serial autocorrelation. In addition, the Jarque–Bera normality test ($p = 0.247$) validates that the residuals are normally distributed, satisfying key OLS assumptions.

Furthermore, to strengthen methodological rigor, a Dynamic Panel Generalized Method of Moments (GMM) estimation was conducted to control for potential endogeneity and dynamic feedback between capital market indicators and non-resource GDP growth. The GMM results were consistent with the baseline regression estimates in both sign and magnitude, confirming the robustness and stability of the empirical findings. The comparative analysis underscores that institutional quality, regulatory depth, and investor participation significantly moderate the effect of capital market indicators on diversification. These contextual information make the policy implications more robust and regionally grounded.

Conclusion

The study concludes that capital market development is a critical driver of economic diversification in both Nigeria and South Africa. Efficient, liquid, and inclusive stock markets channel resources toward productive non-resource sectors, enhance financial intermediation, and strengthen resilience against commodity shocks. While both countries benefit from capital market growth, South Africa's more advanced system demonstrates stronger linkages between finance and real-sector expansion. The evidence validates both the Financial Development Theory and Endogenous Growth Theory, showing that financial market efficiency sustains long-term diversification.

Recommendations

i. Nigeria should expand its market base by promoting new listings and encouraging institutional investors' participation. South Africa should maintain regulatory innovations that sustain high capitalization and attract cross-border investments.

ii. Both countries must implement policies that stimulate active trading, such as automation, improved settlement systems, and investor education, to increase turnover and strengthen the liquidity-growth nexus.

iii. Regulatory authorities should ease listing requirements for small and medium enterprises (SMEs) to diversify sectoral representation on the exchanges, thereby enhancing innovation and non-resource sector growth.

Limitations of the Study

The study relied on secondary data aggregated at the national level, which may obscure firm-level heterogeneity. Data availability constraints, especially for earlier years, may have limited the precision of some indicators. Moreover, external shocks such as global recessions or pandemics were not explicitly modeled, though they likely affected market behavior.

Suggestions for Further Studies

Future research could employ firm-level panel data to capture micro-dynamics of stock market participation, incorporate control variables such as interest rates and exchange rate volatility, or extend the analysis to a larger sample of African economies to generalize the finance-diversification nexus.

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