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SYMMETRIC AND ASYMMETRIC EFFECT OF INSTITUTIONAL QUALITIES AND STOCK MARKET PERFORMANCE ON ECONOMIC GROWTH IN NIGERIA

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Abstract

Institutional qualities and stock market performance are two fundamental determinants of economic growth. Institutions provide leadership while the stock market provides the financial resource needed by the institutions to function. This study, therefore, examines the symmetric and asymmetric relationship amongst institutional qualities, stock market, and economic growth in Nigeria. The study used time series data sourced from the Central Bank of Nigeria statistical bulletin and World Development Indicators (1996-2019). Leaning on standard Keynesian theory and employing the NARDL model proposed by Shin et al. (2014). The study revealed that the linear and non-linear model has a good fit with R-Square values in the three-compartment above 60%. Also, the result concludes that all share index and negative shocks from the control of corruption has both short and long-run asymmetric relationship with economic growth in Nigeria. The result also indicates that corruption has negative (positive) disproportional effects on economic growth. Based on the findings, it was recommended that the government should reorganize the corruption-fighting strategy to avoid the emission of negative shocks by adopting positive policies that should enhance economic growth. The fight against corruption should not be skewed towards suspected political rivalry as was presently constituted.

Keywords: Symmetric, Asymmetric, Institutional Qualities, Stock Market Performance, Economic Growth.

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INTRODUCTION

Globally, economic growth and development are beckoned on the quality of institutions in the country. Economic growth is a function of the availability of natural resources as well as the utilization of the said resources to grow the economy. The effective utilization of the available natural resources can only be possible in the presence of functional institutions and an effective stock market. Hall and Jones (1999) are of the view that institutions cause diversion of output and promote economic growth over time. The institutional disparity has been identified to be the reason why South Korea is said to have a very low level of income inequality compared to the higher income inequality in North Korea and the disparity between Mexico and the United States of America. Recalling that, both South & North Korea were formerly called the Korea Republic before the 39th parallel that led to the division of the two peninsular countries. In the same vein, Mexico was in existence before the discovery of the USA by Christopher Columbus but the presence of the functional institution and prudent financial system may have led to the difference in the quality of life in both countries.

To this end, North (1990) opined those institutions are the rule that guides human interaction. This in many instances implies that institutions guide social interactions within the society and decide the direction of productivity over time. A functional institution is a precondition for economic growth & development and has been detected to be the reason behind the income disparity between countries irrespective of their cultural and religious disposition. The poor institution gives room for a massive rent-seeking tendency in a capitalist economy which eventually leads to market failure. Institutional qualities are the foundation for sustainable economic growth and development (North, 1990). The stock market is one sub-set of the financial system that plays a major role in economic growth and development. The stock market improves the efficiency and effectiveness of the financial system through the provision of long-term capital for the financing of projects and investments for private businesses which in return drives economic growth/development. It makes available the needed capital formations and advice needed by the Government for financing capital projects at all times.

The tenet of globalization (market liberalization) involves the provision of huge financial capital to both public & private investment. The capital market makes available the financial instrument needed for globalization with functional institutional qualities as the driving mechanism. The degree of capital allocations to private investors is determined by the level of the return on investment but the global financial institutions like the international monetary fund (IMF) and World Bank (WB) give loans and assistance based on the shares of the country (weights) in the fund. Decisions of the capital market are determined by the political powers in the country given the fact that the political class determines the policy instruments of the monetary institution globally. The capital market has been an arm of the financial institutions with the sole purpose of mobilizing financial instruments for development and it is operated by the central bank of the Nation. The pattern of capital allocations to firms is expected to be following the classical proposition of the market system where the force of demand and supply are allowed to determine the price of goods and services but the reverse has been the case in Nigeria. The political institution has formed the amber of lordship in the Nigerian economy at the expense of other institutions. The political class in Nigeria takes decisions that influence the entire system without consideration of their impacts.

Adjudicating on evidence's inferred from scholars like Mauro (1995); Acemoglu et al. (2001); Rodrick (2003); Knack and Keefer (2006); Kaufman et al. (2007); Keefer and Shirley

(2000) were of the view that institutional qualities are a significant determinant of economic growth in linear models while the linear models of Levine and Zervos (1999); Mauro (2000); Demetriade and Hussian (1993); Atje and Joyamic (1993); Luintel and Khan (1999); Rousseau and Wachtel (2000) investigated the effect of the stock market on economic growth with vary effects without looking at the non-linear relationship that existed among them. Consequently, there is no known empirical study on the asymmetric relationship among institutional qualities, stock market, and economic growth in Nigeria. Thus, a gap in the literature is in existence and to close that gap, this study examined the symmetric and asymmetric relationship of institutional qualities and the stock market on economic growth in Nigeria. The objective of this study is to: examine the long and short-run asymmetric effect of institutional qualities and the stock market on economic growth in Nigeria.

CONCEPTUAL CLARIFICATION

Economic Growth

This means the ability of a nation to improve its human capital, physical capital as well as technological capital. The improvement in the level/rate of per capita productivity of a people at a particular period. Human capital as used above means the quality of education, health, and social dispositions of a people. Physical capital means the provision of financial instruments & machinery that is needed while technological capital means the improvement in technology & skills that will enhance economic growth (productivity).

Institutional Quality

According to North (1994), means the rate of growth in a society or more formally as constrain that shapes human interaction. A functional institution is a determinant of economic growth which can be expressed with the availability of voice and accountability, political stability & lack of violence, government effectiveness, and regulatory qualities, rule of law, and control of corruption.

Stock Market

This means the public market is concerned with the issuance, buying, and selling of stock traded on the stock exchange market or over the counters. It could also mean the collection of markets and exchange where regulated activities of buying, Issuance, and selling of shares of public and private-owned companies take place. The leading market in Nigeria is the Nigeria stock exchange (NSE).

THEORETICAL FRAMEWORK

Given the peculiar nature of the Nigerian economy where institutional factor and stock market inefficiency has heralded the path of economic growth and development. The study on symmetric and asymmetric effects of institutional qualities, the stock market, and economic growth was anchored on Harrod's Donald theory. There is therefore the need to defend the existence of steady growth (equilibrium) in every economy as long as the transmission

mechanism remains intact. According to the theory, when the economy's steady growth rate is disrupted by either internal or external shocks, the economy enters a state of disequilibrium, and the cumulative force tends to perpetuate the divergence, resulting in secular deflation or inflation. The model was developed using three different rates of growth. To begin, he claimed that there is an actual growth rate that is defined by the savings ratio and the capital-output ratio, which he claims also signals short-term growth. Second, he defined what he refers to as the warranted growth rate (G_w), which is an economy's full capacity growth rate, and the natural growth rate (G_n), which he defines as the welfare optimum or full employment rate. Long-run equilibrium occurs when an economy's actual growth rate G equals its warranted growth rate G_w , while disequilibrium arises when they are not equal as postulated. The relevance of this theory to the study is premised on the fact that institutional and stock market inefficiencies have constituted a clinch in the wheels to economic growth and development in Nigeria and the event of such protected development will disrupt the equilibrium state.

Review of Related Empirical Studies

Mauro (1995) carried out a study by analyzing a newly assembled data set consisting of subjective indices of corruption, the amount of red tape, the efficiency of the judicial system, and various categories of political stability for a cross section of countries. The study used time-series data from 1980 to 1983 to investigate the relationship between institutions and economic growth. For 67 countries, the Business Environmental Risk Intelligence (BERI) index was employed as a proxy for institutional quality, with components like corruption, red tape, judicial efficiency, and several categories of political stability. The approach used was a 2SLS estimating technique to conclude that bureaucratic efficiency leads to higher investments and faster growth, suggesting that this link is robust when typical factors of investment and growth are controlled for.

Keefer and Shirley (2000) investigated whether the quality of institutions has an impact on government consumption, investment, and debt increase. For their study, they used a panel of 84 countries from 1982 to 1994. Their findings revealed that utilizing a historical interpretative framework, the inadequacy of macroeconomic policies to support growth in a certain area may be explained. As a result, effective policies may perform inefficiently in the short run if implemented in low-quality institutional contexts, because institutional quality can only be adjusted marginally and gradually.

Acemoglu et al. (2001) estimated the impact of institutional quality on economic performance using disparities in settler mortality rates projected by European settlers. They used a sample of 75 nations for various years in their assessment utilizing the 2SLS technique, using the International Country Risk Guide's (ICRG) protection from expropriation risk index as a measure of the efficiency of contemporary institutions. The study proxied institutions by settler mortality rates and compare anticipated present GDP per capita to current institutions. Their findings demonstrate that the component of current institutional quality that is historically determined has a significant impact on development. As a result, institutional disparities account for almost three-quarters of the differences in GDP per capita between countries. This evidence suggests that current institutions, inherited from the past have a significant large effect on current income per capita by securing property rights. As such, the study claimed that there exist

substantial economic gains from improving institutions but they, however, did not provide any policy guideline.

Rodrik (2003) in a study estimated institutions rule and the primacy of institutions over geography and integration in economic development. The study used a 2SLS estimate technique to investigate the relationship between an index of institutional quality and regional economic performance for eight East Asian countries from 1960 to 1994. Even when institutional quality is instrumented, the study finds that they account for nearly all of the differences in the economic performance of the eight countries in the region across time. Using ordinary least square approaches.

Knack and Keefer (2006) investigated the impact of property rights on economic development across countries from 1976 to 1995. The study uses the International Country Risk Guide (ICRG) and Business Environmental Risk Intelligence (BERI) indices as proxies for institutional quality in a cross-country study. The quality of bureaucracy, property rights, and political stability are among the institutional indicators used to establish that there is a positive substantial association between institutional quality and economic success. Second, even after controlling for investment, the impact of institutions on growth persists.

Kaufmann et al. (2007) looked into whether there is a strong positive causal effect between various measures of governance and per capita incomes, as well as whether there is a weak, if not negative, causal effect running in the opposite direction from per capita incomes to governance. For the period 2000 to 2001, they used an instrumental variable (IV) technique using WGI metrics to cover 173 nations. Their findings, which were utilized to analyze the relationship between income and governance across Latin America and the Caribbean, showed that per capita income and governance quality are positively correlated across countries. The significance of this is that excellent governance is critical for economic growth.

Using cross-sectional regressions, Atje and Jovanic (1993) argued that stock markets have long-run effects on economic growth and that stock markets influence growth through a variety of channels such as; risk, liquidity, diversifications, information gathering on businesses, corporate governance, and savings. There is a minimal indication that the financial market is a leading sector.

In accessing the course of economic development in a group of ten countries Luintel and Khan (1999) looked at ten different factors through a systematic study. The research finds a bi-directional correlation between financial development and economic growth in emerging economies. Levine and Zervos (1998) looked at the size of the stock market concerning GDP and the number of listed companies (size), domestic turnover and value traded (liquidity), integration with global capital markets, and the standard deviation of monthly stock returns (volatility). The findings indicate that there is a strong and statistically significant link between initial stock market development and eventually economic growth. Mauro (2000) asserted that the stock market is a reliable predictor of economic growth in emerging economies.

Rousseau and Wachtel (2000) investigated the effect of equity markets to growth and cross-country evidence on timing and outcomes from 1980-1995. They explore 47 economies using

Granger causality approaches to examine the link between financial markets and growth. They find that higher financial sector development leads to better growth. Further findings emphasize the potential gains related with developing deep and liquid financial markets in an increasingly global economy.

METHODS

This study adopts a quasi-experimental research design which is suitable to deal with the data. The study made use of annual time series data spanning from 1990-2018 sourced from the Central Bank of Nigeria (CBN), the National Bureau of Statistics, and the internet.

Model Specification

This research adopted the modified version of Manzoor et al. (2020) model in their analysis of the relationship between aggregate domestic consumption spending and technological innovation effect on industrialization in South Africa. The dependent variable in this research work is GDP growth a proxy for economic growth while the independent variable is control of corruption and, voice and accountability as proxies for institutional variables. Market capitalization and the all-shares index are proxies for stock market performance in Nigeria. Hence, the functional and linear relationship, as well as the non-linear relationship, are presented below:

$$GDP_t = f(MCI_t, COC_t, ASI_t, VAA_t, \dots) \quad (1)$$

$$GDP_t = \alpha_0 + \beta_1 MCI_{t-1} + \beta_2 VAA_{t-1} + \beta_3 COC_{t-1} + \beta_4 ASI_{t-1} + \varepsilon_t \quad (2)$$

ARDL Linear Model

$$\Delta GDP_t = \alpha_0 + \sum_{t=1}^q \beta_1 \Delta GDP_{t-1} + \sum_{t=1}^p \beta_2 \Delta MCI_{t-1} + \sum_{t=1}^{p1} \beta_3 \Delta VAA_{t-1} + \sum_{t=1}^p \beta_4 \Delta COC_{t-1} + \sum_{t=1}^{p1} \beta_5 \Delta ASI_{t-1} + \alpha_1 GDP_{t-1} + \alpha_2 MCI_{t-1} + \alpha_3 VAA_{t-1} + \alpha_4 COC_{t-1} + \alpha_5 ASI_{t-1} + \varepsilon_t \quad (3)$$

The ARDL error correction mechanism will be expressed as thus:

$$\Delta GDP_t = \alpha_0 + \sum_{t=1}^q \beta_1 \Delta GDP_{t-1} + \sum_{t=1}^p \beta_2 \Delta MCI_{t-1} + \sum_{t=1}^{p1} \beta_3 \Delta ASI_{t-1} + \sum_{t=1}^{p1} \beta_4 \Delta COC_{t-1} + \sum_{t=1}^{p1} \beta_5 \Delta VAA_{t-1} + \lambda ECM_{t-1} + \varepsilon_t \quad (4)$$

The ECM signifies the error correction term whose value was gotten from the residual of equation (3).

To actualize the second objective of this research work which is the estimation of the non-linear positive and negative relationship that existed between institutional qualities, stock market and the economic growth proxies with GDP growth rate will employ the service NARDL proposed by Shine et al. (2014).

The asymmetric/non-linear representation will be expressed as follows.

$$GDP_t = \sigma_0 + \sigma_1 MCI_t^+ + \sigma_2 MCI_t^- + \sigma_3 ASI_t^+ + \sigma_4 ASI_t^- + \sigma_5 VAA_t + \sigma_6 COC_t + \varepsilon_t \dots \quad (5)$$

$$GDP_t = \sigma_0 + \sigma_1 VAA_t^+ + \sigma_2 VAA_t^- + \sigma_3 COC_t^+ + \sigma_4 COC_t^- + \sigma_5 MCI_t + \sigma_6 ASI_t + \varepsilon_t \dots \quad (6)$$

Where;

$MCI_t, ASI_t = MCI_0, ASI_0 + MCI_t^+ + MCI_t^- + ASI_t^+ + ASI_t^-$; MCI_t^+, ASI_t^+ = Partial Sum of positive and negative variation in MCI_t, ASI_t

$VAA_t, COC_t = VAA_0, COC_0 + VAA_t^+ + VAA_t^- + COC_t^+ + COC_t^-$; VAA_t^+, COC_t^+ = Partial Sum of positive and negative variation in VAA_t, COC_t

The NARDL equation estimate becomes:

$$\Delta GDP_t = \alpha_0 + \sum_{t=1}^q \beta_1 \Delta GDP_{t-1} + \sum_{i=1}^p (\zeta_i \Delta MCI_{t-i} + \xi_i \Delta MCI_{t-i}^+) + \sum_{i=1}^p \beta_2 \Delta COC_{t-i} + \sum_{i=1}^{p_1} (\omega_i EDB_{t-i} + \hat{\omega}_i ASI_{t-i}^+) + \beta_3 VAA_{t-1} + \beta_4 GDP_{t-1} + \beta_5 MCI_{t-1} + \beta_6 MCI_{t-1}^+ + \beta_7 VAA_{t-1} + \beta_8 COC_{t-1} + \beta_9 ASI_{t-1} + \beta_{10} ASI_{t-1}^+ + \varepsilon_t \quad (7)$$

$$\Delta GDP_t = \alpha_0 + \sum_{t=1}^q \beta_1 \Delta GDP_{t-1} + \sum_{i=1}^p (\delta_i \Delta VAA + \delta_i \Delta VAA^+) + \sum_{i=1}^p (\bar{\xi}_i \Delta COC_{t-i} + \bar{\xi}_i \Delta COC_{t-i}^+) + \sum_{i=1}^p \beta_2 \Delta ASI + \beta_3 MCI_{t-1} + \beta_4 GDP_{t-1} + \beta_5 VAA_{t-1} + \beta_6 VAA_{t-1}^+ + \beta_7 COC_{t-1} + \beta_8 COC_{t-1}^+ + \beta_9 ASI_{t-1} + \beta_{10} MCI_{t-1}^+ + \varepsilon_t \quad (8)$$

NARDL error correction mechanism will be estimated based on the following model:

$$\Delta GDP_t = \alpha_0 + \sum_{t=1}^q \beta_1 \Delta GDP_{t-1} + \sum_{i=1}^p \beta_2 \Delta MCI_{t-i} + \sum_{i=1}^p \beta_3 \Delta MCI_{t-i}^+ + \sum_{i=1}^p \beta_4 \Delta COC_{t-i} + \sum_{i=1}^{p_1} \beta_5 ASI_{t-i}^+ + \sum_{i=1}^p \beta_6 \Delta ASI + \sum_{i=1}^p \beta_7 \Delta VAA + \lambda ECT_{t-1} \quad (9)$$

$$\Delta GDP_t = \alpha_0 + \sum_{t=1}^q \beta_1 \Delta GDP_{t-1} + \sum_{i=1}^p \beta_2 \Delta VAA + \sum_{i=1}^p \beta_3 \Delta VAA^+ + \sum_{i=1}^p \beta_4 \Delta COC_{t-i} + \sum_{i=1}^{p_1} \beta_5 \Delta COC_{t-i}^+ + \sum_{i=1}^p \beta_6 \Delta ASI + \sum_{i=1}^p \beta_7 MCI_{t-1} + \lambda ECT_{t-1} \quad (10)$$

In the estimation of the empirical equation above, the following procedure will be incorporated or applied with the aid of ARDL and NARDL respectively. Firstly the unit root test was conducted with the use of the augmented dickey fuller test to ascertain the level of stationarity of the series before proceeding to determine the existence or absence of long-run relationship among the series in the model through ARDL bounds test by testing the null hypothesis of $H_0: \beta_5 = \beta_6 = \beta_9 = \beta_{10} = 0$ against the alternative hypothesis of the form $H_1: \beta_5 \neq \beta_6 \neq \beta_9 \neq \beta_{10} \neq 0$ as well as the null hypothesis of the form $H_0: \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0$ against the alternative hypothesis of the form $H_1: \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8 \neq 0$. Thirdly, the NARDL was estimated by placing maximum restrictions on institutional variable and the stock market variables in different specifications to ascertain the impact of the positive and negative shocks they contributed to the GDP independently. Fourthly, the speed of adjustment back to equilibrium during the periods under review was looked into. Fifthly, we estimated Wald test of long-run asymmetric relationship between institutional qualities variables and economic growth by testing the null hypothesis of no long-run asymmetric relationship of $H_0: -\beta_5^+ / -\beta_4^- = -\beta_6^+ / -\beta_4^-$ against the alternative hypothesis that the null is not through of the form $H_1: -\beta_5^+ / -\beta_4^- \neq -\beta_6^+ / -\beta_4^-$ and $H_0: -\beta_9^+ / -\beta_4^- = -\beta_{10}^+ / -\beta_4^-$ against the alternative hypothesis of the form $H_1: -\beta_9^+ / -\beta_4^- \neq -\beta_{10}^+ / -\beta_4^-$. I will also test the long-run asymmetric relations between the stock market variables of market capitalization and ease of doing business and economic growth by testing the null hypothesis no long-run asymmetric relationship of the form $H_0: -\beta_5^+ / -\beta_4^- = -\beta_6^+ / -\beta_4^-$ against the alternative hypothesis of the form $H_1: -\beta_5^+ / -\beta_4^- \neq -\beta_6^+ / -\beta_4^-$ as well as the null hypothesis of the form $H_0: -\beta_7^+ / -\beta_4^- = -\beta_8^+ / -\beta_4^-$ against the alternative hypothesis of the form $H_1: -\beta_7^+ / -\beta_4^- \neq -\beta_8^+ / -\beta_4^-$

Finally, the computation of the Asymmetric cumulative dynamic multiplier effect of 10% variation will be performed with the help of the following models:

$$Q^+_{1} = \frac{\partial GDP_{t+j}}{\partial MCI_{+t-1}}, \quad Q^-_{1} = \frac{\partial GDP_{t+j}}{\partial MCI_{-t-1}}, \quad Q^+_{1} = \frac{\partial GDP_{t+j}}{\partial ASI_{+t-1}}, \quad Q^-_{1} = \frac{\partial GDP_{t+j}}{\partial ASI_{-t-1}}.$$

$$Q^+_{1} = \frac{\partial GDP_{t+j}}{\partial VAAI_{+t-1}}, \quad Q^-_{1} = \frac{\partial GDP_{t+j}}{\partial VAA_{-t-1}}, \quad Q^+_{1} = \frac{\partial GDP_{t+j}}{\partial COC_{+t-1}}, \quad Q^-_{1} = \frac{\partial GDP_{t+j}}{\partial COC_{-t-1}}.$$

The econometric expressions are arranged in three-compartment to make it very easy to read and infer economic meaning to the signs and elasticities. Compartment one examines the linear (ARDL) relationship between institutional qualities, stock market and economic growth in Nigeria (equation 3.). Compartment two examines the non-linear nexus between the stock market and economic growth in Nigeria (equation 5,7,9). While Compartment three examines the non-linear nexus between institutional qualities and economic growth (equation 6,8,10).

TECHNIQUES

This research study is descriptive and analytical as it employs secondary data in investigating the symmetric and asymmetric effect of institutional qualities, stock market and economic growth in Nigeria. The descriptive tools in this article include descriptive statistic and correlation matrix while further analysis will be performed with the use of ordinary least square (OLS) techniques based autoregressive distribution lag ARDL as proposed by Pesaran et al. (2001) and NARDL model proposed by Shin et al. (2014) that will enable us to estimate the positive and negative effects of institutional variable proxy by voice and accountability and control of corruption; stock market performance proxy by market capitalization and All-shares index simultaneously. The proposed NARDL is an extended version of the traditional ARDL model (Pesaran, 2001). NARDL includes dynamic error-correction mechanism which enables us to infer negative and positive shocks in the long-run (Mensi et al., 2017). Wald test will be conducted to verify the asymmetric effects of institutional qualities and the stock market on economic growth in Nigeria. Other tests like R^2 , Adjusted- R^2 , DW-Test, unit root and some diagnostic checking will be used in this research work.

Table 1: Descriptive Statistic Result

	LOG(RGDP)	COC	VAA	ASI	MCI
Mean	11.81981	0.781612	-0.629130	38.75230	2050787.
Median	11.86575	0.812567	-0.690000	39.54000	2421143.
Maximum	13.21221	0.879576	0.710000	47.57000	3723757.
Minimum	10.08999	0.635568	-1.550000	30.28709	72930.90
Std. Dev.	1.169106	0.092609	0.515963	5.266199	1311801.
Skewness	-0.173270	-0.391949	1.113734	0.094099	-0.391823
Kurtosis	1.535972	1.526292	4.811578	1.969122	1.703513
Jarque-Bera	2.169156	2.670216	7.899953	1.052373	2.199355
Probability	0.338044	0.263130	0.019255	0.590854	0.332978
Sum	271.8556	17.97708	-14.47000	891.3030	47168107
Sum Sq. Dev.	30.06980	0.188680	5.856783	610.1227	3.79E+13
Observations	23	23	23	23	23

The outcome of the descriptive statistic result above indicates that the mean of the distribution for GDP, COC, VAA, ASI, and MCI are 11.81981, 0.781612, -0.629130, 38.75230, 2050787 while the median which is the center of distribution most sensitive to the outliers relative to the mean are: 11.86575, 0.812567, -0.690000, 39.54000 and 2421143. The maximum and minimum values are: 13.21221, 0.879576, 0.710000, 47.57000, 3723757 and 10.08999, 0.635568, -1.550000, 30.28709, 72930.90. the skewness output indicates that GDP, COC, and MCI have long left tails given the negative values of their elasticity's while VAA and ASI have long right tails going by the positive values of their elasticity's. The kurtosis which measured the peakedness of the distributions inferred that only VAA is peaked (leptokurtic while others are flat (plytokurtic). The jarque-bera and its associated statistics show that all variables are normally distributed given their probability values above 0.05 after 23 observations on reviews 10.

Empirical Analysis Result

Unit Root Test

Variables	Levels		1 st differences		Order of integration
	T. statistics	Critical Value at 5%	T. statistics	Critical value at 5%	I(1), I(0)
GDP	0.220056	-3.004861	-4.022720	-3.012363	I(1)
MCI	-1.345881	-3.004861	-3.697222	-3.040391	I(1)
VAA	-3.773520	-3.004861	-	-	I(0)
COC	-1.214300	-3.004861	-5.289976	-3.012363	I(1)
ASI	-0.258634	-3.012363	-7.273778	-3.052116	I(1)

Sources: Author Computation from E-View s 8 Markinon (1996) One-sided P-value

The information from the unit root performed with Augmented Dickey fuller test indicates that the series housed the combinations of variables of a different order of integration as shown above. They all become stationary after first difference In line with the preposition of Box and Jenkins (1978) who argued that non-stationary data at level will be made stationary after first difference. Thus, the need for the adoption of the ARDL method of econometric analysis.

Short-Run Elasticity

Variables	Compartment 1 (1,0,1,1,1),	Compartment 2 (1,0,0,1,1,0,0),	Compartment 3 (1,1,0,1,0,1,1)
<i>MCI</i> ⁺			0.033202 (0.1992)
<i>MCI</i>			0.002428 (0.9481)
<i>COC</i> ⁺		-1211884 (0.1235)	
<i>COC</i> ⁻		4859891 (0.0000) **	
<i>ASI</i> ⁺			-5372.672 (0.5144)
<i>ASI</i>			-1167214 (0.0281) **
<i>VAA</i> ⁺		-30732.26 (0.3241)	
<i>VAA</i> ⁻		-5240.920 (0.7613)	
<i>MCI</i>	0.014424 (0.2840)	0.033017 (0.0252) **	
<i>COC</i>	-8811587 (0.0594) ***		-919252.2 (0.1192)
<i>ASI</i>	-13960.00 (0.0816) ***		
<i>VAA</i>	-2972.866 (0.8732)		3739.459 (0.8588)
<i>D(COC-NEG)</i>		43168.71 (0.9406)	
<i>GDP</i> (-1)	-0.775235 (0.0000) **	-0.241660 (0.137115)	1.053152 (0.0042) **
<i>COC</i> (-1)	1248163 (0.0052) **		1192759 (0.0104) **
<i>ASI</i> (-1)	15681.99 (0.0937) ***	60949617 (0.0137) **	

<i>MCI (-1)</i>			
<i>VAA (-1)</i>	-29991.59 (0.1703)		-17887.02 (0.6132)
<i>D(ASI-NEG)</i>			-116721.4 (0.0281) **
<i>F. statistic</i>	4.93 upper 3.49 and 3.09	6.73 upper 3.96 and 3.388	2.03 upper 3.96 and 3.38
<i>ECM (-1)</i>	-0.224765(0.0000) **	-241660(0.0000) **	

A close look at the ARDL model (1,0,1,1,1) in compartment one shows that COC, ASI, and ASI (-1) are all significant at 10% level while GDP (-1) and COC (-1) are significant at 5% level. The elasticity of control of corruptions (COC) and all shares index (ASI) appeared with negative signs which are in contradiction of the theoretical expectations while the first-year lag of all share ASI (-1), one year lag of control of corruption COC (-1) and GDP (-1) lag one appeared with the appropriate sign positive. The ARDL bounds test result indicates that there is a long-run relationship among the variables in the model given the f-statistics value of 4.93 which is above the upper bounds test the critical value of 3.49 and 3.09 at 5% and 10%. The ECM result above indicates that the past disequilibrium in the economy will be corrected at an adjustment speed of 22% in the present time given the probabilities value of less than 5%. The R-square value of 60% indicates that the model has a good fit while the adjusted R-square of 53% indicates that 53% of changes in GDP are caused by variables in the model while others are determined outside the model.

NARDL (1,0,0,1,1,0,0) model above as specified in compartment with restriction on stock market. The essence of placing restrictions is to enable the researcher to ascertain the disaggregated impact of the institutional qualities on economic growth. Both positive and negative shocks have negative impacts on GDP except negative shocks from the control of corruption which appeared with a positive sign. Other positive and negative shocks are not significant to cause a change in GDP in the short run given the insignificant values of their probabilities. The past realizations of ASI and the present value of MCI are significant at a 5% level given their probability values less than 0.05 on average ceteris paribus. The cointegration test is computed in line with the assumptions of Pesaran et al. (2001) which compared the value of F. statistic and the upper and lower bounds critical value. Thus, the need for the NARDL error correction mechanism. The F. statistic is valued at 6.73% which is above the upper bounds' critical values of 3.96 and 3.36 at both 5% and 10% significance levels respectively.

The past disequilibrium in the system is to be corrected at an adjustment speed of 24% in the present time. NARDL (1,1,0,1,0,1,1) result in compartment three after imposing restrictions on institutional qualities indicates that both positive and negative shocks harm GDP given the negative signs in their elasticity. Positive shocks from the all-share index (ASI) is significant at 10% while the negative shock is significant at 5%. That implies that the general activities of the stock market have negative contributions to the growth of the nation's economy. This could be related to the depressed economy and the negative effect of the political system inherent in Nigeria. The past realizations of control of corruption have a significant negative impact on GDP. This implies that the activities of corruption controlling agencies in Nigeria like the economic and financial crime commission (EFCC) and independent corrupt practices and other related offense (ICPC) has a negative influence on economic growth. This assertion contradicts the views of Mauro (1995); Acemoglu et al. (2001); Rodrick (2003); Knack and Keefer (2006); Kaufman et al. (2007) who modeled a positive association between institutional qualities and economic growth.

Long-Run Elasticity

Variables	Compartment 1	Compartment 2	Compartment 3
MCI ⁺			-0.295607 (0.8698)
MCI			0.045674 (0.9426)
COC ⁺		-5014839 (0.0751) ***	
COC ⁻		20110480 (0.1064)	
ASI ⁺			101080.6 (0.8680)
ASI			-1614635 (0.8178)
VAA ⁺		-1271717 (0.4841)	
VAA ⁻		21687.20 (0.7705)	
MCI	0.064173 (0.2908)	0.136625 (0.2243)	
COC	1632839 (0.7567)		-5145713 (0.8450)
VAA	-14662.0 (0.3252)		336523.6 (0.8624)
ASI	7661.292 (0.7567)	252212.0 (0.0659) ***	
C	-380613 (392614.6)	-7743098 (0.0638)	3585529 (0.8442)

NARDL (1,0,0,1,1,0,0) model indicates that in the long run, no coefficient is significant to cause changes in economic growth. That can be seen from the insignificant elasticity in the long-run result. When restrictions are placed on the stock market implies that positive shocks have a positive impact on GDP and negative shocks have a negative impact on GDP as well. Both positive shocks from the control of corruptions (COC_POS) and ease of doing business have a significant impact of GDP at 10% and 5% level of significance. NARDL (1,1,0,1,0,1,1) model also indicates that both positive and negative shocks on institutional qualities have a negative impact on GDP but none is significant to cause changes in the value of GDP while negative shocks from the ease of doing business component of the stock market have a positive insignificant impact on GDP in the long run.

Testing Hypothesis of an Asymmetric Effect

Null hypothesis	Alternative hypothesis	F. statistic	Decision
$H_0: -\beta_5^+/\beta_4^- = -\beta_6^+/\beta_4^-$	$H_1: -\beta_5^+/\beta_4^- \neq -\beta_6^+/\beta_4^-$	5.417871 Prob(0.1010)	No Long-run asymmetric relationship between MCI and economic growth.
$H_0: -\zeta_5^+/\beta_1^- = -\zeta_6^+/\beta_1^-$	$H_1: -\zeta_5^+/\beta_1^- \neq -\zeta_6^+/\beta_1^-$	2.182045 Prob(0.2600)	No short-run asymmetric relation between MCI and economic growth.
$H_0: -\omega_9^+/\beta_4^- = -\omega_{10}^+/\beta_4^-$	$H_1: -\omega_9^+/\beta_4^- \neq -\omega_{10}^+/\beta_4^-$	3.760746 Prob (0.0992)*	There is a long-run asymmetric relationship between ASI and economic growth.
$H_0: -\zeta_1^+/\beta_1^- = -\zeta_6^+/\beta_1^-$	$H_1: -\zeta_1^+/\beta_1^- \neq -\zeta_6^+/\beta_1^-$	5.501792 Prob (0.0992)*	the short-run asymmetric relationship between ASI and GDP.
$H_0: -\beta_5^+/\beta_4^- = -\beta_6^+/\beta_4^-$	$H_1: -\beta_5^+/\beta_4^- \neq -\beta_6^+/\beta_4^-$	-2.438905 Prob (0.0926)*	the long-run asymmetric relationship between COC and GDP.
$H_0: -\delta_5^+/\beta_1^- = -\delta_6^+/\beta_1^-$	$H_1: -\delta_5^+/\beta_1^- \neq -\delta_6^+/\beta_1^-$	-1.832888 Prob(0.39219)	No short-run asymmetric relationship between COC and GDP.
$H_0: -\beta_7^+/\beta_4^- = -\beta_8^+/\beta_4^-$	$H_1: -\beta_7^+/\beta_4^- \neq -\beta_8^+/\beta_4^-$	0.221083 Prob(0.8136)	No long-run asymmetric relationship between VAA and GDP.
$H_0: -\bar{\alpha}_5^+/\beta_1^- = -\bar{\alpha}_6^+/\beta_1^-$	$H_1: -\bar{\alpha}_5^+/\beta_1^- \neq -\bar{\alpha}_6^+/\beta_1^-$	1.343807 Prob (0.3831)	No short-run asymmetric relationship between VAA and GDP.

Note: *, **, *** depict significance at 10%, 5% and 1% respectively.

The Wald test estimate performed with the null and alternative hypothesis previously defined to examine the asymmetric relationship between institutional qualities and economic growth as well as that between the stock market and economic growth confirmed the result of ARDL and NARDL previously estimated. The all-share index is said to have both short-run and long-run positive and negative asymmetric relationship with economic growth in Nigeria while the control of corruption has long-run negative asymmetric relation with economic growth in Nigeria.

Diagnostic Test

Test	Compartment 1	Compartment 2	Compartment 3
Serial correlation LM Test	3.998414 (0.0495)	6.381257 [0.0188]	4.166550 (0.0643)
Heteroskedasticity	1.545836 [0.2330]	2.28949 [0.0982]	2.035522 (0.1478)
Normality test	4.87339 [0.87277]	1.072944 (0.584808)	3.726488 (0.155168)
Cusum	+2.5; - 2.5	+2.5; - 2.5	+2.5; - 2.5

The basic diagnostic checking confirms the presence of serial correlation in the first second compartment while the third compartment has no record of serial correlation given the probability above 0.05. the result also confirms the presence of homoskedasticity in the residual. The residual is normally distributed given the Jarque-Bera statistical and its associated probability value above 0.05. The Cusum test validates the stability of the models for the year spanning from 1996 to 2018.

SUMMARY AND POLICY IMPLICATION

The empirical study that examined the symmetric and asymmetric effect of the relationship between institutional qualities, stock market, and economic growth in Nigeria as shown above was conducted with only 23 observations. In the short run, it was reported that the past realizations of GDP have a strong significant endogenous influence on itself given the significant value of the probability. Meaning that a one percent increase in the past year's GDP will increase the present year's GDP by 77% on average ceteris paribus. It was also reported that only control of corruption and all share index and their one-year lags values are significant to cause changes in GDP in the short run. But the irony of the matter is that both COC and EDB have negative impacts on GDP. Meaning that all efforts made by the federal and state government in controlling corruption and all share index position have worsened the corruption index of the country to the extent that we are ranked the 147th most corrupt country by the amnesty international report (2018). The above position implies that corruption is a moral burden on Nigerians. The inappropriate method used in fighting corruption by the government has dissuaded many investors from investing their hard-earned income in Nigeria while the body language of the ruling political party made some existing ones leave to other Africa countries like South Africa and Ghana irrespective of issues of xenophobia in this countries. The only few that chose to remain in Nigeria have incorporated members of the ruling party to cover their evil enterprise and continue their corruption which accounted for high volatility in the use of internet call rate and data by the telecommunication companies.

In response to the second object of this work which is to the examinations of the asymmetric effects of institutional qualities, stock market, and economic growth in Nigeria, NARDL(1,0,0,1,1,0,0), NARDL(1,1,0,1,0,1,1) was specified after placing restrictions on both institutional qualities and stock market separately to enable the research to ascertain the positive and negative shocks from them. We also inferred from the result as shown in compartments two and three that a one year lag of positive shocks from the control of corruptions has a significant positive impact on the growth of the nation's economy in the short run as well as the market capitalization component of the stock market and one-year lag value of all share index (ASI) are significant to cause changes in economic growth. That implies that the negative shocks from the activities of the corruption controlling agents as stated above have a strong influence on the growth of the economy. The above situation is only desirable to make the market capitalization and all share indexes have to have a positive influence on the nation's path to economic advancement. Only negative shocks from the control of corruption can stimulate the much desire changes in Nigeria's economic growth in both the short and long run with a negative consequence in society. For positive shocks to have negative impacts in both the short and long run means that the country's economic growth only response to negative impulse from the activities intended to reduce the control of corruption in Nigeria. The all-share index having a positive impact in the long implies capital market instrument is sensitive in the stabilization of the financial system. The negative and positive shocks from the stock market imply that only negative shocks from the all-share index are significant in the short run to stimulate economic growth in Nigeria.

ASI and COC are important inputs in the economic growth of Nigeria owing to the strong causality emitted in both the short and long-run. Promoting economic growth requires the drastic implementation of policies that will promote financial stability as well are the reorganization of corruption controlling agents such as the economic and financial crime commission and independent corrupt practices and other related offenses Commission (ICPC). This agency should be allowed to work autonomously to stop the emission of negative shocks in a positive move.

Recommendations

The information from the regression results above raised the following major issues of national importance and recommendation herein:

- The Federal Government of Nigeria should reorganize the corruption-fighting strategy to avoid the emission of negative shocks from positive policies which harm economic growth.
- The fight against corruption should not be skewed toward suspected political rivals as was presently constituted.
- Capital/stock market regulations should be improved to facilitate the speedy provision of financial instruments to enable both local and international investors to meet global competitiveness.
- The policies of the government should be flexible for the stock market regulators. Flexibility in that context means the total absence of political interference in the financial system.

- The tenet of inclusive growth and growth with equity should be rigorously pursued by the Federal Government of Nigeria.
- Finally, the Federal and state government should grant total autonomy to all corruption-controlling agencies void of political interference and ethnic consideration.

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