

## Rule of Law, Regulatory Quality and Investment Growth in Nigeria: An Impact Analysis

### ABSTRACT

This study focuses on the rule of law, regulatory quality, and investment growth in Nigeria employing the ordinary least square method of estimation—a time series of data spanning from 1997 to 2019. Economic growth was proxied by investment growth. At the same time, other variables include the rule of law, regulatory quality, consumer price index, premium lending rate, trade openness, financial deepening, investment, gross investment, and gross fixed capital formation. The OLS result finding shows a significant positive relationship between the rule of law, regulatory quality, and economic growth. Also, the result of the ECM shows that the speed of adjustment of the investment growth in the long run would be accounted for in the short run by the magnitude of 27% and 40%. A significant negative relationship exists in the robustness check between the rule of law, regulatory quality, and gross investment. Findings from the Granger causality test show a unidirectional causality between the rule of law and economic growth and a bidirectional causality between regulatory quality and economic growth. Thus, improvement in Nigeria's governance and institutional framework is suggested as a policy recommendation.

Keywords: Rule of law, Regulatory quality, and Investment Growth

### Introduction

The rule of law gained prominence during the Enlightenment – efforts to evolve viable systems to regulate inter-human relations and promote socioeconomic and investment growth. The rule of law is a critical driver of investment growth and development (OECD, 2015b; Stephan, 2010; Martin, 2008; Deinla & Taylor, 2015) in developed and developing economies. In the past, traditional economists such as Adam Smith, in his *Wealth of Nations*, linked economic and investment growth to the sustained degree of legislation that ensures the liberty of individuals in pursuit of exclusive economic interests. They asserted that individual freedom leads to prosperity for the larger society (Mohammed & Mahfuzu, 2016). Recently, the collapse of the Berlin Wall in the late 80s through regulation led to the remodeling of the concept and practice of the rule of law (Krygier, 2015). The idea reflected the prevailing ideological struggles to widen investment destinations and markets, which later assumed a major policy thrust to advance political and economic fronts (Sannerholm et al., 2012) between capitalist and socialist economies.

Consequently, divergent theories and models were mooted to promote investments, as seen in contemporary economic and related literature. They agree that the rule of law plays a prominent role in sustaining investment growth (Koeniger & Silberberger, 2015). The fundamental question, however, is how much the laws and other regulations have pushed through the current resistance in latent and blatant investment barriers to widen investor's space. These impediments result from the poor regulatory framework and ineffectiveness of the institutional environment to strengthen the market efficiency through a viable rule of law to promote investors' confidence, ultimately leading to the underperformance of the economy (Manasseh et al., 2017). The inhibitions are equally expressive through socioeconomic, political, and policy inconsistencies in harmonizing actors' interests (Gábor, 2018; Daham et al., 2019; Abubakar, 2020), discouraging investors from possible investments. There are indivisible connections between investment growth and the rule of law. Given this, Asli et al. (2016) noted that quality regulations are increasingly sensitive as the degree of investment significantly impacts the prevalent socioeconomic

and political systems. A lack of regulatory quality or a slow pace of reforms in the business environment puts a lid on investment (PWC, 2017).

The rule of law, in its entirety, lays the foundation and provides the basic framework for regulating investment outlays and enhances quality control and cross-border legal relations (Halliday & Shaffer, 2015; UNCTAD, 2018). The illegal movement of funds and investment ideas overseas due to weaknesses in Nigeria's regulatory institutions constitutes significant reasons for the setback in investment growth (Owasanoye, 2019; Epaphra & Kombe, 2018). This is mainly because viable regulations, investment, and economic development are relatively intertwined. Quality regulations assist in attaining increased investment and sustained growth, expressed through institutional viability. Douglas North, cited in Soludo (2006), states that:

"Successful development policy entails an understanding of the dynamics of economic change if the policies pursued are to have the desired consequences. Moreover, a dynamic model of economic change entails an integral part of that model analysis of the polity since the polity (institutions) specifies and enforces the formal rules/law.... Development economists have typically treated the state as either exogenous or benign in the development process. The state can never be treated as an exogenous actor in development policy, and getting the prices right only has the desired consequences when you already have a set of property rights and enforcement that will produce competitive market conditions (North, DC: 1993: 5)".

Consequently, quality regulation becomes visible when it resolves precarious situations on investments occasioned by asymmetrical human relations and ensures investors' confidence (Asli et al., 2016; Koeniger & Silberberger, 2015). Empirical studies have shown that states with regulatory efficiency boost economic activities. Regulatory quality and institutional structures significantly accelerate high returns on investments (Ata et al., 2012; Manasseh et al., 2017). However, investment opportunities are sustained where the rule of law has gained momentum over time - in environments less susceptible to frequent policy interference. The challenges of significant economies in the developing stage range from lack of capacity to evolving effective processes (regulatory quality) that lead to the creation of investment capital based on the principles of the rule of law (World et al., 2015) because the creation of investment-friendly environment facilitates overall development in the legal platform (Asli et al., 2016). Andrew Natsios, cited in Martin (2008), noted that:

"Without good governance, a solid commitment to the rule of law, and a genuine will to control corruption, all essential for efficient governance, investment, and development, would be difficult, if not impossible.

Therefore, the keys to good governance are operationalizing the rule of law and quality regulations that stimulate investment growth. Effective rules culminate in an ideal environment for investment (Iheonu&Onwuanaku, 2017; Parks et al., 2017). The inconsistent regulation mentioned above limits the possible effects of investment and the accruable benefits. This is because a well-regulated economy profits more from investments, while countries with unfriendly laws are adversely affected (Koeniger & Silberberger, 2015). Accordingly, there are diverse links between investment growth and quality regulations. While investment growth reflects the cumulative effect of an entrenched competitive market (Obadan&Odusola, 2001;Ihensekhien, 2019), the increasing need to formulate and implement effective rules to check investment outlays becomes paramount. Sustainable investment growth in the long run requires effective regulations, which can only be achieved through adherence to the rule of law. The paper seeks to establish the nexus between the rule of law, regulatory quality, and investment growth in Nigeria.

## **Review of literature**

### **Conceptual framework**

The rule of law denotes the supremacy of existing laws and their equal application to all persons and institutions in society (Igwe, 2007). It refers to the equality of relations in such a way that the law shapes man's activities and guarantees investment opportunities and socioeconomic stability (Martin, 2008; Daham S. et al. (2019). However, laws are designed to harmonize divergent interests in economic activities – as investment decisions are predicated on the viable economic framework. The rule of law ensures that regulations are efficient, transparent, and

accountable (Halliday & Shaffer, 2015; Morrall 2001). It promotes the quality of investment and economic performance and enhances the effective management of microeconomic indicators.

Over the years, inquiries in the economic literature on investment growth have increased. However, these research studies have been conducted with less emphasis on the quality of regulatory institutions and the rule of law as determining factors in explaining investment growth and how it translates to sustainable development in Nigeria. Studies by Ata and Akça (2012), OECD (2015b), and Asli et al. (2016) noted that the rule of law sustains levels of equilibrium in investment growth. Therefore, an investment decision takes root from the quality of regulatory institutions as dictated by the currency of the rule of law (Mohammed and Mahfuzu (2016). According to neo-classical proponents, investment and economic growth are based on factors of supply and the level of technology prevalent in the economy (Gwartney R. et al., 2016; Doucouliagos & Mehmet, 2006). As stated by these scholars, these key growth determinants cannot guarantee investment growth in isolation from the quality regulatory framework reflected in the rules guiding investment lines. The rule of law promotes investment opportunities, innovation, market openness, and sustainable growth (OECD, 2015a). This is why countries with significant compliance rates to standard regulations achieve higher investment growth and business returns with the same quantity of resources (Mohammed and Mahfuzu (2016) than those without.

David et al. (2003) posted that contemporary policies have increasingly emphasized the rule of law as necessary for investment and development strategy. Their studies revealed the enormous financial support from donor agencies for enhancing and entrenching the rule of law and encouraging investment growth in developing economies. However, classical writers such as Max Weber, cited in David et al. (2003), argue for a strong relationship between quality regulation and investment growth. However, Yildirim and Gokalp (2016), on the other hand, hold that the prevailing law in developing economies mainly emphasizes redistribution activities without encouraging investments through quality regulations. This, however, affects the law process and government effectiveness (Epaphra & Kombe, 2018), which retards investment growth. The Studies of Izilein and Mohammed (2017) noted that several factors hindering investment growth in Nigeria are weak institutional structure and decrepit state capacity. They submitted that the structures of socioeconomic and political activities are rooted in the operations of the rule of law - the quality and effectiveness of regulatory institutions are imperative for accelerating investment growth. Over the past few decades in Nigeria, there have been increases in her revenue profile attracted by policy framers. However, these revenues have not translated to quality living standards amongst Nigerian citizens due to poor regulatory framework in economic activities, resulting in capital flight formations (Kanu et al., 2014; Kanu, 2008). Quality regulation ensures competitive advantage, provides incentives for investment opportunities, and is the basis for why investors prefer specific destinations. The works of Koeniger and Silberberger (2015) and Buccirossi P. et al. (2013) explained that the growth effect of the rule of law and regulation depends on a country's level of economic integration. This point is further buttressed by (McKenzie, 2017) which noted the confinement of regulatory capacities of most states to a smaller segment of that society, with reforms that only contribute to specific investment patterns that ultimately undermine state-society relations. The action reinforces conditions that promote institutional plurality because environments where institutions better protect and enforce the rights of investors experience high levels of investment growth and development.

The UNCTAD (2018) stated that world investment declined up to 23 percent in 2017 in developed and transition economies, while the underdeveloped ones are said to have recorded almost zero investments during the same period. This trend revealed the essentialities of the rule of law and the quality of regulation that institutionalizes the process that drives investment opportunities in different environments (Soludo, 2006; Oyedokun & Ajose, 2018). It shows that destinations with the prevalence of the rule of law serve as investment havens (UNCTAD 2018), and well-regulated environments feature transparent and non-discriminatory investment policies. Similarly, the World Bank Report (2014) also noted that investments declined long before a notable economic downturn in Nigeria and substantially reduced investor confidence (CBN, 2016). Their reports, however, underscore the need for regulatory quality in vital macroeconomic indicators amongst financial managers. Therefore, harnessing investment growth

opportunities in Africa is contingent on the relative stability of the socioeconomic and political environment (Kazeem, 2013; Ajide&Lawanson, 2012), as poor governance is implicated in the unstable policy framework in most African countries that impedes investment growth over the years (Akanbi (2010). Consequently, the paper seeks to investigate how the rule of law and regulatory quality enhance investment growth in Nigeria. However, the challenge revolves around the extent to which institutional structures ensure the application of the law, which significantly impacts investment growth.

### **Empirical studies**

Investment growth and legal framework issues have attracted wide discourse on economic and related studies over time. The bulk of these studies discussed accruable benefits to investor undertakings. The challenge, however, is how opportunities are enhanced through institutionalizing the rule of law and regulation to command investors' confidence. However, empirical studies by Ubi et al. (2011) revealed that a quality regulatory framework provides models and establishes structures by which investment decisions rest. It ensures the development of efficient investment policies that drive societal progress (Karabacak, 2003; Asli et al., 2016), as a prone environment results in a loss of investment opportunities. In furtherance to this, examinations of Godwin and Ajose (2018) and Kalu and Mgbemena (2015) empirically applied the cointegration test to establish the nexus between investment and the rationale for stunted growth in recent times. The study aimed to find out the precondition for investment growth in Nigeria. Their analysis, however, shows a long-run relationship between the variables examined: poor regulatory framework, corruption, and violation of investment laws. It generally exposes the interconnectedness of the rule of law and investment growth in developing countries.

Lubna (2010), on the other hand, empirically analyzed the rule of law and quality procedures as indisputable factors to sustainable development through investment growth. His work depended on what he referred to as a domestic garnered mandate. The study shows a correlation between investment growth due to shortcomings arising from inconsistencies and poor regulatory framework of investment laws and policies. Studies by Koeniger and Silberberger (2015) and Jalilian et al. (2007) also revealed that regulation, trade, and investment significantly impact growth, while the adverse effects are more visible in countries with poor regulatory quality, particularly in developing environments. Izilein and Mohammed (2017) empirically studied investment growth and quality of institutional structures by employing the Generalized Method of Moments (GMM) estimation techniques on annual time series. The finding, however, shows that the quality of the legal process based on the rule of law constitutes a significant variable for driving investment growth in Nigeria. It further noted that efficient regulations and consistent macroeconomic policies encourage investment in developed and developing economies.

Chauvet et al. (2007), cited in (Elijah & Ayodele, 2013), examined to ascertain the causes, failure, and weak capacity for investment growth amongst developing states. Applying the Ordinary Least Squares (OLS) and the Generalized Method of Moment (GMM) as techniques for estimations, it empirically established that a failing state at peace substantially reduces investment growth rate relative to those at peace with the quality regulatory framework. This is because of the inevitable nexus between the rights of persons (Watson, 2003), the rule of law, and overall economic prosperity. Similarly, Sule (2020) investigated the effect of the quality of regulatory institutions and investment opportunities adopting both the Johansen Co integration and the Ordinary Least Square (OLS) approach. The estimated cointegration test revealed a joint relationship among the variables. At the same time, the OLS model shows that investment and growth respond positively due to the quality of regulatory institutions and the rule of law. Myriad studies investigate the implications of regulations, investment, and policy frameworks.

Consequently, Asante (2000) analyzed the determinants of investment growth using a time series analysis. The results established that variables that have a significant positive relationship with investment include but are not limited to interest and real exchange rate, lagged investment, public investment, and private sector credit. However, the behaviors of these variables, however, are ultimately determined by the quality of the regulatory framework in alignment with the rule of prevalent laws. Established laws for governing, economic, private, and group relations adequately articulated significantly impacts on investment as well as promote overall economic growth by orchestrating socio-political order (Martin, 2008)' Godwin and Ajose (2018); Dennis and Paul (2017); Orobosa

(2019). However, regulating the ever-increasing dynamism of the business environment for investment growth justified undertaking this study.

### 3.0 DATA, VARIABLES DESCRIPTION AND METHODS

The data used in this study is time series data obtained from the World Bank's World Development Indicators (WDI) and World Governance Indicators (WGI) data bank from 1997 to 2019. The dependent variable is investment growth (INVgrt) – a measure of gross domestic investment (annual % growth). The independent variables are the rule of law, regulatory quality, consumer price index, premium lending rate, trade openness, financial deepening ratio of (M2/GDP), investment, gross investment, and gross fixed capital formation. A time series data analysis was used, and the study focused on the Nigerian economy in the sample period. The notation for the main variables and their statistics are presented in Table 1.

**Table 1: statistical description of the variable**

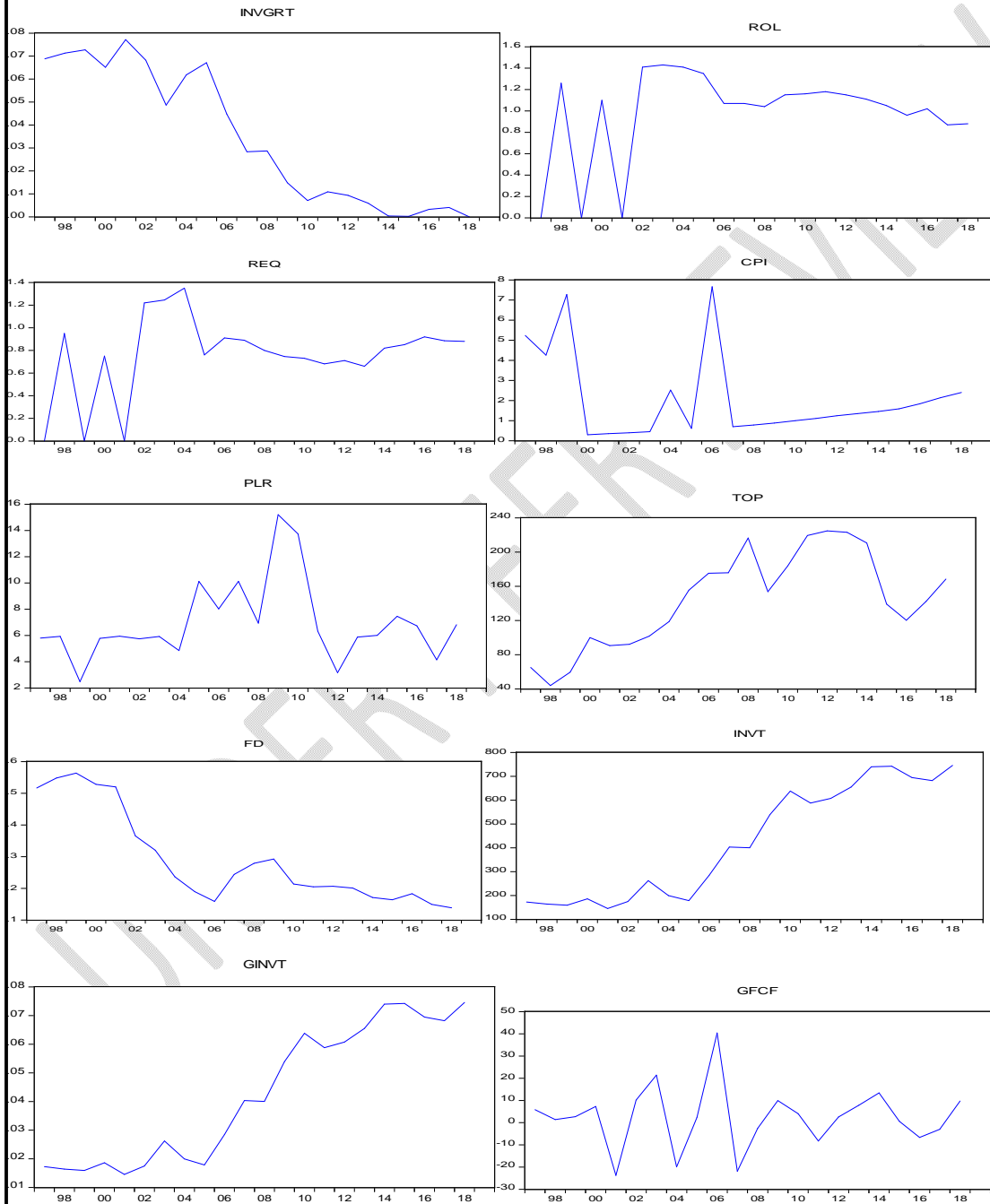
Variable	Symbol	Average	Deviations	Minimum	Maximum
Investment growth	INVgrt	0.034496	0.029804	0.000000	0.077194
Rule of Law	ROL	0.985000	0.429759	0.000000	1.430000
Regulatory Quality	REQ	0.761729	0.258069	0.000000	1.350000
Consumer Price Index	CPI	2.070979	2.138789	0.296007	7.664379
Premium lending rate	PLR	6.956042	3.026140	2.473333	15.20583
Trade Openness	TOP	144.5461	56.22658	43.87755	224.7735
Financial Deepening	FD	0.290656	0.146997	0.138587	0.563764
Investment	INVT	425.4923	236.2258	145.2628	745.7992
Gross Investment	GINVT	0.042549	0.023623	0.014526	0.074580
Gross Fixed Capital Formation	GFCF	2.435946	14.12872	-23.74670	40.38866

Source: Data from the World Bank's World Development Indicators (WDI) and World Governance Indicators (WGI)

The averages, deviations, and minimum and maximum levels of the variables in the study are shown in Table 1. For Nigeria, the average Investment growth (INVgrt) is 0.034496 naira, and the standard deviation is 0.029804 naira, with minimum and maximum as 0 naira and 0.077194 naira. The average, standard deviation, minimum and maximum values of the role of law (ROL) are 0.985000, 0.429759, 0.000000, and 1.430000, respectively. In the like manner, the average, standard deviation, minimum and maximum values of the regulatory quality (REQ) are 0.761729, 0.258069, 0.000000, and 1.350000, respectively. Similarly, the average, standard deviation, minimum, and maximum consumer price index (CPI) are 2.070979, 2.138789, 0.296007, and 7.664379, respectively. The average, standard deviation, minimum, and maximum premium lending rates (PLR) are 6.956042, 3.026140, 2.473333, and 15.20583, respectively. Also, the average, standard deviation, minimum, and maximum values of trade openness (TOP) are 144.5461, 56.22658, 43.87755, and 224.7735, respectively. The average, standard deviation, minimum, and maximum values of financial deepening (FD) include 0.290656, 0.146997, 0.138587, and 0.563764, respectively. Similarly, the average, standard deviation, minimum, and maximum values for investment (INVT) are 425.4923, 236.2258, 145.2628, and 745.7992, respectively. Gross investment (GINVT) has its average, standard deviation, minimum, and maximum, respectively, as follows 0.042549, 0.023623, 0.014526, and 0.074580. Finally, the average, standard deviation, minimum, and maximum of gross fixed capital formation (GFCF) are 2.435946, 14.12872, -23.74670, and 40.38866.

However, the literature reviewed shows that most theories and studies concerning the nexus between the rule of law, regulatory quality, and economic growth predict a positive correlation. The following graphical statistical analysis, shown in Fig. 1, reinforces this argument.

**FIGURE 1: PLOTS OF THE VARIABLES**



Source: Data from the World Bank's World Development Indicators (WDI) and World Governance Indicators (WGI)

### 3.1 MODEL SPECIFICATION

This study adopted the ordinary least squares (OLS) estimation method to estimate the variables above. For better understanding, the ordinary least square (OLS) estimation method is a statistical estimation method that estimates the relationship between one or more dependent variables and a dependent variable. However, our rationale for choosing the ordinary least squares (OLS) model over other estimation methods like Two-stage least squares (TSLS) and Stepwise linear models (STEPLS) was due to its unique features, which include the fact that it produces residuals that have a zero mean, have a constant variance, and are not correlated with themselves or other variables. It also produces estimates with the best linear unbiased estimator (BLUE) property. Finally, it allows the sample size to increase to infinity; the coefficient estimates converge on the actual population parameters. Thus, the OLS model is ruled by the following assumptions: The regression model is linear in parameters; the values of the explanatory variables are assumed to be non-stochastic; the conditional mean value  $\mu_i$  is zero. There is homoscedasticity or equal variance of  $\mu_i$ ; there is no autocorrelation between the disturbances; the disturbance  $\mu_i$  and explanatory variable X are uncorrelated; the number of observation (n) must be greater than the explanatory variables; there is variability in X values; that is var (x) must be a finite positive number; the regression model is correctly specified; and there is no perfect multicollinearity among the explanatory variables.

Based on the research variables, we specify our model as in below:

$$Y = \pi_0 + \beta_1 G_1 + \beta_2 G_2 + \beta_3 G_3 + \beta_n G_n + u \text{ ----- (1)}$$

Where: Y denotes the dependent variable as a proxy of investment growth (INVgrt). Furthermore, G represents the vector of the explanatory variables,  $\pi$  is a slope parameter, which explains the status of the unobserved random variables in the absence of the explanatory variables;  $\beta$  represents the intercept parameter, which explains the magnitude and direction of the linear relationships, and u represents the unobserved random variable or disturbance term. It also captures the amount of variables unpredicted by intercepts and slope parameters.

The OLS model further suggests that investment growth (INVgrt) be the dependent variable or predictor variable, while the rule of law, regulatory quality, consumer price index, premium lending rate, trade openness, financial deepening, investment, gross investment, and gross fixed capital formation be the independent or explanatory variables. So, the OLS model for the study is specified as follows:

$$INVgrt = \pi_0 + \beta_1 ROL_1 + \beta_2 REQ_2 + \beta_3 CPI_3 + \beta_4 PLR_4 + \beta_5 OPEN_5 + \beta_6 FD_6 + \beta_7 INVT_7 + \beta_8 GINVT_8 + \beta_9 GFCF_9 u \text{ ----- (2)}$$

Where INVgrt denotes investment growth, ROL refers to the rule of law, REQ is the regulatory quality, CPI captures the consumer price index, PLR represents the premium lending rate, OPEN denotes trade openness, FD represents the financial deepening, INVT connotes investment, GIVNT represents gross investment, and GFCF represents gross fixed capital formation, u symbolizes the error term,  $\pi$  is the slope parameter, and  $\beta_1$  to  $\beta_9$  represents the coefficients of the explanatory variables. The vector of the coefficients of the explanatory variables ( $\beta$ ) further explains the performance of the explanatory variables (Rule of law, regulatory quality, consumer price index, premium lending rate, trade openness, financial deepening, investment, gross investment, and gross fixed capital formation).

In continuance, the OLS model has a null hypothesis which assumes that the explanatory variables (the rule of law, regulatory quality, consumer price index, premium lending rate, trade openness, financial deepening, investment, gross investment, and gross fixed capital formation) do not have a relationship with the dependent variable investment growth (INVgrt). The alternative hypothesis assumes that the explanatory variables are related to the dependent investment growth (INVgrt). The null hypothesis is stated below:

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = 0$$

$$H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8 \neq \beta_9 \neq 0$$

If the P-value is more significant than 5%, then the study fails to reject the null hypothesis, implying that explanatory variables have no impact on the dependent variable. On the other hand, if the P-value is less than 5%, then the study rejects the null hypothesis, implying that there is an impact of the explanatory variables on the dependent variable.

### 3.3 ROBUSTNESS CHECK

To critically ascertain the existence of a long-run relationship between the rule of law, regulatory quality, and economic growth, we remodeled interchangeably the dependent variable investment growth (INVgrt) with investment (INVT), gross investment (GINVT), and gross fixed capital formation (GFCF).

### 4.0 EMPIRICAL FINDINGS AND DISCUSSIONS

In this section, we analyze the results obtained by examining the relationship between the rule of law, regulatory quality, and economic growth in Nigeria. Considering that time series data typically gives spurious results if not properly checked, we employed Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) to check the stationarity status of the variables. We estimated our models using ordinary least squares (OLS) regression analysis while observing classical linear model assumptions.

#### 4.1 UNIT ROOT TEST

Unit root tests are used to check if the model's variables are stationary and to ascertain the level of stationarity of the variables in the model to avoid spurious results. In this study, we employed the Augmented Dickey-Fuller (ADF) unit root and Phillips-Perron (PP) tests. Our choice of complementing the two tests originates from the fact that ADF assumes that the error term is homoscedastic, while the Phillips-Perron test makes a non-parametric correction of statistics when compared to the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. This test was based on the assumption that variables are either stationary at level, i.e., I(0), or at the first difference, i.e., I(1), and not at the second difference, I(2) in order to avoid spurious results because at I(2) the result will be boosted. The decision rule is that we reject the null hypothesis "has a unit root" if the P-value is less than (0.05) 5% significance level; otherwise, we do not reject the null. Thus, as shown in Table 2 below, the result of the unit root tests of both ADF and PP test shows that the null hypothesis has a unit root be rejected since all the p-values are statistically significant at a 1% significance level except for FD at ADF test. In the Augmented Dickey-Fuller test, the rule of law, regulatory quality, financial deepening, and gross fixed capital formation are integrated into I(0). In contrast, investment growth, consumer price index, premium lending rate, trade openness, investment, and gross investment are integrated order I(1). Correspondingly, in the Phillips-Perron (PP) test, the investment growth, the role of law, regulatory quality, consumer price index, and gross fixed capital formation were integrated into the order I(0). In contrast, premium lending rate, trade openness, financial deepening, investment, and gross investment are integrated into order I(1). However, once the variables are found to be stationary, we move to predict further if cointegration exists between the variables.

**Table 2: Test for Stationarity (Unit Root Test)**

Variables	ADF	Order of Integration		PP	Order of Integration	
		Level	First Difference		Level	First Difference
INVGRT	-4.576713***	-	I(1)	-2.122898**	I(0)	-
ROL	-5.757280***	I(0)	-	-5.421161***	I(0)	-
REQ	-6.247418***	I(0)	-	-4.847274***	I(0)	-
CPI	-8.136078***	-	I(1)	-4.234446***	I(0)	-
PLR	-5.290438***	-	I(1)	-7.185379***	-	I(1)



TOP	-4.218726***	-	I(1)	-4.172822***	-	I(1)
FD	-2.086795**	I(0)	-	-3.213190***	-	I(1)
INVT	-4.044788***	-	I(1)	-4.577083***	-	I(1)
GINVT	-4.332773***	-	I(1)	-4.911083***	-	I(1)
GFCF	-8.218780***	I(0)	-	-12.13773***	I(0)	-

Source: Author's computation. \*\*\*, \*\* and \*: represents 1%, 5% and 10% levels of significance

## 4.2 RESIDUAL COINTEGRATION TEST

To ascertain cointegration between the variables, we generated the residual of the models and carried out a unit root test using (Augmented Dickey-Fuller – ADF). The null hypothesis is "there is no cointegration among the variables," with an alternative "there is cointegration among the variables." The decision rule for the test is that if the p-value of the ADF-Statistic is less than 0.05, it implies that there is cointegration between the variables; otherwise, do not reject. Therefore, since the p-values are less than 0.05, we conclude that cointegration exists between the variables. Table 3 is a summary of the residual cointegration for all the models. We will reject the null hypothesis and accept the alternative. Hence, we conclude that there is a long-run cointegration between the variables.

**Table 3: Residual Cointegration Result**

	Dependent Var.	ADF-Statistic	1%	5%	10%	Prob.
MODEL 1	INVgrt	-3.328376	-3.808546	-3.020686	-2.650413	0.0271
MODEL 2	INVgrt	-6.901144	-3.831511	-3.029970	-2.655194	0.0000
ROBUSTNESS CHECK						
MODEL 1	INVT	-2.419522	-2.685718	-1.959071	-1.607456	0.0184
MODEL 2	INVT	-4.963019	-2.692358	-1.960171	-1.607051	0.0000
MODEL 3	GINVT	-5.294885	-3.808546	-3.020686	-2.650413	0.0004
MODEL 4	GINVT	-12.16334	-4.532598	-3.673616	-3.277364	0.0000
MODEL 5	GFCF	-5.185577	-3.808546	-3.020686	-2.650413	0.0005
MODEL 6	GFCF	-5.471517	-3.808546	-3.020686	-2.650413	0.0003

Source: Author's conception

## 4.3 CORRELATION MATRIX

To ascertain the strength of relationships between the model's variables, we carried out a correlation test, the results of which are presented in the tables below.

**Table 4: Correlation Matrix for model 1**

	INVGRG	ROL	REQ	CPI	PLR	TOP	FD
INVGRG	1						
ROL	-0.265737	1					
REQ	-0.236275	0.903167	1				
CPI	0.274501	-0.440269	-0.319079	1			
PLR	-0.232759	0.282975	0.119760	-0.280046	1		
TOP	-0.730556	0.375647	0.193246	-0.336360	0.240147	1	
FD	0.782738	-0.514166	-0.512125	0.238068	-0.259250	-0.762758	1

Author's computation

**Table 5: Correlation Matrix for model 2**

	INVGRG	ROL	REQ	INVT*PLR	INVT*CPI
INVGRG	1				
ROL	-0.265737	1			
REQ	-0.236275	0.903167	1		
INVT*PLR	-0.763389	0.233572	0.137749	1	
INVT*CPI	-0.448505	-0.194756	-0.038398	0.212071	1

Author's computation

## Robustness check: Table 6: Correlation Matrix for model 1

	INVT	ROL	REQ	CPI	PLR	TOP	FD
INVT	1						
ROL	0.193934	1					
REQ	0.177654	0.903167	1				
CPI	-0.259783	-0.440269	-0.319079	1			
PLR	0.176264	0.282975	0.119760	-0.280046	1		
TOP	0.663250	0.375647	0.193246	-0.336360	0.2401476	1	
FD	-0.743799	-0.514166	-0.512125	0.238068	-0.259250	-0.762758	1

Author's computation

**Robustness check: Table 7: Correlation Matrix for Model 2**

	INVT	ROL	REQ	CPI*PLR	INVT*PLR
INVT	1				
ROL	0.193934	1			
REQ	0.177654	0.903167	1		
CPI*PLR	-0.1362867	-0.177671	-0.098034	1	
INVT*PLR	0.7436287	0.233572	0.137749	-0.023772	1

Author's computation

**Robustness check: Table 8: Correlation Matrix for Model 3**

	GINVT	ROL	REQ	CPI	PLR	TOP	FD
GINVT	1						
ROL	0.193934	1					
REQ	0.177654	0.903167	1				
CPI	-0.259783	-0.44026	-0.319079	1			
PLR	0.176264	0.282975	0.119760	-0.280046	1		
TOP	0.663250	0.375647	0.193246	-0.336360	0.240147	1	
FD	-0.743799	-0.514166	-0.512125	0.238068	-0.259250	-0.762758	1

Author's computation

**Robustness check: Table 9: Correlation Matrix for Model 4**

	GINVT	ROL	REQ	CPI*PLR	INVT*PLR
GINVT	1				
ROL	0.193934	1			
REQ	0.177654	0.903167	1		
CPI*PLR	-0.13625	-0.1776710	-0.09803492	1	
INVT*PLR	0.743628	0.233572	0.137749	-0.023772	1

Author's computation

**Robustness check: Table 10: Correlation Matrix for Model 5**

	GINVT	ROL	REQ	CPI*PLR	INVT*PLR
GINVT	1				
ROL	0.193934	1			
REQ	0.177654	0.903167	1		
CPI*PLR	-0.136286	-0.177671	-0.0980349	1	
INVT*PLR	0.743628	0.233572	0.1377499	-0.0237724	1

Author's computation

**Robustness check: Table 11: Correlation Matrix for model 6**

	GFCF	ROL	REQ	INVT*PLR	INVT*CPI
GFCF	1				
ROL	0.205494	1			
REQ	0.169161	0.903167	1		
INVT*PLR	0.070080	0.233572	0.137749	1	
INVT*CPI	0.420188	-0.194756	-0.038395	0.212071	1

Author's computation

Table 4 shows a weak correlation between investment growth, rule of law, and regulatory quality. This result could be attributed to weak governance and institutional quality in Nigeria, which results in poor effects of the governance indicators, political instability, insecurity, low per capita income, high rate of unemployment, corruption, and tribal and religious crises, which dents the image of the country in the global perspective and limits the willingness of the nations to join trading with Nigeria thus hindering her investment growth.

#### 4.4 ESTIMATED OLS RESULT

Effective governance, in the form of rule of law and regulatory quality, upholds economic growth. Empirically, studies have disclosed that countries with efficient governance environments have better economic growth since regulatory quality and institutional structures accelerate high returns on investment (Manasseh et al. (2017). The rule of law is a critical driver of investment growth and development in developed and developing economies. Adam Smith, in his *Wealth of Nations*, linked economic and investment growth to the sustained degree of legislation that ensures the liberty of individuals in pursuit of exclusive economic interests (Mohammed & Mahfuzu, 2016). However, employing investment growth, the rule of law, regulatory quality, consumer price index, premium lending rate, trade openness, financial deepening, investment, gross investment, and gross fixed capital formation, we estimate the impact of the rule of law and regulatory quality on Nigerian economic growth. We have ascertained that the variables have no unit root and are integrated in the order I(0) or I(1), the models were estimated, and the assumptions of OLS were observed. All models were carried out pre- and post-OLS estimation tests (Normality test, Breusch Godfrey serial correlation LM test, Ramsey reset test, and White's Heteroscedasticity test) (see Table 12). In model 1, the study found a positive relationship between the rule of law, regulatory quality, and economic growth. These findings are in line with the discoveries of earlier scholars. For instance, Mohammed and Mahfuzu (2016), Iheonu and Onwuanaku (2017), and Koeniger and Silberberger (2015) opined that an investment decision takes root from the quality of regulatory institutions.

Similarly, in the context of neo-classical, investment and economic growth are based on factors of supply and level of technology prevalent in the economy (Gwartney R. et al, 2016; Doucouliagos & Mehmet, 2006). Thus, this connotes that growth determinants can only partially guarantee investment growth with governance and institutional framework. Other variables – CPI, PLR, and TOP- also positively influence investment growth. Their coefficients 0.250881, 0.214454, and 0.038247 suggest that all other things being equal, their percentage changes would lead to about 25%, 21%, and 03% changes in investment growth. At the same time, financial deepening portrays a negative but significant influence on investment at -1.013116. Contrary to these findings, in model 2, ROL, REQ, INVT\*PLR, and IVNT\*CPI negatively influence investment growth. Their coefficient suggests that any unit changes in the variables would decrease investment growth at the rate of -0.002436, -0.004300, -0.045768, and -0.012476.

Furthermore, we generated the models' residuals and subjected them to unit root tests to account for the short-run dynamics. The coefficients of the error correction (-0.277667 and -0.408808) suggest that the speed of adjustment of the investment growth, in the long run, would be accounted for in the short run by the magnitude of 27% and 40%, respectively, for models 1 and 2. The goodness of fit (R-square) measure suggests that 69% and 27% of the economic growth was explained by INVgrt. However, these findings tally with the findings of Halliday and Shaffer (2015), Morral (2001), Soludo (2006), Kazeem (2013), and Ajide and Lawanson (2012), who contended that an excellent institutional framework promotes economic growth.

We have found that there is a positive relationship between the rule of law, regulatory quality, and economic growth; we conducted a robustness check by remodeling models 1 and 2 – changing the investment growth with INVT, GINVT, and GFCF. However, findings from model 1 in the robustness check section show that there is negative and significant ROL, REQ, FD, CPI, PLR, and TOP on investment (INVT). In model 2, the Rule of law and regulatory quality positively impact investment. The R-squared coefficients (0.635944 and 0.112404) imply that the models explain about 63% and 11% variations of the investment. The coefficients of the error correction model (-0.446852

and -0.501054) suggest that the speed of investment adjustment in Nigeria, in the long run, would be accounted for at the rate of 44% and 50% in the short run. The result of model 3 shows that the variables are negatively related to gross investment (GINVT). In like manner, the coefficients of ROL and REQ in model 4 are negatively related to gross investment (GINVT). The coefficients of the goodness of fit R-squared (0.422120 and 0.800034) suggest that about 42% and 80% of the variations in gross investment account for the overall performance of the models. The ECM -1.099006 and -0.758164 imply that the long-run dynamics account for 10% and 75% in the short run.

Similarly, models 5 and 6 have a positive relationship between the rule of law, regulatory quality, and gross fixed capital formation (GFCF). The coefficients of the R-square (0.550082 and 0.676167) suggest that about 55% and 67% of the variations in gross fixed capital formation account for the overall performance of the models. The error correction model's result shows that the model's long-run impact is being accounted for in the short run by the magnitude of 90% and 23% (see Table 12). With good governance, a solid commitment to the rule of law, and a genuine will to control corruption, all essential for efficient governance, investment, and development would be more manageable. Thus, these findings align with the findings of Iheou and Onwuanaku (2017), Obadan and Odusola (2001), Oaham S. et al. (2019), Kazeem (2013), and Ajide and Lawanson (2012) proposed that regulatory quality and the rule of law promote economic growth.

**Table 12: Summary of OLS Results**

Model 1: DEPENDENT VARIABLE: INVgrt				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY
ROL	2.152867	0.542688	3.967043	0.0014
REQ	4.828226	0.987533	-4.889178	0.0002
FD	-1.013116	1.062024	-0.953948	0.3563
D(CPI)	0.250881	0.156425	1.603836	0.1311
D(PLR)	0.214454	0.071441	3.001835	0.0095
D(TOP)	0.038247	0.012692	3.013475	0.0093
ECM(-1)	-0.277667***			
Constant	-0.049297			
R-Squared		0.698605		
Adjusted R-Square		0.223322		
Durbin-Watson stat		1.057240		
NORMALITY TEST		17.15769 (0.0000046)		
SERIAL CORRELATION TEST		0.002410 (0.9615)		
RAMSEY RESET TEST		-33.35591 (0.0271)		
HETEROSCEDASTICITY TEST		2.693117 (0.0594)		
Model 2: DEPENDENT VARIABLE (INVgrt)				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY
ROL	-0.002436	0.001216	-2.002382	0.0615
REQ	-0.004300	0.001800	-2.388686	0.0288
DLOG(INVT)*DLOG(PLR)	-0.045768	0.012690	-3.606584	0.0022
DLOG(INVT)*DLOG(CPI)	-0.012476	0.006554	-1.903730	0.0740
ECM(-1)	-0.408808***			
Constant	-0.005999			
R-Squared		0.271085		
Adjusted R-Square		0.142453		
Durbin-Watson stat		2.064118		
NORMALITY TEST		19.33170 (0.000082)		
SERIAL CORRELATION TEST		2.139904 (0.1522)		
RAMSEY RESET TEST		-162.4752 (0.0314)		
HETEROSCEDASTICITY TEST		1.885436 (0.1622)		
ROBUSTNESS CHECK				
Model 1: DEPENDENT VARIABLE (INVT)				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY

ROL	2.260585	0.649812	3.478829	0.0034
REQ	-0.905885	0.768120	-1.179354	0.2566
LOG(FD)	-2.484089	0.366739	-6.773447	0.0000
DLOG(CPI)	-0.494744	0.198578	-2.491441	0.0249
DLOG(PLR)	-1.099562	0.594555	-1.849388	0.0842
D(TOP)	-0.013178	0.005534	-2.381284	0.0309
ECM(-1)	-0.446852**			
Constant	-			
R-Squared	0.635944			
Adjusted R-Square	0.314593			
Durbin-Watson stat	2.833171			
NORMALITY TEST	22.11703 (0.000005)			
SERIAL CORRELATION TEST	0.000659 (0.9799)			
RAMSEY RESET TEST	0.001911 (0.0094)			
HETEROSCEDASTICITY TEST	2.462150 (0.0735)			
Model 2: DEPENDENT VARIABLE (INVT)				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY
ROL	23.68878	5.879471	4.029067	0.0009
REQ	5.128620	4.172361	1.229189	0.2357
DLOG(CPI)*DLOG(PLR)	3.433981	4.111468	0.835220	0.4152
DLOG(INVT)*D(PLR)	24.72666	8.596232	2.876453	0.0105
ECM(-1)	-0.501054***			
Constant	0.484645			
R-Squared	0.112404			
Adjusted R-Square	-0.044231			
Durbin-Watson stat	1.983243			
NORMALITY TEST	91.16837 (0.000000)			
SERIAL CORRELATION TEST	1.381754 (0.2795)			
RAMSEY RESET TEST	-0.261927 (0.0000)			
HETEROSCEDASTICITY TEST	0.601809 (0.6668)			
Model 3: DEPENDENT VARIABLE (GINVT)				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY
ROL	-0.836038	0.164369	-5.086355	0.0001
REQ	-0.668204	0.262480	-2.545733	0.0224
FD	-6.464127	0.178953	-36.12195	0.0000
D(CPI)	-0.104465	0.020459	-5.106102	0.0001
D(PLR)	-0.040840	0.021340	-1.913787	0.0749
D(TOP)	-0.006884	0.003723	-1.849399	0.0842
ECM(-1)	-1.099006***			
Constant	-0.126711			
R-Squared	0.422120			
Adjusted R-Square	0.229493			
Durbin-Watson stat	1.945347			
NORMALITY TEST	90.151287 (0.000000)			
SERIAL CORRELATION TEST	0.088565 (0.9158)			
RAMSEY RESET TEST	0.147445 (0.0000)			
HETEROSCEDASTICITY TEST	0.945282 (0.4943)			
Model 4: DEPENDENT VARIABLE (GINVT)				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY
ROL	-1.797323	0.220129	-8.164859	0.0000
REQ	-1.059181	0.298590	-3.547277	0.0025
D(CPI)*DLOG(PLR)	0.442981	0.039657	11.17024	0.0000
DLOG(INVT)*DLOG(PLR)	1.484315	0.988366	1.501786	0.1515
ECM(-1)	-0.758164***			

Constant	0.758180			
R-Squared		0.800034		
Adjusted R-Square		0.470628		
Durbin-Watson stat		2.331941		
NORMALITY TEST		19.7715 (0.000005)		
SERIAL CORRELATION TEST		1.466884 (0.2619)		
RAMSEY RESET TEST		-27.45929 (0.0017)		
HETEROSCEDASTICITY TEST		1.324351 (0.3010)		
Model 5: DEPENDENT VARIABLE (GFCF)				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY
ROL	-1.094259	12.87479	-0.084992	0.9334
REQ	17.58469	13.53256	1.299436	0.2134
LOG(FD)	12.83063	20.47440	0.626667	0.5403
D(CPI)	4.399129	1.326076	3.317405	0.0047
D(PLR)	2.316134	0.543096	4.264685	0.0007
DLOG(TOP)	29.85696	11.43970	2.609942	0.0197
ECM(-1)	-1.206619***			
Constant	-0.904141			
R-Squared		0.550082		
Adjusted R-Square		0.400110		
Durbin-Watson stat		2.528078		
NORMALITY TEST		60.28156 (0.000000)		
SERIAL CORRELATION TEST		1.657333 (0.2188)		
RAMSEY RESET TEST		-0.036090 (0.0065)		
HETEROSCEDASTICITY TEST		1.876528 (0.1556)		
Model 6: DEPENDENT VARIABLE (GFCF)				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROBABILITY
ROL	1.820055	1.037108	1.754933	0.0973
REQ	7.808698	2.717730	2.873243	0.0105
DLOG(INVT)*DLOG(PLR)	45.97504	20.76151	2.214436	0.0407
DLOG(INVT)*DLOG(CPI)	35.32301	3.119007	11.32508	0.0000
ECM(-1)	-0.235843***			
Constant	-0.062025			
R-Squared		0.676167		
Adjusted R-Square		0.619019		
Durbin-Watson stat		2.379313		
NORMALITY TEST		77.499657 (0.000001)		
SERIAL CORRELATION TEST		1.384183 (0.2556)		
RAMSEY RESET TEST		0.176112 (0.0017)		
HETEROSCEDASTICITY TEST		1.095887 (0.3902)		

Source: Computed by Author aided by Eviews 10 and \*\*\*, \*\* and \*: represents 1%, 5% and 10% levels of significance

#### 4.5 GRANGER CAUSALITY TEST

We employed a pairwise Granger causality test to check if the rule of law and regulatory quality cause economic growth or if economic growth causes regulatory quality and the rule of law. The results show that unidirectional directional causality runs from the rule of law to investment growth. Also, bidirectional causality exists between regulatory quality and investment growth. Thus, in line with the literature, which posits that good governance and a strong commitment to the rule of law are all essential for investment growth and economic development (see: Iheou and Onwuanaku (2017), Obadan and Odusola (2001), Oaham, S. et al. (2019), Kazeem (2013), and Ajide and Lawanson (2012)). Again, we conducted a robustness check to ascertain causality between the investment, gross investment, gross fixed capital formation, rule of law, and regulatory quality (see Table 13). In model 2,

unidirectional causalities exist between the rule of law, regulatory quality, and investment. The model has no causality between the rule of law and gross investment, but a unidirectional causality exists between regulatory quality and gross investment. In model 4, unidirectional causality exists between the rule of law and gross fixed capital formation, regulatory quality, and gross fixed capital formation.

Table 13: **GRANGE CAUSALITY CAUSALITY LINKS BETWEEN INVESTMENT GROWTH, RULE OF LAW AND REGULATORY QUALITY**

<b>Model 1: GRANGE CAUSALITY CAUSALITY LINKS BETWEEN INVESTMENT GROWTH, RULE OF LAW AND REGULATORY QUALITY</b>						
VARIABLES			F-STATISTICS	OBSERVATION	PROB.	STATUS
LnROL LnINVGR	→ ≠	LnINVGR LnROL	5.20854 0.16980	20	0.0008 0.8454	UNIDIRECTIONAL CAUSALITY
LnREQ LnINVGR	↔	LnINVGR LnREQ	3.40677 7.33094	20	0.0029 0.0000	BIDIRECTIONAL CAUSALITY
<b>ROBUSTNESS CHECK</b>						
<b>MODEL 2: INVT ROL REQ</b>						
LnROL LnINVT	→ ≠	LnINVT LnROL	3.11565 0.16782	20	0.0116 0.8471	UNIDIRECTIONAL CAUSALITY
LnREQ LnINVT	→ ≠	LnINVT LnREQ	4.19480 0.09237	20	0.0025 0.9123	UNIDIRECTIONAL CAUSALITY
<b>MODEL 3: GINVT ROL REQ</b>						
LnROL LnGINVT	≠ ≠	LnGINVT LnROL	0.11565 0.16782	20	0.8916 0.8471	NO CAUSALITY
LnREQ LnGINVT	→ ≠	LnGINVT LnREQ	6.19480 0.09237	20	0.0000 0.9123	UNIDIRECTIONAL CAUSALITY
<b>MODEL 4: GFCF ROL REQ</b>						
LnROL LnGFCF	→ ≠	LnGFCF LnROL	2.89797 0.82364	20	0.0282 0.4577	UNIDIRECTIONAL CAUSALITY
LnREQ LnGFCF	→ ≠	LnGFCF LnREQ	3.78961 0.40084	20	0.0020 0.6767	UNIDIRECTIONAL CAUSALITY

## 5 SUMMARY, RECOMMENDATION AND CONCLUSION

This study investigates the impact of the rule of law and regulatory quality on investment growth in Nigeria from 1997 to 2019. The Ordinary least squares (OLS) method of estimation was employed, and time series data, which was sourced from the World Bank's World Development Indicators (WDI) and World Governance Indicators (WGI), was used for the study. The following variables were used which includes investment growth (INVgrt) – a measure of gross domestic investment (annual % growth); Rule of law (ROL), regulatory quality (REQ), consumer price index (CPI), Premium lending rate (PLR), trade openness (TOP), financial deepening (FD), investment (INVT), gross investment (GINVT), and gross fixed capital formation (GFCF). The descriptive statistics of the variables were taken, and it was discovered that there is evidence of serial correlation between the variables. Thus, the New-wey West Hac procedure was used in the estimation process to correct any presence of autocorrelation. The stationarity test was done by employing Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, and it was

discovered that all the variables are stationary at a 1% significance level. However, they are integrated either at level order I(0) or first difference (order I(1)).

We carried out a correlation test to check the strength of the relationship between the model variables. The result showed a weak correlation between investment growth, the rule of law, and regulatory quality. The residual cointegration result suggests that cointegration exists between the variables since the p-value of ADF statistics is less than 0.05 for all the models. The estimated coefficients of the ordinary least squares (OLS) result show that the rule of law and regulatory quality significantly impact economic growth. The outcome of the OLS result suggests that the null hypothesis, "no relationship between the dependent variable and the explanatory variables," should be rejected and the alternative accepted. Thus, the result of the OLS suggests a long-run relationship exists between investment growth, rule of law, regulatory quality, consumer price index, premium lending rate, trade openness, financial deepening, investment, gross investment, and gross fixed capital formation. The result of the ECM shows that the speed of adjustment of the investment growth in the long run would be accounted for in the short run by the magnitude of 27% and 40%.

Furthermore, our findings from the robustness check suggest that there is a negative relationship between the rule of law, regulatory quality, and investment in models 1 and 2; between the rule of law, regulatory quality, and gross investment in models 3 and 4, while a positive relationship exists between the rule of law, regulatory quality, and gross fixed capital formation. The causality results show that effective governance, institutional quality, and the rule of law promote economic growth. Thus, based on these findings, we join Iheou and Onwuanaku (2017), Obadan and Odusola (2001), Oaham S. et al. (2019), Kazeem (2013), and Ajide and Lawanson (2012) conclude that efficient regulatory quality and the rule of law promote economic growth.

Based on these findings, we recommend the following as a way of enhancing Nigerian investment growth:

- a. The government should pursue investment, infrastructural, and developmental policies to enhance the economy's production and manufacturing sectors
- b. She should buttress her links with other international economies by breaking all international trade bottlenecks unfavorable to international countries.
- c. Maintain peace and order by shunning any form of insecurity and violence in the country.
- d. The rule of law, regulatory quality, control of corruption, political stability, and the absence of government violence should be checked.

Viewed in this manner, the investment growth in Nigeria will be enhanced for the good of her citizens.

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