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# STOCK MARKET DEVELOPMENT IN NIGERIA: DO INSTITUTIONAL QUALITY AND FDI NET INFLOW MATTERS?

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**Abstract:**
**This study examines the effect of institutional quality and FDI net inflow on the stock market development in Nigeria for the period spanning 1996 to 2018. Symmetric method through autoregressive distributed lag model is used for the estimation of the relationship and cointegration. Stock market development is proxy by the annual stock market capitalization, while institutional quality is measured by the average of the composite index covering six categories; control of corruption, government effectiveness, political stability, regulatory quality, rule of law and finally, voice and accountability. Bound test confirms the validity of linear of variables under investigation. We found sufficient and significant evidence, affirming the role of institutional quality on stock market development both in the long run and short run. Similarly, FDI net inflow matters for the development of the stock market in the long run but not significant as expected while in the short it exerts negative and significant impact on the stock market development. This implies that foreign investors in form of portfolio investment will retard the development of the stock market in the short run if not properly managed.**
**Keywords: FDI, Institutional quality, stock market development, bound test, symmetric JEL Classification Code: C22, G10, F3**

## Introduction

The nexus between stock market development, corruption control and institutional quality has been a pivotal issue of research and deliberation. A well-functioning stock market affects economic growth through financial intermediation between creditors and debtors by channeling of more savings to investment and also enhancement of capital productivity with efficient and effective allocation of resources, if and only if, there is improvement in institutional quality and/ governance. However, this view is contrary to the prominent notion that institutional quality has little relevance, or is even not much important to stock market development of a country. Thus, a stock market plays an important role in the contemporary economy since it serves as an intermediary agent between creditors and debtors in providing essential financial services. For

 

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instance, there is no advanced economy that has attained an extraordinary economic development devoid of the establishment and the development of stock markets. Well-functioning stock markets are likely to inevitably stimulate economic growth through increased capital accumulation and also by stimulating the efficiency and effectiveness of capital allocation in an economy.

Explicitly, the contributions of financial markets, and most especially stock markets, thus, have considerably facilitated the growth and the development of emerging economies over decades. However, these economies are characterized with high institutional quality, relative stability in macroeconomic variables, among others; that is exemplified by better improvement in governance which leverages the returns of shareholders by reducing transaction and agency costs. On the other hand, it is argued that stock market might face serious challenges in developing countries due to the heavy costs and their poor financial structures. These challenges, however, are magnified in developing countries with their weaker institutional quality and higher macroeconomic fluctuations. Consequently, improvement in stock market development is emphasized on the institutional quality which determines the frameworks in as well as governs the process of economic exchange in a country.

Numerous empirical studies have been carried-out on the nexus between stock market development and institutional quality/governance (using different measurements and/or proxies), utilizing a cross-section of stock market development indices from both developed and developing economies. The literature are very scanty, worthy of reinvestigation and hence still emerging. For instance, Makoni (2021), Ernest, David, and Jones (2016), Balogun, Dahalan and Hassan (2016) and Bayar (2016) find that institutional quality positively affects stock market development whereas Iyoboyi (2021) find that political stability and regulatory quality, absence of violence, rule of law and voice and accountability have a negative impact on stock market performance. Consequently, reinvestigation on the impact of institutional or governance quality on stock market development remains worthy of reinvestigation and an empirical question due to not only mixed results found in the existing literature but also there is no research specifically conducted on whether stock market development symmetrically or asymmetrically response to institutional quality. It is against this background that this study intends to fill the aforementioned lacuna in the existing literature.

## Literature Review

There has been proliferation of relevant literature on the impact of institutional quality on stock market development. It is noted that there is no consensus in the literature whether the response from stock market development to institutional quality is symmetric or asymmetric. Manasseh, Mathew, & Ogbuabor (2017) use Autoregressive Distributed Lag Model (ARDL) model to

 

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estimate the nexus between institutional quality and stock market development in Nigeria over the periods of 1985 to 2013 and find that institutional quality and stock market development move together in the long run; democratic accountability and corruption control are important institutional measures that significantly affect stock market development; stock market liquidity, per capita income and bureaucratic quality determine stock market development. Contrary to the above, Iyoboyi (2021) examine the impact of institutions on stock market performance in Nigeria using the Ordinary Least Squares technique over the period of 1996 to 2019 and find that corruption control, governance effectiveness and Real income have a positive impact on stock market performance while political stability and regulatory quality, absence of violence, rule of law and voice and accountability have a negative impact on stock market performance.

Furthermore, Bayar (2016) study the institutional determinants of stock market development in 8 European Union transition economies covering the period of 2002-2013 and find that political stability, rule of law, regulatory quality and corruption control had positive influence on stock market development. Similarly, Makoni (2021) examine the relationship among foreign direct investment, stock market development and institutional quality in 9 African countries between 2009 and 2016 and find that the relationship between foreign direct investment and stock market development is positive while institutional quality has a negative influence on FDI inflows. Yakubu, Kapusuzoğlu, and Ceylan, (2021) examine the relationship between institutional quality and stock market development in Ghana over the periods 1995Q1-2015Q4 using Autoregressive Distributed Lag (ARDL) model and find that a significant short and long-run effect of institutional quality on stock market development and also a long-term significant impact of banking sector growth, FDI inflows, and level of income on stock market growth.

Moreover, Asgharian, Liu, and Lundtofte (2019) study the relationship among institutional quality, trust and stock market participation in 14 European countries and discover that institutional quality has a significant effect on trust which in turn significantly influences stock market participation. Using dynamic heterogeneous PMG technique, Balogun, Dahalan and Hassan (2016) explore the long run effects of interest rate liberalization and institutional quality on stock market development in 7 selected Sub-Saharan African (SSA) countries covering the periods of 1990-2013 and discover that liberalizing the interest rates has a negative long run impact on the stock market development while institutional quality has significant positive relationship with the stock market development. Ernest, David, and Jones (2016) explore the effect of institutional quality on stock market performance in a panel of 41 emerging countries over the period of 1996 - 2011 using generalized method of moment's technique and indicate that institutional quality has a positive and significant impact on stock market performance.

Consequently, reinvestigation on the impact of institutional or governance quality on stock market development remains worthy of reinvestigation and an empirical question due to, not

 

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only mixed results as found in the existing literature but also there is no research specifically conducted on whether stock market development symmetrically or asymmetrically response to institutional quality.

## Method

To empirically validate the assumption of the symmetric relationship between the stock market development and institutional qualities, we collect time series data on the annual stock market capitalization from the central bank of Nigeria statistical bulletin, while data on the institutional quality that represents the average of the 6 indicators namely; control of corruption, government effectiveness, political stability, regulatory quality, rule of law and finally, voice and accountability is collected from the international monetary fund (IMF). Foreign direct investment is measure as the net inflow or the difference between FDI inflow and outflow. Due to restrictions posed by the availability of data, the study covers the period between 1996 and 2018. The detail description of the data is shown in table 1where the mean value of the annual stock market stood at 8324.67 with the corresponding standard deviation of 7723.34. Institutional quality has an average of 9.38 and deviation from the mean stood at 1.08. Foreign direct investment's mean value is 1.51 with corresponding standard deviation of 0.74.

This study's theoretical foundation is based on the work of Williamson (1985), North (1990), and Levine (1997). While Williamson (1985) contended that good institutions reduce transaction costs and protect against default in investment rules, making the market more appealing for investment, Milgrom et. al., (1990) contended that institutions produce stable rules and environment necessary for growth. Levins (1997) sees institutions as 'third type' factors critical for efficient working stock markets, implying that the absence of good institutions distorts stock market operations.

Peseran et., al (2001) advanced a method for estimation of the distributed lagged model with combination of the stationary and non-stationary time series. This method has several advantages over previous co-integration techniques. For starters, it employs more appropriate considerations than the J-J and Engle-Granger techniques when testing co-integration among variables in a small sample. In comparison, the Johansen co-integration techniques require a large data sample to be valid. Second, the method can be used regardless of whether the underlying variables are purely I(0), purely I(1), or mixed, whereas other co-integration techniques require that all variables be integrated in the same order. Third, unlike traditional co-integration procedures, current method allows the variables to have different optimal lags. Determination of the integration order of the series required conducting a formal test of the unit root test, among the large number of the unit root test methods, we employed ADF and DF-GLS because of their estimation power and general acceptability of the methods among time series econometrics modelers.

 

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In reference to Manasseh, Mathew and Ogbuabor (2017), the following functional relation is specified;

$$STD = F(INST, FDI) \ldots equ. 1$$

The linear model of the above function can be formulated as follows

$$STD_t = \beta_0 + \beta_1 INTS_t + \beta_2 FDI_t + \in_t \ldots equ. 2$$

Also in reference to Pasaran and Shin (2001), the study adopt and modified the following equations

$$\Delta STD_t = \alpha + \sum_{i=0}^{m} \beta_1 \Delta STD_{t-i} + \sum_{i=0}^{m} \beta_2 \Delta INST_{t-i} + \sum_{i=0}^{m} \beta_3 \Delta FDI_{t-i} + \sum_{i=0}^{m} \beta_4 INST_{t-i} + \sum_{i=0}^{m} \beta_5 FDI_{t-i} + \in_t \ldots equ. 3$$

The short-run dynamics otherwise known as the error correction model also enables the determination of the pace of the re-establishment of equilibrium. Hence, the error correction format of equation above is formulated as;

$$\Delta STD_t = \alpha + \sum_{i=0}^{m} \beta_1 \Delta STD_{t-i} + \sum_{i=0}^{m} \beta_2 \Delta INST_{t-i} + \sum_{i=0}^{m} \beta_3 \Delta FDI_{t-i} + etc_{t-1} \ldots equ. 4$$

To investigate the presence of long-run relationships among the variables, bound testing under Pesaran, et al. (2001) procedure is used. The bound testing procedure is based on the F-test. The F-test is actually a test of the hypothesis of no cointegration among the variables against the existence or presence of cointegration among the variables, denoted as:

Ho: $\beta 1 = \beta 2 = \beta 3 = 0$, i.e., there is no cointegration among the variables. Ha: $\beta 1 \neq \beta 2 \neq \beta 3 \neq 0$ i.e., there is cointegration among these variables.

**Results and Discussions**

Table 2 presents the results of the Augmented Dickey Fuller and DF-GLS unit root tests on Nigerian data for stock market development proxy by annual market capitalization, institutional quality and foreign direct investment. The results in the table shows that stock market and foreign direct investment are stationary after first difference hence they are I(1) variables, while institutional quality revealed stationarity at level. It worth noting that DF-GLS method shows that stock market raw series is stationary at 10% level, we consider this to be weak and examine the first difference of the data which turn to be stationary at 1% level. Conclusion emanating from the unit root test confirm mutual stationarity of the variables at level and first difference, in other words none of the series is integrated of order two, by these results, the condition for possible cointegration as extended by Shin et al has been meet.

 

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Table 1. Summary Statistics of the Underlying Data

| Code | Name | Obs | Mean | Median | Std. dev. | Min | Max | Data source |
|---|---|---|---|---|---|---|---|---|
| STD | Stock market development proxy by the annual market stock market capitalization | 23 | 8324.67 | 7030.84 | 7723.34 | 262.60 | 21904.04 | CBN bulletin (2021) |
| INST | Institutional quality proxy by the average of 6 index, namely; control of corruption, government effectiveness, political stability, regulatory quality, rule of law and finally, voice and accountability. | 23 | 9.38 | 9.40 | 1.08 | 7.05 | 10.74 | IMF (2022) |
| FDI | Foreign direct investment net inflow as a percentage of GDP. | 23 | 1.51 | 1.61 | 0.74 | 0.20 | 2.90 | WDI (2022) |

Source: Authors' Estimations

Table 2. Unit Root Status of the Underlying Variables

| Variable | ADF | | DF-GLS | | Integration |
|---|---|---|---|---|---|
| | Level | 1st diff. | Level | 1st diff. | |
| STD | -3.22 | -4.89* | 2.99*** | -5.15* | I(1) |
| INST | -4.77* | - | -4.23* | - | I(0) |
| FDI | -1.11 | -7.88* | -1.75 | -8.22* | I(1) |

Source: Authors Estimations. NB: *, ** & *** denotes stationarity at 1%, 5% & 10% respectively.

Table 3. Estimates of the Stock Market Development Baseline Model

| **Variables** | **Coefficients** | **Standard Error** |
|---|---|---|
| **Long Run Estimates** | | |
| INST | 11636.37** | 3179.25 |
| FDI | 1046.18 | 2141.06 |
| C | -99641.05 | 31131.24 |
| **Short Run Estimates** | | |
| D(STD)(-1) | -0.06 | 0.14 |
| D(INST) | 3345.32* | 592.27 |
| D(FDI) | -3637.68* | 866.01 |
| ECT | -0.58* | 0.12 |
| Bound Test (F Statistic) | | 3.77*** |
| BP Serial Correlation Stat | | 0.95 |
| BPG Heteroskedasticity Stat | | 2.68 |
| CUSUM Test | | Stable |
| CUSUM of Squares Test | | Stable |
| Selected Model Based on AIC | | ARDL (4, 4, 3) |

*, ** & *** signify statistically significant at 1%, 5% and 10% level respectively.

 

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In table 3 presents the baseline model that represent the nexus among the stock market development, institutional quality and foreign direct investment. From the long run estimates institutional quality appears to has a significant positive impact on the stock market development during the period under investigation. The prosperity enjoyed by the stock market over the years was the outcome of the quality of the institutions in the country, the higher the control of corruption, government effectiveness, political stability, regulatory quality, rule of law and finally, voice and accountability in the country, the more likely the performance of the stock market in the economy in the long run. Similarly, foreign direct investment net inflow has a positive insignificant effect on the stock market development in the long run. This is in consonance with the practical and theoretical expectation, net inflow in form of portfolio investment should be expected to impact positively on the development of the stock market in the country although the outcome is not statistically significant as expected.

The short run estimates revealed that the first period lag of the stock market is negatively related to itself though insignificant, institutional quality just like the long run coefficient has positive impact on the stock market development and statistically significant at 1% level. Further, FDI happens to have a negative and significant impact on the stock market in the short run as revealed by the estimate in the table 3. The error correction term that measures the speed of adjustment to the long run equilibrium stood at 58% and significant at 1% level. This means that when there is disequilibria in the model, movement towards long run equilibrium will take almost one and half year.

On whether the variables of the model are cointegrated, we employ the F-bound statistics, the coefficient revealed that there is long run co-movement among the variables at 10% level of the significant. This means that in the long run, the variables of the model move together and exert a considerable influence on one another. The Breusch pagan test of serial correlation revealed that the model is has no serial correlation because from the test statistics, we could not reject the null hypothesis. Further diagnosis of the model shows that the model has a constant variance as ascertain by the Breusch Pagan Godfrey test of heteroscedasticity, in this regard, the null cannot be rejected at all level of significant. The outcome of the CUMSUM and CUSUM of square test revealed that the model is stable over a long period as shown in the figures enclosed in the appendix section.

## Conclusions

The purpose of this study is to examine the symmetric relationship between stock market development, institutional quality and net inflow of FDI in Nigeria. Significant findings emerge from the study. The role of institutional quality becomes keen in the development of the stock market in the country. All the indices of the institutional quality such as control of corruption, government effectiveness, political stability, regulatory quality, rule of law and finally, voice and accountability have positive and significant impact on the growth of the stock market in the

 

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country. Corruption is key and all institutions and law enforcement agency plays a key role either directly or indirectly in ensuring the stability and efficiency of the financial system in the country. Regulatory quality for instance ensures fair play and ease of business and confidence to the existing and potential investors. In a nutshell, Institutional quality contributes to stock market development but only after a certain level of institutional development has been reached, a condition that is more difficult to achieve. Common in low-income economies. Most low-income countries are on the low side of institutional quality, implying that further improvements in institutions and governance above the threshold will result in an increase in stock market development. Foreign direct investment inflow performs well in the model, this is a reflection of the positive impact it has on the overall economy and by extension plays a significant role in the development of the stock market.

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