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Empirical Linkages Among Corporate Governance, Institutional Environment and Economic Growth in Sharia Law Countries

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Abstract: A surfeit of studies endorse both corporate governance and the institutional environment within which firms operate to promote the economic growth of countries, and that both institutions and corporate governance fortify each other. This research investigates the causal relationships among corporate governance, institutional environment and economic growth among Sharia law countries. Country-specific peculiarities and national institutions possess correlative effects on firm-level corporate governance. Thus, it is the study's imperative to empirically investigate the impact of the Muslim ideology on firm-level corporate governance and institutions in influencing the economic growth of Sharia law countries. Annual data in the period 2006-2019 for a panel of 13 countries was examined using Panel Vector Autoregression and Panel Granger Causality test models. The results indicate that corporate governance has a negative significant effect on economic growth, while economic growth posted a positive significant effect on the institutional environment. Unidirectional causality is revealed from corporate governance, institutional environment to economic growth, and from economic growth, corporate governance to institutional environment. Policymakers ought to reshape the extant corporate governance routines and regulations with a view to registering a significant positive effect on economic growth, as corporate governance sets the trend for a reliable and growth-enhancing institutional environment.

Keywords: Corporate governance; institutional environment; economic growth; Granger Causality; Sharia law

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1. Introduction

Judge et al. (2010) define corporate governance as the ways through which a country utilises its commercial authority to systematically create and fairly distribute wealth within an economy. This interpretation is expressive of the ratified country institutions that are required in the management of critical resources from which an economy produces income for the welfare and sustainability of its citizens. Several studies among which include Diallo (2017), IDA (2021), OECD (2015) and World Bank (2020a) have established that corporate governance is a driver of a country's economic activities. Particularly, the work of Renders et al. (2010) ratifies constructive corporate governance to combat self-dealing and imprudent expenditure by corporate managers due to advanced supervision and quality decision-making, all of which position companies at a higher valuation and better operating performance. This then according to Ssekitoleko (2020), translates into the freeing up additional resources towards investment into ventures with the highest rate of return, hence upraising firm financial performance. Therefore, corporate governance is a determining factor of economic growth through the aggregate effect of firms' financial performance in an economy. This is backed up by studies such as Baysinger & Hoskinson (1990) and John & Senbet (1998) that worthwhile firm-level corporate governance paves the way for improved firm financial performance.

The institutional environment is also a determinant of economic growth of countries, in that institutions stimulate trust and sustain collaborations among business partners (Yildirim & Gokalp 2016). In so doing, a robust institutional environment lowers investor insecurity and reduces the transaction costs thereby creating more resources needed to augment economic growth (Ssekitoleko, 2020). A country's institutions deemed formal and casual, constitute the legal and policy infrastructure, coupled with its enforcement that is needed to spur the growth of an economy (Wilson 2016). Intact institutions in an economy thus provide guarantees to investors against financial loss due to observance of property rights and impartiality in business transactions, which enables the attraction of further investment and hence higher general economic activity. An analysis of the studies including Beck et al. (2005) and Valeriani & Peluso (2011) reveals that institutions and corporate governance reinforce each other, and that it is effortless to install firm-level corporate governance rules and practices in an environment of strong institutions. Briano-Turrent and Rodriguez-Ariza (2016) submit that an economy's calibre of corporate governance points to the nature of a country's existent legal systems. In this way, the institutional environment in which firms conduct business has a monumental effect in sculpturing the corporate governance norms and regulations. In view of that, adherence and enforcement of the set firm-level corporate governance practices and rules is anchored on the quality and the level of implementation of a country's legal systems in which firms are domiciled. Moreover, Valeriani and Peluso (2011) confirm that

an amalgam of corporate governance and the institutional environment promotes economic growth for a country.

It has been acknowledged by Zattoni et al. (2020) that national institutions possess mutually dependent outcomes on firm-level corporate governance protocols or regulations and behaviour, and that such interactions hinge on country-specific attributes. This therefore may be construed that the effect of corporate governance on economic growth depends on the nature of development and unique characteristics of a country's institutions and legal systems. Sharia law countries are regulated by rigorous laws, heavily influenced by the Muslim ideology of the Holy Quran. According to Kantor et al. (1995) and Piesse et al. (2012), Sharia law countries collectively possess a distinctive profile of culture, Islamic morals and an Arabic language. Thus, the study examines the relationships and causality among corporate governance, institutional environment and economic growth among Sharia law countries. The rationale for choosing Sharia law countries stems from the recognition of the colossal influence of Islam in the governance of corporate entities in these countries, as underscored by Farah et al. (2021). On top of that, many of these countries are typified by critical governance vacuities, weak institutional environment of poor law enforcement, which Aguilera et al. (2019) blame for the widespread corruption and economic uncertainties.

The contribution of this study is threefold: Firstly, to the best of our knowledge, this research is not aware of work testing causality among the proxies of corporate governance, institutional environment, for the period 2006 to 2019 from the World Economic Forum's Global Competitiveness Index Historical Databases, in an evaluative assessment on the economic growth of the selected 13 Sharia law countries. This is done via the Panel Vector Autoregression (PVAR) model estimation of cross-sectional fixed effects without reference to prevailing cointegration links, following Lutkepohl (2013) in the analysis, their possible existence notwithstanding. Causal relationships among the variables are checked using Panel Granger Causality test model. Secondly, this research amalgamates the individual indicators of corporate governance and institutional environment to capture the aggregated causal effects on economic growth. This helps to harness the variable effects in their wholeness to give a more exhaustive description while endorsing various sources of that indicator, and hence sturdier statistical estimates. Lastly, the results and recommendations from this research intend to give informed insight to policymakers so as to advance corporate governance and the institutional environment within which firms operate in these countries. The rest of the paper is assembled as follows: section 2 gives an overview of theoretical and empirical literature on the nexus among corporate governance, institutional environment and economic growth. In section 3, the data used and methodology specifications are detailed, while section 4 submits the empirical results and discussion. Section 5 concludes the study, with recommendations.

2. Literature Review

Classical institutional theory is categorical on the need for legal systems to be in good shape as they underpin corporate governance within a country's economic space. This is so because institutions are channels through which corporate entities are directed, serving as validating agents to firms among all parties with an interest in firms' existence (Ssekitoleko, 2020). This institutional framework as the principle theory of this study is also a determinant of corporate governance and, is categorised into three constituents: regulations that demand firms to follow the required behaviour (North, 1990), culture and norms expected to be observed by firms in public (Scott, 2001). Accordingly, the institutional theory sets the tone for corporate bodies as they go about conducting business in the country, for institutions are critical enablers to corporate governance in impacting a country's economic growth.

The relationships among corporate governance, institutions and economic growth are enormously diverse, due to studies using varied time periods, proxy measurements, nature (cross-country or country-specific) or due to the level of development of each country. Such indeterminate characterisations of similar studies are alluded to by Chisunga (2015) and Guei & Le Roux (2019). On the corporate governance-economic growth, Škare and Golja (2014) establish existence of a positive relationship. Their study defends that well-managed firms add more to a country's economic growth, as improved governance brings about proficiency, solidity and sustainability in value-creation to all stakeholders.

With respect to the causal relationship between corporate governance and economic growth, unidirectional links are revealed. Firstly, Naughton (1995) and Qian (2000) show that corporate governance is an antecedent to economic growth. These studies find causality flowing from corporate governance to economic growth. However, other studies have also found causality from economic growth to corporate governance. It means in these instances then that increased and improved quality of overall trade demands better firm management. This is reflected in Wilson's (2016) study of China, as well as Goldsmith (2007) who both find that uninterrupted and early-stage industrial development and economic growth in both North America and Western Europe took place prior to effecting governance restructurings.

As for corporate governance and national institutions, several studies have documented the existence of a relationship. Zhou and Guillen (2019) researching the period 1988 – 2016, on a panel of 45 countries, reveal that crucial corporate governance practices including hostile takeover bids are certainly affected by facets of national institutions. The innovative work by La Porta et al. (1998) established that a country's legal origin is correlated to the standard of investor protection. Research by Col and Sen (2019) finds that more stringent legal frameworks have a positive effect on corporate governance components, while Bushman (2004) underscores that improvements in judicial competence increase instances of

governance disclosures. These two studies are emphatic on the contribution of institutions in promoting corporate governance. With the use of structural equation modelling on a panel of 42 countries, Daniel et al. (2012) find that corporate governance regimens of a country are associated to the institutional environment. This then has significant bearing on policy framers as merely incorporating new firm governance practices may be insufficient without modifications on the institutional environmental facets such as checking corruption, government effectiveness, or the rule of law.

Still and all, there are instances in which the corporate governance-institutional environment relationship is negative. The study of Giroud and Mueller (2010) finds that the promulgation of anti-takeover laws debilitates corporate governance's efficacy particularly with increased frequencies of managerial negligence.

With reference to the institutions-economic growth link, a number of studies empirically concur that the institutional environment has positive growth effects, despite the use of various methodological specifications. Nawaz's (2015) econometric analysis of 56 countries, for the period 1981 – 2010 finds a positive impact of institutional quality on economic growth. Valeriani and Peluso (2011) using Panel Corrected Standard Errors (PCSE) as well as Fixed Effects (FE) estimations for the period 1950 to 2009, reveal that institutions have positive growth effects for the countries in the Sub-Saharan Africa, East and Central Asia, Latin America and the Caribbean, North America, Central Asia, and for the Middle East and Northern Africa, although the size of the effect varied depending on the region. Using political institutional proxies from the International Country Risk Guide (ICRG) for the period 1993 -2012, Acaravci and Erdogan (2017) find that institutions have a positive and significant effect on economic growth, among G-7 countries. Their study ascribes this positive effect by institutions to engender a trustable background that enables economic actions. Abubakar's (2020) study of Nigeria spanning the period 1979 – 2018, discovers a shared relationship amongst the factors of institutional quality, effective governance and economic growth with the use of the Johansen cointegration test, while examination of the same data with the Ordinary Least Squares (OLS) test reveals that institutional quality has a positive and statistically significant effect on economic growth. Nguyen et al. (2018) research 29 developing economies for the period 2002 to 2015, with the estimation of System Generalized Method of Moments (SGMM) and found positive effects of institutional quality towards economic growth.

The institutional environment registered negative economic growth effects in Alexiou et al. (2014), a study that empirically tested the period 1972 – 2008 for the Sudanese economy with the ARDL cointegration, while Acaravci and Erdogan (2017) find that institutions are insignificant to economic growth in the second panel of 14 paired countries.

Checking the institutions-economic growth causal relationship, Nabila et al. (2015) examined emerging Asian economies in the period 1990 – 2013, and found uni-directional causality from institutional quality to economic growth, having ascertained positive growth effects of institutions through panel Autoregressive Distributed Lag (ARDL) model estimation. Uni-directional reverse causality is seen in Yufuf and Malarvizhi (2014), an assessment of Nigeria's institutional quality effects to economic growth. Their research used the ARDL approach to cointegration and found causality running from economic growth to institutions. Their results give the inference that sustained bigger volumes and the eventual sophistications in aggregate trade promote advancements in the institutional environment. Such findings are also echoed in studies by Chong & Calderon (2000) and Lee & Kim (2009). Bi-directional causality is found in Dandume's (2013) research in which both institutions and economic growth Granger-Cause each other.

3. Data and Methodology

3.1 Data

The study strives to investigate whether Granger Causal relationships exist among firm-level corporate governance practices, institutional environmental factors and economic growth in 13 Sharia law countries (Algeria, Azerbaijan, Bahrain, Bangladesh, Egypt, Indonesia, Kuwait, Malaysia, Mali, Morocco, Pakistan, Saudi Arabia, Turkey). These were selected using the criteria: Diamant (2019), detailing the countries with the largest world Muslim populations, and Otto (2010) who individuates all Islamic majority countries in the world, with 55% or more of the inhabitants to be of the Muslim religion. Additionally, the selection of these countries as well as the sample period of study depended on data availability.

Annual data from 2006 to 2019 is utilised. Economic growth, is proxied by Gross Domestic Product (GDP) data sourced from the World Bank's (2020b) World Development Indicators, adapted to billions of international dollars using purchasing power parity rates. The research aggregated variables of firm-level corporate governance practices and institutional environmental factors, as singular item measures (CG) and (IE) correspondingly. This was done in line with Kaufmann et al. (2010) in the operational treatment of model constructs and to harness the comprehensiveness and overall stalwartness of a composite index. Individual proxies were gathered from the Global Competitiveness Index Historical Databases (GCIHD) from the World Economic Forum (WFE 2019). From there, the study chose corporate governance routines at firm-level as estimated by company disclosure practices, efficacy of corporate boards and protection of minority shareholders. Institutional environmental factors on the other hand comprise of the

proxies of efficiency of legal framework (in settling disputes and challenging regulations), judicial independence and property rights.

3.2 Empirical Methods

The dynamic relationship involving firm-level corporate governance, institutional environment and economic growth is first of all modelled on the priori assumption of the specification below.

Economic Growth =

ƒ (Aggregated) (*Firm-level Corporate Governance Practices, Institutional Environment*)

$$LGDP_{it} = \beta_0 + \beta_{aggCG}LX_{it}^{aggCG} + \beta_{aggIE}LX_{it}^{aggIE} + u_{it} \tag{1}$$

Where; $LGDP_{it}$ = the log-transformed dependent variable that measures economic growth; LX_{it}^{aggCG} = log-transformed aggregated corporate governance practices at firm-level; LX_{it}^{aggIE} = log-transformed aggregated institutional environment factors; u_{it} = the error term with a normal distribution assumption.

An optimal lag order selection test endorsed a one-year lag length, deemed suitable for the annual data panels (Wooldridge 2016). The Modified Bayesian Information Criteria (MBIC) confirmed this as appropriate with the smallest estimate, aside from the MAIC and MQIC criteria for the dataset. **Table A1** in the appendices shows the results of the lag order selection criteria for the panel.

3.2.1. Panel Vector Autoregression Model

The Panel Vector Autoregression (PVAR) model estimation with fixed effects is adopted, to aid the forecasting agenda that relates to the testing of causality and direction, in agreement with Koop (2013) and Sims (1980). In this model, the cross-sectional characteristics in the panels which could have elements of heterogeneity are estimated mutually with fixed effects (Abrigo & Love 2016), which enhances reliability of estimations (Love & Zicchino 2006). The PVAR with fixed effects brings the benefit of robustness towards any incorrect specifications in the series of the entity specifics (Nickell 1981) and is fit for a moderate number of countries and time period (Bun & Kiviet, 2006) of this study. The panel-specific fixed effects allude to the Islamic-tinged institutions and legal systems, which do not change over time, that have a bearing on corporate governance and its ultimate contribution to the economic growth of the Sharia law region.

Since PVAR models are principally constructed for static variables with no stochastic movement, this research estimates the relationships among corporate governance, institutional environment and economic growth in the Sharia law panels

using level PVAR model which allows discounting cointegtation analysis, even though those relations may exist (Lutkepohl 2013). The PVAR model is estimated by Panel Corrected Standard Error (PCSE) using the z-test and is only meaningful upon the assumption of endogeneity which makes each regression to have the same number of regressors (Asteriou & Hall 2016; Sims 1980). Also, it assumes the errors to be serially correlated (Holtz-Eakin et al. 1988). This generates a system of equations 2, 3 and 4 thus.

$$LGDP_{it} = \beta_0 + \sum_{p=1}^{P} \beta_p \ LGDP_{it-p} + \sum_{y=1}^{Y} \beta_y^{aggCG} \ LX_{it-y}^{aggCG} +$$
$$\sum_{z=1}^{Z} \beta_z^{aggIE} \ LX_{it-z}^{aggIE} + u_{it} \tag{2}$$

$$LCG_{it} = \beta_0 + \sum_{y=1}^{Y} \beta_y^{aggCG} \ LX_{it-y}^{aggCG} + \sum_{z=1}^{Z} \beta_z^{aggIE} \ LX_{it-z}^{aggIE} +$$
$$\sum_{p=1}^{P} \beta_p \ LGDP_{it-p} + u_{it} \tag{3}$$

$$LIE_{it} = \beta_0 + \sum_{z=1}^{Z} \beta_z^{aggIE} \ LX_{it-z}^{aggIE} + \sum_{y=1}^{Y} \beta_y^{aggCG} \ LX_{it-y}^{aggCG} +$$
$$\sum_{p=1}^{P} \beta_p \ LGDP_{it-p} + u_{it} \tag{4}$$

Where; LCG_{it} = the log-transformed dependent variable that measures corporate governance; LIE_{it} = the log-transformed dependent variable that measures institutional environment; β_0, β_p, β_y^{aggCG}, β_z^{aggIE} = parameter estimates for the explanatory variables; i = 1, 2, 3, ……N (observation/ country index); t = 1, 2, 3, …. T (time index); p = 1, 2, 3, ….P (the number of lags for the variable measuring economic growth); y = 1, 2, 3, ….Y (the number of lags for the variable measuring aggregated corporate governance practices at firm-level); z = 1, 2, 3, ….Z (the number of lags for the variable measuring aggregated institutional environment factors); with the rest of the variables as hitherto defined.

3.2.2. Panel Granger Causality Model

This test was utilised to ascertain precedence and therefore direction in line with Granger (1969) among the variables. This model assumes endogeneity (Ashley et al. 1980), however the disturbances have to be serially uncorrelated (Granger 1969; Maddala & Rao 1973). Hence, generating the following system of equations 5, 6 and 7 below.

$$LGDP_{it} = \sum_{j=1}^{J} \alpha_j \ LGDP_{it-p} + \sum_{y=1}^{Y} \beta_{y+1}^{aggCG} \ LX_{it-y}^{aggCG} + \sum_{z=1}^{Z} \beta_{z+1}^{aggIE} \ LX_{it-z}^{aggIE} + \varepsilon_{it} \tag{5}$$

$$LCG_{it} = \sum_{y=1}^{Y} \alpha_{aggy} \ LCG_{it-y}^{agg} + \sum_{j=1}^{J} \beta_{j+1}^{GDP} \ L_{it-j}^{GDP} + \sum_{z=1}^{Z} \beta_{z+1}^{aggIE} \ LX_{it-z}^{aggIE} + \varepsilon_{it} \tag{6}$$

$$LIE_{it} = \sum_{z=1}^{Z} \alpha_{aggz} \ LIE_{it-z}^{agg} + \sum_{j=1}^{J} \beta_{j+1}^{GDP} \ L_{it-j}^{GDP} \sum_{y=1}^{Y} \beta_{y+1}^{aggCG} \ LX_{it-y}^{aggCG} + \varepsilon_{it} \tag{7}$$

Where; $j = 1, 2, 3, ….J$; with the rest of the variables as hitherto defined. This estimation involves also checking for any existence of short-run causal relationships among the variables in the models through the limitation of the approximated coefficients of the lagged variables to zero. In other words, the null hypothesis of no short-run causal relationships $(H_0 = \beta_{y+1}^{aggCG} = \beta_{z+1}^{aggIE} = \beta_{j+1}^{GDP} = 0$; Excluded variable does not Granger-cause Equation variable) *vis-à-vis* the alternative $(H_a \neq \beta_{y+1}^{aggCG} \neq \beta_{z+1}^{aggIE} \neq \beta_{j+1}^{GDP} \neq 0$; for at least one; Excluded variable Granger-causes Equation variable). These apply for (Eqns. 5, 6 and 7).

4. Empirical Results and Discussion

4.1. Unit Root Test

The empirical analysis commences with the Levin-Lin-Chu (LLC) unit root test to check for stationarity in the variables. Levin et al. (2002) and Wooldridge (2016) support its use as a pre-requisite to estimation, in order to guarantee the validity of the regression results. This test used the fitted Augmented Dickey-Fuller (ADF) regression for a particular panel of each input explanatory variable, as well as the Bartlett Kernel average of 8 lags in the dataset. **Table 1** contains the results of the LLC test in which case H_0 is rejected, for each of the included variables, with the adjusted t* being statistically significant at 5%.

Table 2 reveals the dynamic short-run coefficients of the nexus emanating from equations 2, 3 and 4. Estimations from equation 2 show that a one-year lag in the value of economic growth has a strong positive significant effect on its present value. An increase of 1% in the previous year would lead to 0.780% increment on the current value of economic growth. Interestingly, aggregated corporate governance has a significant negative impact on economic growth, whereby a 1% improvement in aggregated corporate governance factors is associated with a 2.109% decrement in economic growth. The probable explanation for this negative relationship could be that improvements in the firm-level corporate governance practices are still insufficient in a milieu of benign institutions, that suppress the contribution of corporate governance towards economic growth. This is corroborated with the results of equation 2, in which institutions are found to be insignificant in determining economic growth. These results are consistent with those of Valeriani and Peluso (2011) that find corporate governance ineffective in contributing to economic growth when in an environment of unreliable institutions. This is because untrustworthy institutions are characteristic of erratic enforcement which then erodes investor confidence in the protections set in firm-level rules and practices. From these facts, the study infers that policymakers should reshape the extant corporate governance routines with a view to registering a significant positive effect on economic growth. Estimations from equation 3 show that a one-year lag in the value

of aggregated corporate governance has a positive significant effect on its present value. A 1% improvement in the previous year would lead to 0.632% enhancement in the current value of corporate governance levels. Coefficients from equation 4 reveal that economic growth and aggregated institutional environment are significant determinants of institutions. A one-year lag in the value of aggregated institutional environment has a positive significant effect on its present value. An improvement of 1% in the institutional environment in the previous year would lead to 0.633% enhancement in the current value of institutions. The previous value of economic growth has a significant positive impact on aggregated institutional environment, where by a 1% increase in economic growth is associated with a 0.071% improvement in the institutional environment.

Table 1. Levin-Lin-Chu Unit Root Test Results

Variable	Unadjusted t-Statistic	Adjusted t*-Statistic	P-value
$LGDP$	-10.2773	-4.5953	$0.0000*$
LX^{aggCG}	-12.1616	-3.3584	$0.0004*$
LX^{aggIE}	-10.5164	-4.5583	$0.0000*$

* indicates the rejection of the null hypothesis at the 5% level of significance, satisfying the stationarity criteria

4.2. Panel Vector Autoregression model results

Table 2. Panel VAR Model Estimates

Outcome Variable	Lagged regressors	Coefficient	Standard Error	z Statistic	P-value	95% Confidence Interval	
$LGDP$							
	$LGDP_{t-1}$	0.786	0.121	6.47	0.000	0.544	1.017
	LX^{aggCG}_{t-1}	-2.109	0.609	-3.61	0.009	-3.694	-0.524
	LX^{aggIE}_{t-1}	1.727	1.030	1.68	0.093	-0.291	3.746
LX^{aggCG}							
	$LGDP_{t-1}$	0.024	0.019	1.27	0.204	-0.013	0.061
	LX^{aggCG}_{t-1}	0.632	0.163	3.87	0.000	0.312	0.952
	LX^{aggIE}_{t-1}	0.236	0.238	0.99	0.321	-0.230	0.702
LX^{aggIE}							
	$LGDP_{t-1}$	0.071	0.025	2.85	0.004	0.022	0.121
	LX^{aggCG}_{t-1}	-0.199	0.199	-1.00	0.316	-0.589	0.190
	LX^{aggIE}_{t-1}	0.633	0.323	1.96	0.050	0.002	1.266

4.3. Panel Granger Causality Model Results

Table 3. Panel Granger Causality Model Estimates

Equation Variable	Excluded variable	chi2	df	P>chi2
LGDP				
	LX^{aggCG}	6.800	1	0.009*
	LX^{aggIE}	2.814	1	0.093
	ALL	11.391	2	0.023*
LX^{aggCG}				
	LGDP	1.613	1	0.204
	LX^{aggIE}	0.984	1	0.321
	ALL	2.500	2	0.645
LX^{aggIE}				
	LGDP	8.123	1	0.004*
	LX^{aggCG}	1.007	1	0.316
	ALL	10.294	2	0.036*

* indicates the rejection of the null hypothesis at the 5% level of significance

Table 3 represents the panel Granger causality test results. The test was done to determine the causal relationships among corporate governance, institutional environment and economic growth, in a bid to point at the direction of causality (if any) among these variables. Three possible causal relationships may occur from this test; unidirectionality, bi-directionality and neutrality.

With *LGDP* as the equation variable, the results show that *LGDP* is influenced by LX^{aggCG} (0.009) but not by LX^{aggIE} (0.093). In other words, changes in a combination of firm-level corporate governance factors precede changes in economic growth, although the effect is seen as negative. This translates that corporate governance is a prerequisite for economic growth, as found in the studies of Naughton (1995) and Qian (2000). The null hypothesis is rejected (0.023) when both LX^{aggCG} and LX^{aggIE} are taken jointly, as evidence that both corporate governance and institutional environment influence economic growth. The null hypotheses are accepted throughout when LX^{aggCG} is the dependent variable. This is because the lagged coefficients of 0.204 for *LGDP* and 0.321 for LX^{aggIE}, imply that neither economic growth nor the institutional environment Granger-causes corporate governance. Still, at 0.645, a combination of both *LGDP* and LX^{aggIE} does not influence LX^{aggCG}. This gives the inference that when economic growth and the institutional environment are jointly taken, they do not cause corporate governance. For the institutional environment as the equation variable, the lagged coefficient of

LGDP (0.004) implies that the null hypothesis is rejected, as economic growth influences the institutional environment. Changes in economic growth predate changes in the institutional environment factors, as countersigned by the results of Chong & Calderon (2000) and Lee & Kim (2009). At 0.316 for LX^{aggCG}, the null hypothesis is accepted, as corporate governance does not influence the institutional environment. However, both *LGDP* and LX^{aggCG} influence LX^{aggIE} at 0.036. Meaning that a combination of economic growth and corporate governance Granger-causes the institutional environment. These results uncover significant evidence of unidirectionality from corporate governance to economic growth, from corporate governance, institutional environment to economic growth, from economic growth to the institutional environment and from economic growth, corporate governance to institutional environment. Neutrality is revealed from economic growth, institutional environment to corporate governance.

4.4. Tests for Model Adequacy

The research used Pesaran's (2004) test for cross sectional dependence as one of the tests for robustness of the estimated results. This test was carried out at 5% level of significance. From its CD- statistic of 0.120, a p-value of 0.9046 is greater than the significance level. Thus, the null hypothesis was accepted and proving cross sectional independence among the panels. Additionally, Eigen value stability condition presented in Table A2 shows that the PVAR model used is stable, since all the moduli are less than one (Lutkepohl, 2013).

5. Conclusion and Recommendations

The aim of this study was to determine the causal relationships among corporate governance, institutional environment and economic growth in a selected panel of Sharia law countries, for the period 2006 - 2018. To reach this objective, the study employed the Panel Granger Causality test model, through the Panel Vector Autoregression (PVAR) model estimation with fixed effects. The study used stationary level PVAR models without reference to cointegration links as recommended by Lutkpohl (2013). The results from the PVAR indicate that corporate governance has a negative significant effect on economic growth, while economic growth was found to have a positive significant effect on the institutional environment. Panel Granger Causality test results revealed evidence of unidirectionality from corporate governance to economic growth, from corporate governance, institutional environment to economic growth, from economic growth to the institutional environment and from economic growth, corporate governance to institutional environment. The research did not find causal relationship that starts from economic growth, institutional environment to corporate governance. In this

manner, the study results indicate that corporate bodies within the selected countries from the Sharia law region conduct business in an unsupportive and fragile environment of wanting governance and institutions, as declared by earlier studies. This has ramifications on the health of such economies as such an environment acts as a handicap to the realisation of higher economic growth.

For policymakers, the study recommends the need to reshape the extant corporate governance routines with a view to registering a significant positive effect on economic growth within these selected Sharia law countries. This is because the IDA (2021), OECD (2015) and World Bank (2020a) consider corporate governance as a precursor to the building up of competent, all-encompassing and reliable institutional environment that supports sustainable trade for the growth of these emergent economies. Authorities also ought to nurture a growth-enhancing institutional environment in which corporate players feel safe to partake so as to contribute to the growth of these economies.

This research also considers it crucial to look at the influence of other determinants of corporate governance such as financial development, macroeconomics, among others, to explain economic growth. Firm-level corporate governance together with the institutional environment measures were utilised to determine their effects and causality with economic growth. It is important to acknowledge that the corporate governance effect on economic growth is context-dependent, as alluded to by Othman and Rahman (2011). Besides institutions, checking the influences of other determinants still within the Sharia law environment towards economic growth may prove much more insightful.

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Appendices

Table A1: Estimated appropriate lag order selection of the variables

Sample: 2006 – 2019		Observations	=	169
		Panels	=	13
		Average of time periods	=	14

lag	CD	J	J pvalue	MBIC	MAIC	MQIC
1	.8895994	62.22524	.0091295	-193.2697	-38.77474	-100.2833
2	.9865763	22.97528	.578007	-105.2722	-27.02472	-55.77802

* indicates lag order selected by criteria

Table A2. Eigenvalue Stability Condition for the Variables

Eigenvalue		
Real	Imaginary	Modulus
.8543006	-.3351123	.9176762
.8543006	.3351123	.9176762
.6996206	0	.6996206
.3730353	0	.3730353
.2854184	0	.2854184

The PVAR meets the stability condition.