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Corporate Governance and Financial Performance Nexus: Any Bidirectional Causality?

Abstract

Most studies on corporate governance recognize endogeneity in the nexus between corporate governance and financial performance. Little attention has, however, been paid to the direction of causality between the two phenomena, and hence the Vector Error Correction (VEC) model, which allows for endogenous determination of the direction of causality, has not been widely employed. This study fills that gap by estimating the nexus and the direction of causality using the VEC model to analyze panel data on selected listed firms in Nigeria. The results agree with the findings of most previous studies that corporate governance significantly affects financial performance. Board skills, board composition and management skills enhanced financial performance indicators – return on equity (ROE), return on asset (ROA) and net profit margin (NPM); in many occasions, significantly. Board size and audit committee size did not, and can actually undermine financial performance. More importantly, financial performance did not significantly affect corporate governance. On the basis of the lag structure of the VEC model, this

study affirms unidirectional causality in the nexus, running from corporate governance to financial performance, nullifying the hypothesis of bidirectional causality in the nexus.

Keywords: corporate governance, financial performance, bidirectional causality, unidirectional causality, Vector Error Correction model

JEL: C3, D2, D7

Introduction

Corporate governance is a set of codes of conduct for directing and controlling the activities of a company and its primary stakeholders [Cadbury report, 1992]. It is designed to resolve certain conflicts associated with management and allocation of a corporate organization's resources to achieve set objectives. The efficacy of corporate governance measures in minimizing conflicts and engendering corporate financial performance has long been a subject of theoretical and empirical studies.

Most studies have focused on unidirectional relationships between corporate governance and financial performance, tracing the effects of the former on the latter, and not otherwise. Very few studies analyze bidirectional relationships and causality between financial performance and corporate governance variables. Invariably, models such as the vector autoregressive (VAR) and vector error correction (VEC), which permit such analyzes, have not been widely employed in this regard. Earlier studies on the nexus have mostly used endogenous regression techniques – e.g. the two (2SLS) and three (3SLS) stage least squares – as well as exogenous regression techniques such as the ordinary least square (OLS). These techniques cannot test bidirectional causality between the variables of interest. To the best of our knowledge, no study has tested bidirectional causality in the nexus between corporate governance and financial performance in Nigeria, using the VEC model.

This study therefore analyzes the nexus between corporate governance and financial performance variables within the VEC model, with a view to determine bidirectional causality between the variables. The model choice is informed by its superiority over the ordinary VAR in being able to separate short-term aspects of the relationship from long-term components. The analysis is based on the assumption that companies posting huge profits may attract shareholders, who may then agitate for corporate governance to protect or promote their rights to the company's resources.

Focusing on five key governance variables (board size, board composition, board skills, management skills and audit committee) and three selected indicators of financial performance (return on equity (ROE), return on asset (ROA) and net profit margin (NPM)), this study establishes that causality runs from some corporate governance

measures to financial performance, and not otherwise. These findings agree with earlier studies that found a unidirectional relationship; no evidence for bidirectional relationship was established. Long run relationships were statistically significant while the association between the variables in the short run was not.

The paper is organized as follows. We review the relevant literature, which ranged from the theoretical perspectives to empirical evidence. Then, the methodology is described, highlighting the theoretical framework adopted and the analytical techniques adopted. The final two sections of the paper discuss the study results and present our concluding remarks.

Literature Review

Corporate organizations face several organizational problems that undermine both operational efficiency and financial performance. These problems, including (but not limited to) the agency problem, are ubiquitous and enduring. The desire to solve them undergirds the development of corporate governance arrangements, mechanisms, and codes – the efficacy of which has been a subject of academic research for many decades. Several theories have been propounded to explain the development of organization problems and proposed solutions to them.

Theories of firm formation [Coase, 1937] and property and ownership rights [Coase, 1960; Grossman, Hart, 1986] concern issues that underlie the separation of asset ownership from management, which inevitably led to the agency problem [Smith, 1776; Berle, Means, 1932; Fama, Jensen, 1983] that corporate governance was formed to tackle. The firm emerges when there is an opportunity to organize economic activities in a way more profitable than the market arrangement. According to Coases's theory of firm formation [1937], a firm grows when it can bypass the market's arrangement for writing complete contracts and organize production activities better than the market. This allows the firm to obtain rents that both justify its existence and sustains it. The sharing of the rent between the firm's internal stakeholders – specifically, shareholders and management – creates the agency problem, which is exacerbated when ownership is separated from management (as many firms are managed on behalf of shareholders by hired managers who are not firm owners). Reacting (predictability) to this nonalignment of interests, managers often pursue self-aggrandizing financial activities against the interests of the shareholders [Jensen and Meckling, 1976; Jensen, 1986].

Consequences of the agency problem include the hold-up problem, suboptimal financial performance and corporate failures. These problems may result (at least in part) from the inability of firms to write complete contracts due to the huge transaction costs involved [Williamson, 1975]. Suggested solutions have been discussed in literature on agency theories of the firm [Jensen, Meckling, 1976; Jensen, 1986]. Many of those proposed

solutions are contained in corporate governance measures that seek to reallocate residual control rights and gains of contractual operations of the firm *ex post* in favor of asset owners [Zingale, 1998].

Jensen and Meckling's theory of the firm ownership structure [1976] uses agency theory to explain the existence of the agency problem, and integrates it with the theory of property rights to proffer solutions to the agency problem. The property right theory discusses the allocation of the rents generated by the firm between the shareholders (principal) and management (the agent) in specified implicit and/or explicit contracts, written to guide the *modus operandi* of the latter -or both - in managing the firm [Coase, 1937; Alchian, Demsetz, 1972; Jensen, Meckling, 1976; Fama, Jensen, 1983]. These sets of contracts led to the formal birth of the modern corporation as a distinct legal entity, which serves as a nexus for contracting relationships [Jensen, Meckling, 1976] between the stakeholders. The contracts specify the way residual claims on firm assets may be divided between stakeholders.

Corporate governance measures, including firm-specified contracts, their monitoring and execution, have been proposed by several theories, and their efficacy has been empirically found to improve firms' short-term performance – in terms of operating profit and return on investment- [Bhagat, Bolton, 2008; Sanda, Garba, Mikhailu, 2008; Brown, Caylor, 2004; Core, Hothaulsen, Larcker, 1999] – as well as their long- term performance – in terms of corporate growth and value [Bebchuk, Cohen, Farrell, 2008; Gompers, Ishii, Metrick, 2003].

Measures entrenching the effectiveness of corporate governance in modern corporations have also been empirically examined; they include board composition, board size, CEO duality, board skills and audit committee activities.

The composition of board of directors; that is, the ratio of independent (non-executive) directors to executive directors, has been noted by Hermalin and Weisbach [1988] to have the capacity of reducing the agency problem. Various studies, however, differ on this, and findings are mixed. Hassan and Ahmed [2012] find that board composition negatively affects firm performance, while many others – including Daily and Dalton [1992], Bhagat and Black [2002] and Hermalin and Weisbach [1998] – find no correlation between board composition and firm value (measured by the Tobin's Q). On the other hand, Liang and Li [1999], Brickley, Coles and Terry [1994], Attiya and Robina [2007] and Chechet, Yancy and Akanet [2013] all find that board composition has significant positive effects of on firms' financial performance.

Board size, too, influences corporate governance practices in firms and affects financial performance. Most empirical studies find a negative relationship between board size and firm performance. Lipton and Lorsch [1992], Eisenberg, Sundgren, and Wells [1998], Hermalin and Weisbach [2003] and Bennedsen, Kongsted and Nielsen [2006], Ashenafi, Khelifa and Yodit [2013], Chechet, Yancy and Akanet [2013] determine that a large board size does is not conducive to firm performance and added value. Sanda, Mukaila

and Garba [2005] establish that smaller boards positively affect performance, while large boards negatively affect performance.

Empirical findings on the effects of audit committee activities on firm performance have been mixed. Chechet, Yancy and Akanet [2013] find that audit committee activities positively affect financial performance while Ashenafi, Khelifa and Yodit [2013] find otherwise. Studies also disagree on the effects of CEO duality. While Cannella and Lubatkin [1993] find a positive relationship between CEO duality and financial performance, Brickley, Coles, and Jarrell [1997] document a negative relationship. Dedman and Lin [2002] find no relationship at all. Uadiale [2010] documents that while CEO duality positively affects equity returns; it negatively affects returns on capital employed.

Most findings on the nexus have been influenced by the methodology and estimation techniques employed [Firth, Rui, 2012]. For example, Agrawal and Knoeber [1996] reported that the effects of corporate governance measures are statistically significant when individually assessed, which disappear when they are jointly assessed. Moreover, most studies employed exogenous regression technique to estimate relationships between variables that are largely endogenous. Consequently, regression estimates would be biased, inefficient and erroneous.

Studies employing endogenous regression techniques are limited to using two stage least squares, 2SLS [Agrawal, Knoeber, 1996] and three stage least squares, 3SLS [Bhagat, Bolton, 2008]. These techniques do not allow the bidirectional relationship between the variables to be tested because they strictly designate some variables as dependent (and endogenous) and others as independent (exogenous). To test for this type of relationship, models such as vector autoregressive (VAR) models and vector error correction (VEC) – where all variables are treated as endogenous – must be employed. In addition to allowing for testing bidirectional relationship and (Granger) causality, VEC is superior to VAR in being able to separately determine short and long run components of the relationship. Despite these methodological advantages, it appears that very few works on corporate governance nexus have applied the VEC model. Therefore, application of the VEC methodology in analyzing the governance-performance nexus in Nigeria, to be best of our knowledge, is original.

Methodology

This study investigates the nexus between corporate governance and financial performance by analyzing secondary data on selected companies with appropriate econometric methods informed by the nature of the variables and the orientation of the theoretical framework adopted. The details are discussed in the subsections that follow.

Theoretical Framework

The Cobb-Douglas production function of Koke [2002] is modified and subsequently adopted as the theoretical framework. This model established that firm output is determined by factor inputs. The proportional relationship between the output and factor inputs is termed productivity. The factor productivity, showing by how much inputs translates to output, is a function of corporate governance – as the latter determines the efficiency by which assets or resources of the companies are utilized in maximizing sales (output) and shareholder value. As corporate governance is embodied in some functional structures put in place by investors, returns on the entrepreneurial skills used to put in place the corporate governance structure are expected. Thus we have:

$$Y_{it} = A_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi} \quad (1)$$

$$A_{it} = f(CG_{it}) \quad (2)$$

$$CG_{it} = \{BS, BC, BSKL, MGT SKL, AC\} \quad (3)$$

$$Y_{it} = CG_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi} \quad (4)$$

Where

Y_{it} = output/sales turnover of firm i at time t ; A_{it} = productivity of firm i at time t
 K_{it} = capital employed in firm i at time t ; L_{it} = labor engaged in firm i at time t
 M_{it} = other materials in firm i at time t ; CG_{it} = corporate governance in firm i at time t

BS = board size;

BC = board composition;

$BSKL$ = board skill

$MGT SKL$ = management skills

AC = audit committee

In the long run, all factors contributing to production are paid their productivity as the Euler's theorem holds (as shown in equations 5a and 5b below).

Let

$$MP_L = \frac{\partial Y_{it}}{\partial L_{it}} = \beta CG_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta-1} M_{it}^{\varphi} = \text{marginal productivity of labor};$$

$$MP_K = \frac{\partial Y_{it}}{\partial K_{it}} = \alpha CG_{it}^{\theta} K_{it}^{\alpha-1} L_{it}^{\beta} M_{it}^{\varphi} = \text{marginal productivity of capital}$$

$$MP_M = \frac{\partial Y_{it}}{\partial M_{it}} = \varphi CG_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi-1} = \text{marginal productivity of materials used in production}$$

$$MP_{CG} = \frac{\partial Y_{it}}{\partial CG_{it}} = \theta CG_{it}^{\theta-1} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi} = \text{marginal effectiveness of corporate governance structures}$$

$$Y_{it} \equiv MP_{CG} \cdot CG + MP_K K + MP_L L + MP_M M \quad (5a)$$

$$Y \equiv \theta CG_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi} + \alpha CG_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi} + \beta CG_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi} + \varphi CG_{it}^{\theta} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\varphi} \quad (5b)$$

Thus, we have

$$Y = \theta Y + \alpha Y + \beta Y + \varphi Y \quad (6)$$

$$Y(1 - \alpha - \beta - \varphi) = \theta Y \quad (7)$$

The L.H.S of equation 7 is the net profit, and it is the amount by which the shareholders value is increased. This amount is sensitive to the corporate governance which determines how much remains after all resources have been paid.⁴ This amount is the share of sales that results from increased efficiency in technological combinations of the other resources, due to the effects of corporate governance arrangements, the R.H.S.

Dividing through by sales, Y , we have

$$NPM = \theta = f(CG_{it}) \quad (8)$$

$$NPM = 1 - \alpha - \beta - \varphi \quad (9)$$

$$ROA = f(NPM) = f(CG_{it}) \quad (10)$$

$$ROE = f(NPM) = f(CG_{it}) \quad (11)$$

Where

NPM = net profit margin ROA = return on asset ROE = return on equity

Empirical Framework

This study assumes that firms, as rational economic agents, always seek to increase their profits over time. This assumption is justified because shareholders want to increase their wealth, which prompts managers to generate more profits. Thus, the financial performance last year, as a yardstick for the current year, influences the financial performance this year. Moreover, Koke [2002] showed that previous values of corporate governance affect current performance. In addition, financial performance is influenced, in the real world, by capital structure [Modigliani, Miller, 1963], and the asset utilization rate.

Thus we have,

$$NPM_{it} = \phi_0 + \phi_1 NPM_{it-1} + \phi_2 CG_{it} + \phi_3 CG_{it-1} + \phi_4 CS_{it} + \phi_5 AUR_{it} \quad (12)$$

$$ROA_{it} = \omega_0 + \omega_1 ROA_{it-1} + \omega_2 CG_{it} + \omega_3 CG_{it-1} + \omega_4 CS_{it} + \omega_5 AUR_{it} \quad (13)$$

$$ROE_{it} = \psi_0 + \psi_1 ROE_{it-1} + \psi_2 CG_{it} + \psi_3 CG_{it-1} + \psi_4 CS_{it} + \psi_5 AUR_{it} \quad (14)$$

Where:

AUR = asset utilization rate CG = capital structure

This model is econometrically described as the Autoregressive Distributed Lag (ARDL) model. It is endogenous⁵ and may not be estimated using exogenous regression techniques like the Ordinary Least Square (OLS). The endogeneity of the model makes theoretical sense, as the corporate governance is not strictly exogenous. It is put in place to enhance financial performance, and may not have existed if there was not any profit and possible misappropriation by managers in a world where ownership and management are separated.

Model Specification

The ARDL model is reparametrized, following Asteriou and Hall [2007] into a Vector Error Correction (VEC) model as follows:

$$\Delta Z_t = \sum_i^8 \phi_i \Delta Z_{t-1} + \lambda (FP_{t-1} - \sum_i^7 \tau_i X_{t-1}) \quad (15)$$

where

$$Z = (FP, CG, CS, AUR)' \quad (16)$$

$$CG = (BS, BC, BSKL, MGTSKL, AC)' \quad (17)$$

$$FP = \{NPM, ROA, ROE\} \quad (18)$$

$$X = (CG, CS, AUR)' \quad (19)$$

Diagnostics

The statistical properties of data used in this study were assessed using a number of diagnostic econometric tests. Descriptive statistical analysis was conducted to determine data distribution, while the stationarity properties of the data was ascertained with panel unit roots tests – which include the Levin, Lin and Chu (LLC) test and Im, Pesaran and

Shin (IPS) tests – are an extension of time series unit roots test, and are mostly based on Augmented Dickey Fuller test.

In the presence of unit roots in the data, a panel cointegration test was conducted. Kao cointegration test was carried out to examine the existence of the long run relationship between the variables.

Data: Measurement and Sources

Financial performance is measured with return on equity (ROE), return on asset (ROA) and net profit margin (NPM). ROE is measured as a ratio of net profit after interest and tax to shareholders. ROA is measured as a ratio of net profit after interest and tax to asset. NPM is measured as ratio of net profit to turnover.

Management skills and board skills are measured as the average qualification of members of the management team and board respectively, with “1” used to denote the any qualification less than BSc/HND, “2” for BSc/HND, “3” for professional in addition to any academic qualification less than MSc, qualification, “4” for MSc and “5” for PhD. Board size is measured as the number of board members while board composition identifies the number of independent members on the board. Audit committee is measured as the number of audit committee members.

Asset utilization rate is measured as a ratio of sales turnover to asset and capital structure measured as a ratio of debt to shareholders’ fund. Data used for all the variables are sourced from the annual reports of the firms employed in the study.

Results

Diagnostic Test Results

The descriptive tests statistics show that the variables reveal significant variation across the firm: minima are visibly different from maxima (table 2A in the appendix). The variations justify the use of panel data estimation techniques [Mobolaji, 2008] as they allow for more efficient estimation of parameters [Baltagi, 2005].

Not all variables have their data stationary. The Levin, Lin and Chu panel unit roots show that not all the variables are of $I(0)$. Those of $I(0)$ are stationary, while those of an order higher than $I(0)$ are not (table 3A). The existence of higher orders of integration necessitated that cointegration be ascertained. The Kao cointegration tests show that the variables analysed under the VEC model are cointegrated (table 4–6A).

Corporate Governance (CG) and Financial Performance (FP)

The results of the analyses show that the relationship between corporate governance and financial performance is unidirectional. As the relationship in the VEC model captures

the effect of the lag of an explanatory variable on the dependent variable, such a relationship is that of causality [Granger, 1988]. Hence, causality runs only from corporate governance to financial performance, and not the other way. The following subsections report, in detail, the relationships between the selected corporate governance measures and financial performance indicators.

Corporate Governance and Return on Equity (ROE)

Table 1 shows that only board skills and management skills have long run significant positive effects on ROE. These results underscore the importance of dexterity and managerial prowess of company executives in generating sales and increasing income. Capital structure also has positive effects on ROE, indicating that financing options and their combination matter to financial performance. Board composition has weak, albeit positive, effects on ROE. This shows that an increase in the number of non-executive director on board may improve financial performance.

TABLE 1. ROE, CG and other determinants

LONG RUN EFFECTS			SHORT RUN EFFECTS		
Dependent Variable: ROE_t			Dependent Variable: ΔROE_t		
Variables	Co-eff.	t-stat	Variables	Co-eff.	t-stat
$MGTSKLL_t$	6.183***	7.678	$\Delta MGTSKLL_{t-1}$	0.291	0.747
$BSKLL_t$	9.369***	3.133	$\Delta BSKLL_{t-1}$	0.291	0.747
BC_t	0.259	1.347	ΔBC_{t-1}	0.011	0.265
BS_t	-0.85**	3.445	ΔBS_{t-1}	-0.001	-0.195
ADC_t	-1.031	-1.594	ΔADC_{t-1}	0.01	0.047
AUR_t	0.103	0.187	ΔAUR_{t-1}	0.045	0.328
CS_t	1.042***	7.86	ΔCS	0.013	0.767
EFFECTS OF ΔROE_t					
DEP. VAR.	$\Delta MGTSKL_{t-1}$	$\Delta BSKLL_{t-1}$	BC_{t-1}	ΔBS_{t-1}	ΔADC_{t-1}
COEFF.	-0.0157	0.006	0.217	-0.237	-0.020
t STAT	-0.518	0.293	1.019	-1.1230	-0.5103

** 5% level and *** 1% level

Source: authors' computation.

On the other hand, board size (BS) has negative effects on ROE, showing that the size of the board is a burden and what matters is board experience, not size. This results agree with Yermack [1996] and Eisenberg, Sundgren, and Wells [1998] who found similar results. While the short run effects of corporate governance mechanisms/measures on ROE are all statistically insignificant, the sign of the coefficients in the short run relationship are

consistent with those of the long run. This shows that the effects of corporate governance accumulate over time: the effects may not be immediately perceivable, and may only manifest after some time.

Does financial performance engender increased corporate governance? The results show that ROE does not significantly influence any corporate governance measures.

This shows that causality only runs in one direction: while management and board skills components of corporate governance positively affected or Granger caused ROE, the latter neither influenced or Granger caused the former, and other components of corporate governance measures.

Corporate Governance and Return on Assets (ROA)

Board skills and board composition components of corporate governance positively affected ROA. Unlike its effects on ROE, management skill negatively affected ROA. These divergent effects of the same governance measure on different financial performance indicators may result from a divergent correlation of the governance measure with the denominators of the performance indicators: equity and assets. The divergent effects found here is not very dissimilar to Uadiale's [2010] finding that CEO duality positively affects ROE but negatively affects ROCE.

TABLE 2. ROA, CG and other determinants

LONG RUN EFFECTS			SHORT RUN EFFECTS		
Dependent Variable: ROA_t			Dependent Variable: ΔROA_t		
Variables	Co-eff.	t-stat	Variables	Co-eff.	t-stat
$MGTSKLL_t$	-2.670***	-8.220	$\Delta MGTSKLL_{t-1}$	-0.001	-0.094
$BSKLL_t$	4.3449***	7.329	$\Delta BSKLL_{t-1}$	0.012	0.176
BC_t	0.105***	3.650	ΔBC_{t-1}	0.001	0.220
BS_t	-0.072*	1.873	ΔBS_{t-1}	-0.005	-0.712
ADC_t	-0.791***	-7.074	ΔADC_{t-1}	0.010	0.445
AUR_t	-0.047	-0.559	ΔAUR_{t-1}	0.023	1.040
CS_t	0.1271***	6.394	ΔCS	0.001	0.244
EFFECTS OF ΔROA_t					
DEP. VAR.	$\Delta MGTSKL_{t-1}$	$\Delta BSKLL_{t-1}$	BC_{t-1}	ΔBS_{t-1}	ΔADC_{t-1}
COEFF.	-0.157	-0.095	1.033	-0.583	-0.181
t STAT	-0.761	-0.606	0.710	-0.403	-0.409

* 10% level and *** 1% level

Source: authors' computation.

Board size and audit committee measures of corporate governance negatively affected ROA. These results show that board size weighs down financial performance, and suggests that the cost of maintaining large board outweighs the benefit of their oversight functions. Also, the negative effects of audit committees may result from the fact that the committee duplicates board duties; hence the cost outweighs the benefits. Capital structure, like its effects on ROE, also positively affect ROA.

Again, the effects of the corporate governance are only manifested in the long run. While the short run effects of corporate governance on ROA are not significant, the consistency of the signs of the short run coefficients with those of the long run indicate that only cumulative effects are visible.

Like ROE, ROA neither significantly affected nor Granger caused any of the corporate governance measures (see the last four rows of Table 2). This again suggests unidirectional direction in the nexus between CG and ROA (a measure of financial performance), with causality running from the former to the latter and not in the reverse order.

Corporate Governance and Net Profit Margin (NPM)

Management skills, board skills and board composition have positive, though insignificant, effects on NPM. Board size and audit committee negatively affected NPM, as did ROA. Capital structure, like it effects on the two other measures of financial performance, positively affected NPM.

TABLE 3. NPM, CG and other determinants

LONG RUN EFFECTS			SHORT RUN EFFECTS		
Dependent Variable: NPM_t			Dependent Variable: ΔNPM_t		
Variables	Co-eff.	t-stat	Variables	Co-eff.	t-stat
$MGTSKLL_t$	0.1387	0.842	$\Delta MGTSKLL_{t-1}$	0.008	0.219
$BSKLL_t$	0.381	1.266	$\Delta BSKLL_{t-1}$	0.295	1.155
BC_t	0.019	1.332	ΔBC_{t-1}	0.006	0.239
BS_t	-0.034*	-1.740	ΔBS_{t-1}	-0.029	-0.868
ADC_t	-0.112**	-1.968	ΔADC_{t-1}	-0.050	-0.524
AUR_t	0.053	1.220	ΔAUR_{t-1}	0.0777	0.867
CS_t	0.029**	2.908	ΔCS	0.024	2.622
EFFECTS OF ΔNPM_t					
DEP. VAR.	$\Delta MGTSKL_{t-1}$	$\Delta BSKLL_{t-1}$	BC_{t-1}	ΔBS_{t-1}	ΔADC_{t-1}
COEFF.	-0.014	-0.004	0.336	-0.2552	0.0005
t STAT	-0.309	-0.125	1.056	-0.790	0.007

* 10% level and ** 5% level

Source: authors' computation.

Again, the short run effects of corporate governance are not significant, just like other measures of financial performance. NPM, like other measures of financial performance did not significantly affect any measures of corporate governance. This again suggests that the nexus between NPM and CG is unidirectional.

Concluding Remarks

This study examined the nexus between corporate governance and financial performance in a vector error correction (VEC) regression model, which allows for endogeneity and determination of the bidirectional relationship between the variables analyzed in the model. The quality of the board in terms of board skills and independence positively affected or Granger caused most measures of financial performance analyzed; often significantly. Other measures of corporate governance either negatively affected financial performance or had positive but insignificant effects.

This study established that though some corporate governance measures Granger caused financial performance, none of the financial performance measures Granger caused any of the corporate governance measures. It thus documents that the nexus between the corporate governance and financial performance is unidirectional, and that causality only runs from corporate governance to financial performance and not from the latter to the former.

Summarily, not all corporate governance measures enhance financial performance: others appear to detract from it. Shareholders should thus focus on entrenching only measures that assist in promoting financial performance and wind down performance-inhibiting ones. The insignificance of the effects of financial performance indicators suggests that entrenchment of corporate governance measures in Nigeria is not driven by a financial performance motive; it may instead be largely due to regulatory agency activities. The financial performance motive may have significant effects on corporate governance entrenchment if shareholder activism regarding profit sharing recognizes the impact of corporate governance on increasing profits available for distribution.

Notes

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⁴ This is based on the assumption that capital employed is risk free. Such capital includes preference capital and debentures. The risky nature of capital does not, however, change the outcome of the model.

⁵ Each of the equations in the model has as an explanatory variable the lag of the dependent variable.

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Appendices

TABLE 1A. List of firms

S/N	Names	Classification
1	Nigeria Nestle PLC	Non-financial
2	Berger Paint PLC	Non-financial
3	Aiico Insurance PLC	Financial
4	Dn Meyer PLC	Non-financial
5	Oando PLC	Non-financial
6	Access Bank PLC	Financial
7	Guaranty Trust Bank PLC	Financial
8	Eco Bank PLC	Financial
9	First City Monument Bank	Financial
10	Fidelity Bank PLC	Financial
11	Wema Bank PLC	Financial
12	Diamond Bank PLC	Financial
13	Zenith Bank PLC,	Financial
14	Skye Bank PLC	Financial
15	First Bank PLC	Financial

Source: own elaboration.

TABLE 2A. Descriptive statistics

	ROE	ROA	PM	AUR	CS	BS	BC	BSKL	MGTSKL	AC
Mean	0.206	0.052	0.166	0.536	5.28	5.16	6.720	3.054	3.133	5.760
Median	0.169	0.032	0.172	0.158	4.88	5.00	7.000	3.000	3.000	6.000
Maximum	1.394	0.491	2.849	2.835	15.18	11.0	12.00	4.000	10.500	7.000
Minimum	-2.186	-0.364	-0.485	-0.310	0.483	2.00	1.000	3.000	3.000	4.000
Std. Dev.	0.442	0.113	0.269	0.738	3.232	1.76	2.01	0.146	0.641	0.575
Skewness	-1.275	1.624	6.503	1.531	0.769	0.25	-0.338	3.333	10.28	-2.062
Kurtosis	13.809	9.378	67.322	3.895	3.209	2.72	3.41	16.32	117.6	5.760
Probability	0.000	0.000	0.000	0.000	0.001	0.35	0.140	0.000	0.000	0.000
No of obs	150	150	150	150	150	150	150	150	150	150

Source: own elaboration.

TABLE 3A. Levin, Lin & Chu Unit Root Tests

VARIABLE	LEVIN,LIN&CHUN	PROB	OTHER OF INTEGRATION
ROE	4.43719***	0.0000	I(0)
ROA	2.11024**	0.0174	I(1)
PM	1.39855*	0.0810	I(0)
AUR	3.04428***	0.0012	I(0)
CS	11.488***	0.0000	I(0)
BOARDSIZE	0.24964	0.5986	Not I(0)
BOARDCOM	0.515	0.3030	Not I(0)
BOARDSKILL	0.68419	0.7531	Not I(0)
MGTSKILL	15.2885	1.0000	Not I(0)
AUDCOM	1.32139*	0.0932	Not I(0)

* 10% level, ** 5 % level and *** 1% level

Source: own elaboration.

TABLE 4A. Kao Cointegration test (ROE)

Kao Residual Cointegration Test		
Series: AUD_COM ROE MGT_SKILL CS BOARD_S BOARD_C BO_SKILL AUR		
Date: 06/13/15 Time: 00:20		
Sample: 2002 2011		
Included observations: 150		
Null Hypothesis: No cointegration		
Trend assumption: No deterministic trend		
User-specified lag length: 1		
Newey-West automatic bandwidth selection and Bartlett kernel		
	t-Statistic	Prob.
ADF	-1.654323	0.0490
Residual variance	0.061399	
HAC variance	0.025166	

Source: own elaboration.

TABLE 5A. Kao Cointegration test (NPM)

Kao Residual Cointegration Test		
Series: AUD_COMMGT_SKILL CS BOARD_S BOARD_C BO_SKILL AUR NPM		
Date: 06/13/15 Time: 00:21		
Sample: 2002 2011		
Included observations: 150		
Null Hypothesis: No cointegration		
Trend assumption: No deterministic trend		
User-specified lag length: 1		
Newey-West automatic bandwidth selection and Bartlett kernel		
	t-Statistic	Prob.
ADF	-1.596998	0.0551
Residual variance	0.061480	
HAC variance	0.024857	

Source: own elaboration.

TABLE 6A. Kao Cointegration test (ROA)

Kao Residual Cointegration Test		
Series: AUD_COMMGT_SKILL CS BOARD_S BOARD_C BO_SKILL AUR ROA		
Date: 06/13/15 Time: 00:22		
Sample: 2002 2011		
Included observations: 150		
Null Hypothesis: No cointegration		
Trend assumption: No deterministic trend		
User-specified lag length: 1		
Newey-West automatic bandwidth selection and Bartlett kernel		
	t-Statistic	Prob.
ADF	-1.615365	0.0531
Residual variance	0.061336	
HAC variance	0.024803	

Source: own elaboration.