# IMPACT OF CAPITAL MARKET INTEGRATION ON ECONOMIC GROWTH IN WEST AFRICA

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## ABSTRACT

*Capital market integration is known to have the potential of stimulating economic growth. This study examines the impact of capital market integration on investment and growth among west African countries for the period 2000 -2023. The study focused on 15 West African countries, whose data were collected from the World Bank's World Development Indicators database. The panel data collected were analyzed using descriptive analysis, correlation analysis, static panel estimation techniques of pooled OLS, Random effects, fixed effects, and the necessary diagnostic tests including the multicollinearity test, Breusch-Pagan LM test, Hausman test and normality test. The results of the study revealed that capital market integration has a positive and statistically significant impact on economic growth of West African countries over the period of study 2000 – 2023. The study recommends among others that policymakers should continue fostering capital market integration to stimulate economic growth through the creation of an environment that attracts foreign investments and supports stronger economic performance.*

**Keywords:** *Capital Marketing, Investment, Random Effects, Fixed Effects, Economic Growth*

## 1.0 Introduction

The capital market plays a crucial role in the financial system of an economy by encouraging economic growth, investment, and savings. As this sector moves toward greater financial integration, the existing variation in financial development across the European Union (EU) presents a valuable opportunity. By integrating capital markets, companies could gain improved access to advanced credit and securities markets, which would help accelerate the evolution of emerging financial markets and stimulate economic growth across the region (Roxana & Stoica, 2018). Capital market integration plays a vital role in driving a region's economic growth by attracting investments, with both elements interacting in multiple ways to influence factors like capital accumulation, productivity, and overall economic resilience and expansion (Adeola & Kehinde, 2023). Research by Aghion et al. (2023), Kose et al. (2023), and Rajan and Zingales (2023) underscores the importance of steady and reliable investment inflows in fostering economic stability and strengthening investor confidence key components for sustained long-term growth. According to the World Bank (2023), investment remains a primary

engine of economic momentum, even amid global uncertainty. Investments in critical sectors such as infrastructure and manufacturing produce immediate positive effects on GDP and employment (McKinsey, 2023), while also helping to mitigate vulnerabilities and respond to economic shocks. For developing countries in particular, investing in resilient infrastructure and healthcare systems is essential for reducing the adverse effects of global disruptions and crises (World Bank, 2023). As such, the connection between capital market integration and economic growth is central to national development. Furthermore, strategic investment in infrastructure, technology, and human capital is essential for fostering sustainable development and enhancing a country's economic competitiveness (Tinta et al., 2018).

Several interconnected factors shape a country's investment levels and economic growth, and these can differ greatly depending on regional and economic contexts. One key element is the availability and accessibility of financial resources; well-developed financial institutions and markets play a critical role in channeling capital efficiently, thereby supporting business development and expansion (IMF, 2023). Likewise, liberal trade policies and access to broader markets can encourage investment by enabling firms to scale and benefit from greater market reach, whereas restrictive trade practices and protectionism tend to obstruct both investment and growth (Deloitte, 2023). Additionally, the adoption of sustainable policies and measures to combat climate change has become increasingly influential in shaping long-term investment and growth. Investments in areas like renewable energy and green infrastructure not only help mitigate environmental risks but also open up new avenues for economic activity (WEO, 2023). Furthermore, global economic conditions—such as trends in capital markets, commodity prices, trade patterns, and financial stability—play a significant role. Periods of economic uncertainty or downturns in major economies can dampen investor confidence and reduce global growth prospects (IMF, 2023).

West African capital markets have traditionally lagged behind those in other regions in terms of development. They continue to grapple with enduring issues such as low liquidity, limited financial instruments, and inadequate infrastructure (Chukwuma, 2023; Adelegan, 2009). Furthermore, the region is affected by political instability, insecurity, corruption, weak regulatory systems, and underinvestment in critical infrastructure—all of which discourage the inflow of foreign capital (Azeez & Obalade, 2019). However, attracting foreign investment is vital for energizing West African capital markets, which remain substantially underfunded when compared to global benchmarks (Osei, 2005). These challenges have undermined the success of financial sector reforms aimed at expanding credit availability for the private sector—an essential component for boosting investment, fostering economic development, and alleviating poverty.

In recent years, West African governments have undertaken several initiatives to promote regional capital market integration and enhance access to financial markets. Key among these efforts are the creation of the West African Capital Market Integration Council (WACMIC) and the West African Securities Regulatory Authorities (WASRA), both established to accelerate the integration process (Chukwuma, 2023; Umutlu et al., 2010). However, the proposed adoption of a single regional currency—which could serve as a major driver of true integration—has yet to be realized (Aboudou, 2010). Additionally, the region continues to face a shortage of capital, with only five active capital markets serving the fifteen ECOWAS member states. These markets are largely dominated by equities, with limited development in debt markets and corporate bond offerings. Consequently, the market

capitalization-to-GDP ratio remains relatively low in comparison to more developed and emerging economies (Emenike, 2021).

Despite ongoing initiatives to strengthen regional integration, the anticipated level of economic growth in the ECOWAS region has yet to be fully realized. This indicates that the potential benefits of integration have not been fully harnessed. A closer examination of the link between regional integration and economic growth in ECOWAS reveals that countries with higher integration scores do not always experience greater economic performance. This raises important questions about the true impact of regional integration—particularly in terms of trade openness and financial flows—on the economic growth of member states. This ambiguity forms the basis for the present study, which seeks to explore the influence of trade and financial integration on economic growth within the ECOWAS region. Specifically, this research aims to determine the contributions of capital market integration to the region's overall economic growth for the period 2000 – 2023 using panel data estimation techniques. The rest of the paper is structured into; section two, literature review, section three is the methodology, section four is the results and discussions, and finally section five carries the conclusion and policy recommendations.

## 2.0 Literature Review

## 2.1 Conceptual Review

### 2.1.1 Capital Market Integration

Capital market integration is a condition where stock prices in various capital markets in the world are interrelated with each other so that capital markets in the world can reach international pricing of their shares and provide unlimited access or any obstacles to investors around the world to own them (Waworundeng & Rate, 2018). Climent and Meneu (2003) opined that the capital market in a region tends to have the same movement and has a contagion effect so that the level of integration between one capital market and another capital market is high. The degree of integration between capital markets has major implications for the diversification of an international portfolio and the financial stability of a country. In addition, the occurrence of integration between capital markets can indicate the occurrence of long-term equilibrium relationships, relate price movements in national stock indices, and can greatly affect the benefits of international portfolio diversification (Aziz et al., 2020).

### *2.1.2 Economic Growth*

Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Growth is usually calculated in real terms - i.e., inflation-adjusted terms – to eliminate the distorting effect of inflation on the price of goods produced. Measurement of economic growth uses national income accounting. Since economic growth is measured as the annual percentage change of gross domestic product (GDP), it has all the advantages and drawbacks of that measure. The economic growth rates of nations are commonly compared using the ratio of the GDP to population or per-capita income (Bjork, 1999).

## 2.2 Empirical Literature Review

Although several investigations have been conducted on the impact of capital market integration on economic growth from different countries and regions, a good number of such studies are reviewed in this section. Some of the most recent studies are reviewed with a view to study their methodologies and results obtained.

Wanger and Aras (2021) conducted a study on globalization and Economic Growth in West Africa. The research was conducted using panel data sets of West African countries, which were analyzed using Panel Cointegration techniques, Fully Modified Ordinary Least Squares (FMOLS), Dynamic Ordinary Least Squares (DOLS), and Dumitrescu-Hurlin Panel Causality Test for the period 1960 -2019. While the study found a positive and significant long-run causal relationship between exports and imports as aspects of globalization and Gross Domestic Product, evidence of negative long-run relationship between Foreign Direct Investment and Gross Domestic Product was also found in the study.

Orji et al. (2022) studied regional integration and Growth in Economic Community of West African States (ECOWAS). The study examined the effects of trade and financial integration on economic growth in Economic Community of West African States (ECOWAS) for the period 2010 - 2020. The study employed an instrumental variable (IV) regression based on the dynamic panel data (DPD) estimation techniques, within the framework of the System Generalized Method of Moments (SGMM). The findings of the study revealed that trade integration had a positive and significant impact on economic growth of Economic Community of West African States (ECOWAS).

Another study by Park and Claveria (2018) adopted a multi-dimensional approach to gauge the degree of regional integration as well as analyze its impact on economic growth, income inequality, and poverty. They used an unbalanced panel dataset for 156 countries for the period 2006 - 2016. Park and Claveria constructed a multi-dimensional regional integration index (MDRII) series that embodies six key facets of regional integration: Trade and investment, Money and finance, regional value chains, Infrastructure and connectivity, Movement of people and Institutional and social integration. Data were analyzed using the system generalized method of moment (GMM-SYS). Results of the empirical analysis suggest that there was a positive and significant impact of regional integration even when trade and financial openness were controlled, regional value chain, movement of people, institutional and social integration dimensions contributed significantly to growth.

In a similar study conducted carried out by Calderon and Cantu (2019) examined the growth effects of different dimensions of international trade integration notably, volume, diversification, and natural resource dependence in sub-Saharan Africa. Specifically, the study sought to determine the impact of trade integration on growth per worker and the sources of growth. The study used a sample of non-overlapping five-year period observations for 173 countries for the period, 1975 - 2014. The findings of the study revealed that increased trade openness, greater export production diversification, and reduced export dependence on natural resources had a positive impact on economic growth.

Akpan (2020) investigated economic integration in West Africa. The study reconsidered factors other than convergence criteria for the West African Monetary Zone (WAMZ) region and the link between the Francophone countries and France. The study examined stylized facts and preliminary panel results and found unsettled important issues like political will, huge infrastructural deficit, and fiscal imperatives as the region moves towards economic integration. It further examined the integration efforts of ECOWAS which was established in 1975 and argued that the stylized facts suggest that there are still fundamental challenges if the union has to be a reality.

Sulaiman, Adejayan and Ilori (2023) investigated capital market development and economic growth of West African countries. The study sought to examine the effect of capital market development on economic growth in Economic Community of West African States (ECOWAS) using annual data spanning from 1980 to 2019. Using the Panel Autoregressive Distributed Lag model, the result shows

that Gross Capital Formation (GCF), and Foreign Direct Investment (FDI) contribute significantly to Anglophone's economic growth while only Gross Capital Formation significantly affects the growth of Francophone economies. This implies that for Anglophones, the combination of Foreign and Domestic investment contributes immensely to economic growth while the growth of Francophone economies is strongly determined by the level of domestic investment.

Musliudeen (2024) investigated the role of the capital market in economic growth as evidenced by the long-term funds that the market provides to both investors and governments in developed and emerging economies. The study investigated the impact of the capital market on Nigerian economic growth between 1990 and 2020. The theme of the study was four (4) indicators of the capital market, namely: market capitalization, value of transactions, all shares index, and numbers of deals. Multiple regression analysis was utilized to check if there is a relationship between capital market and economic growth. Results suggest that only market capitalization has a significant relationship with economic growth. With a positive relationship existing between capital market development and economic growth, there should be a sustained effort to stimulate productivity in both the public and private sectors.

In another study, Eniekezimene et al. (2024) analyzed the impact of capital market on the growth of the Nigerian economy. The study examined the influence of the capital market on economic growth in Nigeria between 1981 and 2022, using vector autoregressive (VAR) analysis. The variables used included: real gross domestic product (RGDP), market capitalization (MCAP), total value of securities traded (TVST), and gross fixed capital formation (GFCF). The study found TVST and GFCF influenced their outcome as well as the outcome of other variables negatively in both the short and long run, using the VAR system tools of impulse response function and forecast error variance decomposition.

Roxana and Stoica (2018) investigated the increasing role of capital markets and weight in modern financial system. The study used the Autoregressive Distributed Lag model for the EU countries during 2004-2016 period. According to the results, the integration of capital markets has a positive impact on economic growth, and the main factors in which the capital market positively affects economic growth are stock market capitalization, capital mobility, value traded, stock indices, immigrants, and, to a greater extent, small, foreign portfolio investment.

Oluwaleye et al. (2023) assessed how the capital market affected Nigeria's economic expansion. Specifically, the impact of the Nigeria stock exchange's total value of transactions (TVTs), all-shares index (ASIs), and stock market capitalization (MCAP) on Nigeria's economic development was evaluated. Time-series data covering 1986–2021 were obtained in the study. Estimation methods used in the study's analysis include descriptive statistics correlation analysis, ARDL co-integration analysis, parsimonious error correction model, variance decomposition, and other post-estimation tests. Findings from the study revealed that MCAP positively impacts economic growth in the long and short run. The ASI affects economic growth positively and insignificantly in the long and short runs, and the TVTs exert a significant positive effect on the economic growth of Nigeria.

Iyke-Ofoedu et al. (2024) investigated the effect of the capital market on the economic growth of Nigeria. The study made use of yearly data from the 2019 CBN statistical bulletin spanning from 1985 to 2018. The study made use of an ex-post facto research design which is a quasi-experimental study that examines how independent variables affect a dependent variable. ARDL Model Estimation and Linear regression analysis were adopted for the analysis of the relationship. The results showed that the three variables; market capitalization, all share index, and volume of stock traded have played a significant role in influencing the capital market performance on Nigeria's economic growth.

Bello (2022) examined the impact of capital market performance on economic growth in Nigeria from 2010 to 2020. The ordinary Least Squares (OLS) method was used for estimation to evaluate the impact of capital market performance on economic growth in Nigeria using secondary quarterly times series data from Q1 2010 to Q4 2020. Results revealed that there is a positive and significant relationship between index of capital market performance and economic growth measured by real gross domestic product in Nigeria.

Furthermore, Bakare-Arem (2022) examined the link between capital market development and economic growth in Nigeria by applying co-integration and error correction modeling to the stock market and Macroeconomic time series data. The study found that the variables; All share Index, no of deals, and market capitalization have individual positive and significant combined impacts on economic growth. Inflation, however, has a positive but insignificant effect on economic growth. The pair-wise Granger causality test shows that there exists a unidirectional causality running from capital market to economic development and feedback causality between market capitalization and economic growth.

## 2.3 Theoretical Framework

### *2.3.1 The Endogenous (New) Growth Theory*

New Growth Theory is based on a view of the economy that incorporates two important views. First, it views technological progress as a product of economic activity. Previous theories treated technology as given, or a product of non-market forces. New Growth Theory is often called "endogenous" growth theory, because it internalizes technology into a model of how markets function. Second, New Growth Theory holds that unlike physical objects, knowledge and technology are characterized by increasing returns, and these increasing returns drive the process of growth (Balami, 2006).

This new theory addresses the fundamental questions about what makes economies grow: Why is the world measurably richer today than a century ago? Why have some nations grown more than others? The essential point of New Growth Theory is that knowledge drives growth. Because ideas can be infinitely shared, ideas could be accumulated without limit. They are not subject to what economists call "diminishing returns." Instead, the increasing returns to knowledge propel economic growth (Todaro & Smith, 2006).

New Growth Theory helps to make sense of the on-going shift from a resource-based economy to a knowledge-based economy. It underscores the point that the economic processes which create and diffuse new knowledge are critical to shaping the growth of nations, communities and individual firms. According to Romer (1996), all increases in standards of living can be traced to discoveries of more valuable arrangements for the things in the earth's crust and atmosphere. No amount of savings and investment, no policy of macroeconomic fine-tuning, no set of tax and spending incentives can generate sustained economic growth unless it is accompanied by the countless large and small discoveries that are required to create more value from a fixed set of natural resources. Romer (1996), emphasized that people tend to focus on the computer and the Internet as the icons of economic progress, but it is the process that generates new ideas and innovations, not the technologies themselves, that is the force that sustains economic growth.

Romer (1996) is credited with stimulating New Growth Theory, the central notion behind New Growth Theory is increasing returns associated with new knowledge or technology. The cornerstone of

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traditional economic models is decreasing or diminishing returns, the idea that at some point as you increase the output of anything (a farm, a factory, a whole economy) the addition of more inputs (work effort, machines, land) results in less output than did the addition of the last unit of production. Decreasing returns are important because they result in increasing marginal costs (that is, at some point, the cost of producing one more unit of production is higher than the cost of producing the previous unit of production). Decreasing returns and rising marginal costs are critical assumptions to getting the mathematical equations economists use to describe the economy to be settling down to a unique equilibrium (Todaro & Smith, 2006). This theory was adopted as a theoretical underpinning for this study because of its relevance in explaining some of the major factors that economic growth accrues from and how they interact to cause economic growth.

## 3.0 Methodology

The study utilized a quantitative research design to establish the relationship between capital market integration, investment, and economic growth among West African countries. The study adoptedquantitative analysis using a panel data approach, covering a period of 23 years (2000-2023). Ex-post facto (i.e., after the fact) design attempts to identify a natural impetus for specific outcomes without actually manipulating the independent variable (Adeyemi & Oboh, 2013). This implies that the event being assessed had already taken place.

The study focused on West African countries that have significant capital markets. The countries considered are: Benin, Burkina Faso, Cape Verde, Cote d' Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, and Togo as members of the Economic Community of West African States (ECOWAS).

The data used in the study were collected from various sources including; World Bank's, World Development Indicators database, World Economic Outlook (WEO) and Stock exchange databases of the selected countries for stock market indices.

### 3.1 Model Specifications

This study adapted the model of Osakwe and Anawude (2017); and Suleiman et al. (2023) by incorporating more independent variables as proxies for capital market development.

The model for the study is expressed as;

$$GDP_{it} = \beta_0 + \beta_1 CMI_{it} + \beta_2 EXRit + \beta_3 UNEMP_{it} + \beta_4 MIG_{it} + \epsilon it$$

**Where:**

CMI = Capital Market Integration

GDP = Gross Domestic Product (Economic Growth)

EXR = Exchange Rate

UNEM = Unemployment

MIG = Migration

$i$: Entity (cross sectional dimension of the panel data; countries).

$t$: Time (time dimension of the panel data; years).

$\epsilon it$: Error term capturing unobserved factors.

$\beta_0$: Intercept term.

$\beta_1$, - $\beta_4$: Coefficients capturing the relationship between the dependent variable and the independent/control variables.

### 3.2 Techniques of Analysis

Descriptive analysis and correlation analysis were conducted to examine the statistical averages and the direction of correlation existing among the variables. The study basically used the static panel data estimation techniques to examine the impact of capital market integration on economic growth in West African countries for the period 2000 to 2023. The static panel data estimation techniques are Pooled OLS, Random effect and fixed effects with their diagnostic tests. The study first estimated the Pooled OLS and Random Effects, after which the Breusch Pagan Lagrangian Multiplier test was conducted to choose which technique is more efficient between the Pooled OLS and Random Effects, and in cases where the test suggests the Random effects being more efficient, further tests are conducted. The Random effects and Fixed effects were later estimated and then the Hausman test was carried out to find out which technique is more efficient between the random and fixed effects. Various post estimation tests were also conducted to ensure that important assumptions are not violated, these include the heteroskedasticity test (Breusch-Pagan/Cook-Weisberg test), multicollinearity test (Variance Inflation Factor) as well as the Shapiro-Wilk test for normality of residuals.

### 3.3 Variables and Measurements

The variable modelled in this study are defined and measured using different indicators and content. Table 3.1 presents a summary of the variables, their measurements and sources.

**Table 3.1: Measurement of Variables**

| S/N | Variable | Measurement | Source |
|---|---|---|---|
| 1 | Capital Market Integration | Index of financial openness, foreign direct investment (FDI) as % of GDP | IMF, World Bank, OECD |
| 2 | Investment | Gross Fixed Capital Formation (as % of GDP) | World Bank, National Accounts |
| 3 | Economic Growth | Annual GDP growth rate (%) | World Bank, IMF, National Statistics Agencies |
| 4 | Exchange Rate | Nominal or real effective exchange rate (REER) | Central Banks, IMF |
| 5 | Unemployment | Unemployment rate (%) | ILO, World Bank, National Statistics Agencies |
| 6 | Migration | Net migration rate, international migrant stock | UN DESA, World Bank, IOM |

**Source: Literature Review, 2025**

## 4.0 Results and Discussion

### Summary Statistics

The summary data for the variables LGDP, CMI, LEXR, LUNEM, and LMIG are presented in Table 4.1. Each variable's minimum and maximum values, mean values, standard deviations, and

number of observations are all included. This table provides a summary of the data's variability and distribution.

**Table 4.1:**

*Descriptive Statistics*

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| LGDP | 660 | 22.17532 | 1.648941 | 18.69846 | 27.07622 |
| LCMI | 76 | 1.67e+10 | 2.64e+10 | 1.95e+07 | 1.48e+11 |
| LEXR | 655 | 4.598448 | 2.813272 | -8.199278 | 9.165874 |
| LUNEM | 495 | 1.237643 | .6882494 | -1.148854 | 2.685123 |
| LMIG | 178 | 9.395575 | 1.517748 | 4.077538 | 12.54782 |

**Source: Author's Computation using Stata 15, 2025.**

Based on the statistics presented in Table 4.1, Gross Domestic Product (LGDP) has 660 observations, the mean is 22.17532 with a standard deviation of 1.648941, ranging from a minimum of 18.69846 to a maximum of 27.07622. Capital Market Integration (LCMI) has a smaller sample size of 76 observations, with an average of 1.67e+10 and a substantial standard deviation of 2.64e+10, indicating significant variability, ranging from 1.95e+07 to 1.48e+11. Exchange Rtae (LEXR), with 655 observations, has a mean of 4.598448 and a standard deviation of 2.813272, spanning from -8.199278 to 9.165874. Unemployment (LUNEM), based on 495 observations, has a mean of 1.237643 and a standard deviation of 0.6882494, with a minimum value of -1.148854 and a maximum of 2.685123. Lastly, Migration (LMIG) has 178 observations, a mean of 9.395575, and a standard deviation of 1.517748, with values ranging from 4.077538 to 12.54782. These statistics reflect the spread and sample sizes of each variable in the dataset.

**Correlation Analysis**

A correlation matrix illustrating the direction and intensity of the linear associations between the variables lgdp1, mcap2, lexr1, lunem, and lmig is shown in Table 4.2. The correlation coefficient between the variable pairs is shown by each value.

**Table 4.2:**

*Correlation Analysis*

| Variables | LGDP | LCMI | LEXR | LUNEM | LMIG |
|---|---|---|---|---|---|
| LGDP | 1.0000 | | | | |
| LCMI | 0.7639 | 1.0000 | | | |
| LEXR | 0.4363 | 0.3748 | 1.0000 | | |
| LUNEM | -0.7526 | -0.4064 | -0.6699 | 1.0000 | |
| LMIG | -0.2224 | -0.5126 | 0.1305 | -0.0670 | 1.0000 |

**Source: Author's Computation using Stata 15, 2025.**

Based on the results of the correlation analysis presented in Table 4.2, LGDP has a strong positive correlation with LCMI (0.7639) and a moderate positive correlation with LEXR (0.4363), while it is negatively correlated with LUNEM (-0.7526) and LMIG (-0.2224). LCMI is positively correlated with LEXR (0.3748) and negatively correlated with LUNEM (-0.4064) and LMIG (-0.5126). LEXR has a negative correlation with LUNEM (-0.6699) but a weak positive correlation with LMIG (0.1305). LUNEM shows weak negative correlations with both LMIG (-0.0670) and the other variables, highlighting various degrees of relationships across the dataset.

**Fixed Effect (FE) Panel Regression Result**

Table 4.3 presents the regression results for the model estimating the impact of the independent variables (LCMI, LEXR, LUNEM, and LMIG) on LGDP. The table includes coefficients, standard errors, t-values, p-values, and 95% confidence intervals for each variable.

**Table 4.3:**
*Fixed Effect Model*
***Dependent Variable: Gross Domestic Product***

| **LGDP** | **Coef.** | **Std. Err.** | **T** | **P>t** | **[95% Conf.** | **Interval]** |
|---|---|---|---|---|---|---|
| **LCMI** | 2.79e-11 | 6.09e-12 | 4.58 | 0.000 | 1.53e-11 | 4.06e-11 |
| **LEXR** | -.0178708 | .1669962 | 0.11 | 0.916 | -.3651583 | .3294168 |
| **LUNEM** | -1.887863 | .48202 | 3.92 | 0.001 | -2.890279 | -.8854475 |
| **LMIG** | .0343327 | .2510118 | 0.14 | 0.893 | -.4876748 | .5563402 |
| Cons | 26.87653 | 3.018699 | 8.90 | 0.000 | 20.5988 | 33.15425 |
| Within | 0.7210 | | | | Obs per group | Min 28 |
| Between | 0.8878 | | | | | Avg 9.3 |
| Overall | 0.8281 | | | | | Max 14 |
| sigma_u = .8605226 | | rho =.82674763 | | | sigma_e = .39392668 | |

**Source: Author's Computation using Stata 15, 2025.**

The regression results indicate that a one percent increase in LCMI is associated with a 2.79 percent increase in LGDP, reflecting a significant positive impact ($p < 0.01$). In contrast, a one percent increase in LUNEM corresponds to a 1.89 percent decrease in LGDP, indicating a significant negative effect ($p < 0.01$). LEXR shows that a one percent increase leads to a negligible 0.018 percent decrease in LGDP, but this effect is not statistically significant ($p = 0.916$), implying that changes in LEXR do not meaningfully impact LGDP. Similarly, a one percent increase in LMIG results in a 0.034 percent increase in LGDP, which is also not significant ($p = 0.893$), suggesting no meaningful influence on LGDP. The constant term is positive and highly significant, indicating a strong baseline effect on LGDP when all other variables are zero. The model explains 72.10% of the within-group variation and 88.78% of the between-group variation, with an overall R-squared of 82.81%. The high intraclass correlation (rho = 0.8267) shows that 82.67% of the total variance is due to differences across entities.

The positive and highly significant coefficient for capital market integration suggests that an increase in capital market activities strongly boosts GDP. This aligns with Musliudeen (2024) and Bello

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(2022), who demonstrated that market capitalization and overall market performance significantly drive economic growth in Nigeria. Iyke-Ofoedu et al. (2024) further supported this with their findings that stock market indices, such as market capitalization and trading volume, are crucial growth indicators. These results affirm the importance of capital market development as a vehicle for economic advancement, underscoring the relevance of regulatory frameworks that enhance market efficiency. In addition, the positive influence of capital market indicators on GDP growth is well-supported in the literature. For instance, Roxana and Stoica (2018) in the EU context found that market capitalization and foreign portfolio investment were key growth drivers. Similarly, the positive influence of capital market indicators on GDP growth is well-supported in the literature. For instance, Roxana and Stoica (2018) in the EU context found that market capitalization and foreign portfolio investment were key growth drivers. Similarly, Oluwaleye et al. (2023) emphasized that integrating technology and market expansion strategies in Nigeria could amplify economic benefits. Conversely, some studies noted mixed or negative results related to other variables. Wanger and Aras (2021) pointed out that, while trade and integration could be beneficial, issues like ineffective FDI management might neutralize their positive impact on GDP.

**Hausman Test**

The Hausman test is used for comparing the coefficients from the fixed-effects and random-effects models as shown in Table 4.4. The Hausman test helps identify the best model for the estimates by determining whether the difference in coefficients between the two models is statistically significant.

**Table 4.4:**

*Hausman Test*

| | |
|---|---|
| chi2(3) = | 25.68 |
| Prob>chi2 = | 0.0000 |

**Source: Author's Computation using Stata 15, 2025.**

The results from the Hausman test suggests whether a fixed-effects or random-effects model is more appropriate for your panel data analysis. The test compares the coefficients from the random-effects model (b) and the fixed-effects model (B), with the key statistic being chi2(3) = 25.68 and a p-value of 0.0000. Since the p-value is below the typical significance level of 0.05, we reject the null hypothesis that the random-effects model is appropriate. This suggests that the random-effects model is inconsistent, as the coefficients differ systematically between the two models. Therefore, the fixed-effects model is the preferred and most reliable option for the analysis.

**Diagnostic Tests**

This section presents the diagnostic tests conducted to evaluate key assumptions of the regression model, including heteroskedasticity, multicollinearity, and normality of residuals.

**Heteroskedasticity Test**

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity was conducted to test the assumption of homoskedasticity. This diagnostic test checks whether the variance of the error terms in the regression model is constant or otherwise. The result of the heteroskedasticity test is presented in Table 4.5.

**Table 4.5:**
*Breusch-Pagan/Cook-Weisberg test for heteroskedasticity.*

| **Variables: fitted values of LGDP** | |
|---|---|
| chi2(1) = | 1.70 |
| Prob > chi2 = | 0.1921 |

**Source: Author's Computation using Stata 15, 2025.**

The Breusch-Pagan/Cook-Weisberg test for heteroskedasticity evaluates whether the error terms in the regression model have constant variance (homoskedasticity). The null hypothesis (Ho) is that the variance of the errors is constant. In this test result, the test statistic is chi2(1) = 1.70, with a p-value of 0.1921. Since the p-value is greater than the common significance level (e.g., 0.05), we fail to reject the null hypothesis. This indicates there is insufficient evidence to suggest heteroskedasticity is present, implying that the assumption of constant variance holds for the model's residuals.

**Multicollinearity Test**

Table 4.6 presents the Variance Inflation Factor (VIF) analysis for the independent variables in the regression model. This table helps assess the presence of multicollinearity, indicating how much the variance of each estimated regression coefficient is inflated due to correlations among the predictors. VIF values and their reciprocals (1/VIF) are displayed for each variable, along with the mean VIF for the model.

**Table 4.6:**
*Variance Inflation Factor (VIF) Tests for Multicollinearity*

| **VARIABLE** | **VIF** | **1/VIF** |
|---|---|---|
| LCMI | 1.99 | 0.501387 |
| LEXR | 1.99 | 0.502933 |
| LUNEM | 1.95 | 0.512526 |
| LMIG | 1.66 | 0.603681 |
| Mean VIF | 1.90 | |

**Source: Author's Computation using Stata 15, 2025.**

The VIF values for LCMI, LEXR, LUNEM, and LMIG range from 1.66 to 1.99, with a mean VIF of 1.90. Since these values are relatively low (typically, VIF values below 5 are considered acceptable), this suggests that multicollinearity is not problematic, and the independent variables are not highly correlated with each other. The 1/VIF values, which represent tolerance, are all above 0.2, further supporting the conclusion that multicollinearity is not an issue in this model.

**Normality Test**

Table 4.7 presents the results of the Shapiro-Wilk test for normality applied to the residuals of the regression model. This table includes key statistics such as the W statistic, V value, z-score, and p-value, which help determine whether the residuals follow a normal distribution.

**Table 4.7:**
*Shapiro-Wilk Test for Normality*

| Variable | Obs | W | V | Z | Prob>z |
|---|---|---|---|---|---|
| **Resid** | 14 | 0.94073 | 1.097 | 0.182 | 0.42773 |

**Source: Author's Computation using Strata 15, 2025.**

The normality test results shown here are based on the Shapiro-Wilk test, which assesses whether the residuals of the model follow a normal distribution. The test statistic (W) is 0.94073, indicating how closely the residuals match a normal distribution, with values closer to 1 suggesting a better fit. The auxiliary statistic (V) is 1.097, and the standardized test statistic (z) is 0.182. The p-value (Prob > z) is 0.42773, which is greater than the common significance level of 0.05. This means we fail to reject the null hypothesis that the residuals are normally distributed. There is insufficient evidence to suggest that the residuals deviate from normality.

## Conclusion and Policy Recommendations

The findings from this study emphasize the important role that capital market integration (CMI) in stimulating investment and driving economic growth. The evidence points to a strong positive relationship between well-integrated capital markets and enhanced investment levels, indicating that increased access to cross-border financing can boost the availability of funds and support broader economic activity. This aligns with the idea that integration not only improves the liquidity and depth of financial markets but also facilitates better risk-sharing and efficient allocation of resources, leading to sustainable economic progress.

The following recommendations are made in line with the findings of the study;

(i) Policymakers should continue fostering capital market integration to stimulate economic growth through the creation of an environment that attracts foreign investments and supports stronger economic performance.

(ii) The government through the apex financial institution should implement a combination of monetary policies that will help in maintaining a stable exchange rate, as it is crucial for creating a predictable economic environment which in turn supports sustainable growth.

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