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## FINANCIAL ECONOMICS | RESEARCH ARTICLE

# Grey directors, corporate governance and firms performance nexus: Evidence from Nigeria

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**Abstract:** There has been a consistent argument in the literature as regards the importance of grey directors on board, and their impact on firm performance with most studies focused on developed economies. However, little is known on the short and long-run implications. In this study, we examined the joint short-run and long-run causality relationship, as well as the long-run behaviour between grey directors and corporate performance of deposit money banks. Our sample includes 14 deposit money banks out of the 15 listed on Nigeria stock exchange for 2010–2017. The estimation techniques used include descriptive statistics, unit root test, panel co-integration test and fully modified ordinary least square regression (FMOLS). Using Tobin Q as the dependent variable, there is no flow of joint long-run causality from the independent variables. The significance of the short-run coefficients indicates joint causality moving from independent variable to the dependent variable in the short-run. Furthermore, the long-run equation shows a significant positive relationship between indigenous directors, the board size, non-executive directors and performance of the selected deposit money banks in Nigeria, while a negative

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Damilola Eluyela is a Lecturer at Landmark University, Nigeria. He is an associate member of the Association of Chartered Certified Accountants (ACCA), United Kingdom. His research interests include Environmental Accounting, Corporate Governance and Financial Accounting. He has published articles, among others, in *Banks and Bank Systems*, *Cogent Business and Management*, *Heliyon*, *Journal of Advanced Research in Law and Economics*, *Problems and Perspectives in Management*, *International Journal of Financial Research*, *International Journal of Energy Economics and Policy* and *Data in Brief*.

### PUBLIC INTEREST STATEMENT

This study examines the joint short-run and long-run causality relationship, as well as the long-run behaviour between grey directors and corporate performance of deposit money banks for a sample of listed deposit money banks in Nigeria between 2010 and 2017. We found that there is no evidence of joint long-run causality between grey directors and corporate performance of selected Nigeria deposit money banks. However, our findings reveal joint short-run causality between grey directors and corporate performance of selected Nigeria deposit money banks. Furthermore, examining the long-run behaviour, we found a positive significant relationship between indigenous directors, the board size, non-executive directors and performance of the selected deposit money banks in Nigeria, while a negative relationship was observed with firm size and grey directors was insignificant in the long-run. The general conclusion is that aggregate policy changes need to be carefully considered in promoting long-term benefit in respect of grey directors, indigenous directors of the company, non-executive directors, board size and firm size in maximizing the turnover.

correlation was observed with firm size. Grey director was insignificant in the long-run. The study concludes that aggregate policy changes need to be carefully considered in promoting a long-term benefit and need to gear effort towards maximising the performance of the banking sector in the long-run through effective group decision.

**Subjects:** Business; Finance; Management and Accounting;

**Keywords:** causality; corporate governance; financial performance; grey directors

## 1. Introduction

Corporate governance arises as a result of the separation of ownership and control of a business enterprise. Several committees and authors have attempted to define the concept of “corporate governance”. However, there has been subjectivity about what constitutes corporate governance. One of the most used definitions is the Cadbury report of 2002. The committee defines corporate governance as “the system by which companies are directed and controlled”. Good corporate governance practices and an effective corporate board structure are essential in achieving a high level of public trust and confidence of shareholders and stakeholders. One of the primary reasons why companies across the world fail is as a result of poor corporate governance (Abu et al., 2016; Otegunrin et al., 2018a, 2018b). Corporate board is the hallmark of every internal corporate governance mechanism. Board of directors is expected to act in the best interest of shareholders by ensuring the maximisation of their wealth. In achieving this objective, they perform the monitoring role and ensure the presence of a disciplined atmosphere within the organisation (Eluyela et al., 2019a). The effectiveness of every board depends on its composition.

Grey directors or affiliate directors are part of the board composition of companies. Kumar and Singh (2012) noted that grey directors are the non-executive director who has a business or personal relationship with the company and is non-employee of the company. As a result of their position, they emphasise monitoring opportunistic behaviour among other managers, thereby reducing earnings management practices to achieve the goals of shareholders. Giaretta (2012) presumed grey directors as persons who have relations with companies and do not participate in the day-to-day running of the company operations. Seema (2016) considers grey director responsibility to be more like that of outside directors and constitute nonexecutive directors group with the outside directors.

There has been a consistent argument in the literature as regards the importance of grey directors on board and their impact on firm performance. This results in two different schools of thought. One school of thought (Kumar & Singh, 2012; Giaretta, 2012; Abu et al., 2016; among others) believes that the presence of grey directors in board composition of a company creates an atmosphere of independence and ultimately leads to better firm performance. On the other hand, some scholars (Abu et al., 2016; Otman, 2014; among others) asserted to the fact that when grey directors are present on the board composition of a company, there is no effect on the performance of such company instead the rate of conflict of interest in the organization might increase. Empirically, a strand of literature documented that positive relationship exists between firm performance and governance in banking and financial sectors (Al-Matari et al., 2012; Rodrigs & Barnes, 2015; among others) while other documented a negative relationship (Abu et al., 2016; Alchian & Demsetz, 1972). However, limited studies have investigated the effects of grey director on firm performance, most notably in Nigeria. Likewise, numerous studies in the literature have established that there is a causal relationship between various board compositions (inside directors, outside directors, non-executive directors, CEO duality, gender diversity) and financial performance of firms. More interestingly, Kumar and Singh (2012) examined the impact of outside directors and firm performance in India, but the

joint short-run and long-run causality was not considered by this study where the previous research established that a causal relationship exists. Others included the studies by (Abu et al., 2016; Obaretin, 2015; Song et al., 2017; Zakaria, 2012). However, most of these studies did not examine the effect concerning time frame perspectives, which make the analysis limited in policy recommendations in this regard. Studies by (Dogan & Yildiz, 2013; Georgantopoulos & Filos, 2017) have shown that time perspectives matter in the analysis of governance and firm performance.

This study aims to fill this gap identified in the literature. Against this backdrop, the primary objective of this study is to examine the joint short-run and long-run causality relationship between grey directors on the corporate performance of deposit money banks in Nigeria. Furthermore, this study assessed the long-run behaviour between grey directors and performance of the selected deposit money banks in Nigeria. The empirical significance of this study will help to determine the importance of grey directors in the board composition of every company. We hypothesise that the inclusion of grey directors on board will have a significant effect on the financial performance of deposit money banks in Nigeria. This study contributed to the management and corporate governance literature as follows: (1) provides the first empirical evidence on the short-run and long-run relationships between grey directors and bank performance in Nigeria, (2) it uses a novel dataset on bank performance for a panel of banks in Nigeria. The analysis makes use of 14 deposit money banks out of the 15 listed on Nigeria stock exchange, while the study utilises annual data spanning the period from 2010 to 2017.

The subsequent part of this study is arranged as follows; section 2 contains various literature reviewed on the subject matter; then section 3 presents the theoretical framework, model specification and sources of data used in the study; section 4 consists of the findings, discussions and implication of the study; finally, section 5 present the concluding remarks, recommendations and suggestion for further research.

## 2. Literature review

Strand of theories explaining the relationship between grey directors, executive, shareholders, owners and workers in an organisation have been identified in the literature. One of the foremost is agency theory (Eluyela et al., 2019b; Logan, 2000; Tate et al., 2010; Wasserman, 2006). The theory stressed that executive managers act to actualise the goals and objectives of the owners or shareholders of the organisation (Jensen & Meckling, 1976). However, monitoring to realise these objectives is one of the primary roles or duties of the non-executive directors or grey directors. Alchian and Demsetz (1972) pointed out the monitoring generated an extra cost on the organisation and may lead to inefficiencies. Likewise, Panda and Leepsa (2017) echoed that the conflict of interest and agency cost is a result of ownership separation. According to Eisenhardt (1989), the agency theory offers unique insight into formation systems, which, on the other hand, helps to reduce uncertainty, and increase incentives for the continuation of the organisation. This view has been supported empirically as well (Amihud & Lev, 1981; Argawal & Mandelker, 1987; Barney, 1988; Conlon & Parks, 1988; Eisenhardt, 1985, 1988; Ozordi et al., 2019; Wolfson, 1985) while some documented mixed result in respect to this (Anderson, 1985; Eccles, 1985; Kosnik, 1987). The study by Pepper and Gore (2012) contradicts the view. The scholars pointed out the assumption of the contractual agreement in the model among agents in the presence of uncertainty is not realistic due to information asymmetry, mismanagement of resources, transaction cost, among others. This makes each agent patronise self-interest rather than organisation goals, most notably the shareholders. The directors are given the monitoring role; however, further functions to improve the organisation are not well stated in the theory. In this regard, Pepper and Gore (2012) viewed the manager as opportunistic and believed that the theory neglects the proficiency of the managers.

Empirically, Hastori et al. (2015) investigated the impact of agency cost on Agro-companies in Indonesia. The author documented that ownership involvement is not statistically significant with agency cost. More so, Rashid (2015) reported that a positively significant relationship exists between market performance and institutional investors in Bangladesh. The implications of executive directors, most especially the grey directors, remain inconclusive in both theoretical and empirical literature. Although, due to the complex nature of the organisation, Eisenhardt (1989) stressed the need to incorporate other relevant theories to effectively explain the behaviour using the agency theory. Another model that describes the action of executive directors, workers and owners in an organisation is the stakeholder theory (Donaldson & Preston, 1995; Jones & Wicks, 1999; Ozordi et al., 2020). However, a vast literature emphasised that the theory is limited in application due to lack of identification of stakeholder groups (Dunfee, 2008; Dunham et al., 2006; Freeman et al., 2010; Orts & Strudler, 2009). The reason was justified by the study of Crane and Ruebottom (2011) that investigate the implication of social identity in the model.

Extant studies have been carried out on good governance system and firm performance; The study of Otman (2014) observed the impact of corporate governance on firm performance using listed firms in the United Arab Emirates (UAE). The study adopts agency and stakeholder theories. Using ordinary least squares (OLS) and generalized least squares (GLS), the findings show that corporate governance has a significant impact on firm performance and stakeholder model is more appropriate in UAE. Similarly, in India, Kumar and Singh (2012) carried out a study on the effect of outside directors on firm performance. The study used a sample of 157 non-financial Indian firms for one year only (2008). These cross-sectional data gathered revealed that a negative and significant relationship exists between outside directors and firm performance while insignificant relationship exists between independent directors and firm performance. On a broader scope, Rodrigs and Barnes (2015) investigated the impact of independent directors on firm performance in Europe. The study used three measures of financial performance which are return on assets (ROA), return on equity (ROE) and Tobin's Q. Using ordinary least square regression (OLS), the study disagrees with the work of (Kumar & Singh, 2012) that there is a significant and positive relationship between independent directors and firm performance using any of the three measures.

More so, Al-Matari et al. (2012) analyzed the connection between board attributes and the firm performance of non-financial listed firms in Kuwaiti. They embraced agency theory and data were gathered from a sample of 136 organizations for only one year (2009). Multiple linear regression analysis was utilized and they find that there is a positive relationship between board attributes and firm performance in Kuwaiti. Giaretta (2012) explored the effect of private equity investment on firm productivity and development of the organization in Italy. The examination was led to making a probit model to test the factual centrality of factors intended to quantify the effect of private equity on target organizations. The outcome demonstrated that private equity investment has a significant effect on firm performance and productivity.

In Nigeria, Sunday and Godwin (2017) assessed the impact of board globalizing on banks performance in Nigeria. The examination adopting ordinary least square (OLS) regression. Findings show that outside board enrollment, resource development and institutional proprietorship have a significant positive association with bank performance in Nigeria. Additionally, Obaretin (2015) investigated on board qualities and firm performance in Nigerian listed organizations. While embracing the stakeholder's theory, the time series data gathered from 166 firms quoted on the Nigerian stock exchange market (NSE) found a positive and significant association between independent directors and firm performance in Nigeria. Abu et al. (2016) explored board attributes and performance of listed deposit money banks in Nigeria. Utilizing the agency theory, the findings show that grey directors have a significant and negative

relationship with firm performance and foreign directors are significant and positively associated with firm performance.

However, most of the studies on bank performance in Nigeria are not particularly related to grey directors (Abu et al., 2016; Adegboyegun et al., 2020; Obaretin, 2015; Sunday & Godwin, 2017). The model used in this study helps to achieve series of objectives, which include examining the impact of grey directors and corporate governance on the performance of selected Nigeria deposit money banks both in the long and short run. This work also aims at determining how important grey directors are in the board composition of every company.

### 3. Theoretical framework and model specification

#### 3.1. Theoretical framework

We adopted agency theory in this study. This is based on the premise that the involvement of grey directors on board members is a dimension of board attributes. Agency theory has its widest use among researchers in economics and finance. This theory stems from the fact of the separation of ownership and control of a business enterprise (Eluyela et al., 2018b; Folashade et al., 2016). This separation arises from the two major parties involved in the theory, which are the principal (shareholders), and the agent (board of directors). The principal appoints the agent to act in their best interest and they are being rewarded in return (Nwanji et al., 2020). The agent (board of directors) comprises various attributes, which allows them to ensure the proper running of the business enterprise and give room for proper monitoring and control. Some of the board attributes include CEO duality (the Chairman acting as the CEO), grey directors, non-executive directors (presence of NED on board), gender diversity (a balance between male and female directors on the board). Based on the inconclusive result from previous studies and existing theories, we stated the following hypothesis below:

H<sub>1</sub>: There is no joint short-run causal relationship between grey directors and performance of deposit money banks in Nigeria.

H<sub>2</sub>: There is no joint long-run causal relationship between grey directors and performance of deposit money banks in Nigeria.

H<sub>3</sub>: There is no long-run relationship between grey directors and performance of deposit money banks in Nigeria.

#### 3.2. Model specification

This study adopted the work of Le and Quah (2018) with slight adjustment as follows:

$$TOBQ_{it} = \alpha_{it} + \alpha_1 GRD_{it} + \alpha_2 IND_{it} + \alpha_3 NED_{it} + \alpha_4 BSIZE_{it} + \alpha_5 FSIZE_{it} + \delta_{it} \quad (1)$$

Where TOBQ denotes the Tobin Q (firm performance), GRD represents grey directors, IND refers to indigenous directors, NED is non-executive directors, the control variables are BSIZE and FSIZE, which denotes board size and firm size respectively. *i* and *t* represent firm-specific and time respectively. We used TOBQ as our dependent variable for measuring corporate performance. This is a wide used proxy because it measures both market and book values of a company performance (Vafeas, 1999). As a result of this, TOBQ has edge over all other accounting performance measures that are only based on book values (Eluyela et al., 2018a, 2018b). The measurement of all variables is presented in Table 1.

Table 1. Measurement of Variables		
Variables	Variables Type	Measurement of Variables
TOBQ	Dependent Variable	Book value of total assets plus market value of equity divided by book value of total assets
GRD	Independent Variable	Percentage of grey directors on board
IND		Percentage of national directors on board
NED		Percentage of non-executive directors on board
BSIZE	Control Variable	Number of board members
FSIZE		Natural logarithm of bank total assets

Source: Authors' Compilation (2019).

### 3.3. Methods and design

The analysis makes use of 14 deposit money banks out of the 15 listed on Nigeria stock exchange, while the study utilizes annual data spanning the period from 2010 to 2017. The rationale for selecting the samples is based on data availability. To investigate the relationships between grey directors, indigenous directors and firm performance for the deposit money banks in Nigeria firm, we used a panel data methodological approach. The justification for this is due to several advantages panel data have over time series and cross-sectional data (without respect to time differences like in case of panel data). According to Adetula et al. (2016) and Uwuigbe et al. (2018), the panel advantage includes: firstly, when dealing with short time series, panel data allow for more observations to be tested and this result in a high power of causality test. Secondly, the panel data help to control for heterogeneity and collinearity issues among variables (Attanasio, 2006; Le & Quah, 2018; Olopade et al., 2019).

In this study, first, the descriptive statistics were presented showing the measures of central tendency for all variables (Ademola et al., 2020; Umukoro et al., 2020). Then after, we tested for stationarity of each variable using Panel Unit Root test. The unit root test is considered as the pretest and essential in order to determine the most appropriate technique to be utilized in the empirical analysis (Asaleye et al., 2018; Lawal et al., 2018; Oladipo et al., 2019c; Oladipo et al., 2019a, 2019b). Thirdly, we assess whether a long-run relationship exists among variables using co-integration test. In the presence of cointegration, there is a tendency for a causal relationship among the series (Asaleye et al., 2019; Popoola et al., 2018). Furthermore, we tested for causality among the variables. The causality test comprises joint short-run and joint long-run causality following Masih and Masih (1996) approach. This means that GRD, IND, NED, BSIZE and FSIZE jointly explain TOBQ behaviour in the short-run and long-run. We, therefore, adopt the model of Kao and Chiang (2000) to determine the long-run behaviour, given as;

$$y_{it} = \varphi_i + \partial X_{it} + \sum_{k=1}^n C_{ik} \Delta X_{it-n} + \delta_{it} \tag{2}$$

In Equation (2),  $C_{ik}$  is the coefficient of lead and lag of the first differenced explanatory variables based on their unit-root test. Error term is denoted as  $\delta_{it}$ .

In order to use error correction model (ECM), it is assumed all variables must be significant at first difference- I(1). Thus, we adopt the test of Westerlund (2007) in analyzing whether co-

integration exists among individual variables and also for the panel as a whole. We further used fully modified ordinary least squares (FMOLS) to examine the long-run relationship among variables. The justification for using FMOLS is that it revises for both endogeneity predisposition and sequential connection. The investigation first gauges the long-run parameters in Equation (1) by means of the FMOLS estimator to obtain the residual. We then defined the first lagged residual to be equal to the error correction term and thereafter generated the following equations:

$$\begin{aligned} \Delta TobQ_{it} = & \alpha_{1i} + \sum_{k=1}^n \alpha_{11ip} \Delta TobQ_{it-n} + \sum_{k=1}^n \alpha_{12ip} \Delta GRD_{it-n} + \sum_{k=1}^n \alpha_{13ip} \Delta IND_{it-n} \\ & + \sum_{k=1}^n \alpha_{14ip} \Delta NED_{it-n} + \sum_{k=1}^n \alpha_{15ip} \Delta BSIZE_{it-n} + \sum_{k=1}^n \alpha_{16ip} \Delta FSIZE_{it-n} + \phi_{1i} ECT_{it-1} \\ & + \delta_{1it} \end{aligned} \quad (3)$$

$$\begin{aligned} \Delta GRD_{it} = & \alpha_{2i} + \sum_{k=1}^n \alpha_{21ip} \Delta TobQ_{it-n} + \sum_{k=1}^n \alpha_{22ip} \Delta GRD_{it-n} + \sum_{k=1}^n \alpha_{23ip} \Delta IND_{it-n} \\ & + \sum_{k=1}^n \alpha_{24ip} \Delta NED_{it-n} + \sum_{k=1}^n \alpha_{25ip} \Delta BSIZE_{it-n} + \sum_{k=1}^n \alpha_{26ip} \Delta FSIZE_{it-n} + \phi_{2i} ECT_{it-1} \\ & + \delta_{2it} \end{aligned} \quad (4)$$

$$\begin{aligned} \Delta IND_{it} = & \alpha_{3i} + \sum_{k=1}^n \alpha_{31ip} \Delta TobQ_{it-n} + \sum_{k=1}^n \alpha_{32ip} \Delta GRD_{it-n} + \sum_{k=1}^n \alpha_{33ip} \Delta IND_{it-n} \\ & + \sum_{k=1}^n \alpha_{34ip} \Delta NED_{it-n} + \sum_{k=1}^n \alpha_{35ip} \Delta BSIZE_{it-n} + \sum_{k=1}^n \alpha_{36ip} \Delta FSIZE_{it-n} + \phi_{3i} ECT_{it-1} \\ & + \delta_{3it} \end{aligned} \quad (5)$$

$$\begin{aligned} \Delta NED_{it} = & \alpha_{4i} + \sum_{k=1}^n \alpha_{41ip} \Delta TobQ_{it-n} + \sum_{k=1}^n \alpha_{42ip} \Delta GRD_{it-n} + \sum_{k=1}^n \alpha_{43ip} \Delta IND_{it-n} \\ & + \sum_{k=1}^n \alpha_{44ip} \Delta NED_{it-n} + \sum_{k=1}^n \alpha_{45ip} \Delta BSIZE_{it-n} + \sum_{k=1}^n \alpha_{46ip} \Delta FSIZE_{it-n} + \phi_{4i} ECT_{it-1} \\ & + \delta_{4it} \end{aligned} \quad (6)$$

$$\begin{aligned} \Delta BSIZE_{it} = & \alpha_{5i} + \sum_{k=1}^n \alpha_{51ip} \Delta TobQ_{it-n} + \sum_{k=1}^n \alpha_{52ip} \Delta GRD_{it-n} + \sum_{k=1}^n \alpha_{53ip} \Delta IND_{it-n} \\ & + \sum_{k=1}^n \alpha_{54ip} \Delta NED_{it-n} + \sum_{k=1}^n \alpha_{55ip} \Delta BSIZE_{it-n} + \sum_{k=1}^n \alpha_{56ip} \Delta FSIZE_{it-n} + \phi_{5i} ECT_{it-1} \\ & + \delta_{5it} \end{aligned} \quad (7)$$

$$\begin{aligned} \Delta FSIZE_{it} = & \alpha_{6i} + \sum_{k=1}^n \alpha_{61ip} \Delta TobQ_{it-n} + \sum_{k=1}^n \alpha_{62ip} \Delta GRD_{it-n} + \sum_{k=1}^n \alpha_{63ip} \Delta IND_{it-n} \\ & + \sum_{k=1}^n \alpha_{64ip} \Delta NED_{it-n} + \sum_{k=1}^n \alpha_{65ip} \Delta BSIZE_{it-n} + \sum_{k=1}^n \alpha_{66ip} \Delta FSIZE_{it-n} + \phi_{6i} ECT_{it-1} \\ & + \delta_{6it} \end{aligned} \quad (8)$$

Where  $\Delta$  represents first difference and the lag length based on Akaike information criterion is determined. ECT represents the error correction term and the adjustment parameters are  $\phi_{ij}$  ( $k = 1,2,3,4,5,6$ ). The significance of the error correction term at the level of 5 per cent, less than 1 in absolute and with negative coefficient validate the long-run joint causality (Asaley et al., 2018; Masih & Masih, 1996; Popoola et al., 2019). While the WALD test is employed to test for the joint run causality by imposing restrictions on the independent variables and the lags. The null hypothesis test involves if the independent variables and the lags are not statistically different from zero. Rejection of the null hypothesis validates the joint short-run causality among the series.



**Table 2. Descriptive Statistics**

	TOBQ	GRD	IND	NED	BSIZE	FSIZE
Mean	1.140111	0.129420	0.868800	0.589659	14.13514	11.64298
Median	1.132900	0.120000	0.880000	0.583300	14.00000	11.85370
Maximum	1.897300	0.538500	1.000000	0.833300	25.00000	12.68430
Minimum	1.002600	0.000000	0.461500	0.000000	7.000000	9.010700
Std. Dev.	0.086397	0.130076	0.131495	0.116997	2.915434	0.758520
Skewness	6.042859	0.725080	-0.690761	-0.815586	0.336712	-1.647684
Kurtosis	54.43183	2.912336	2.791756	7.838201	3.780946	6.185993
Sum	126.5523	14.36560	96.43680	65.45210	1569.000	1292.371
Sum Sq. Dev.	0.821080	1.861183	1.902000	1.505724	934.9730	63.28877

Source: Authors' Compilation (2019).

#### 4. Discussion of result and implications

##### 4.1. Discussion of result

From Table 2, the variable with the highest mean value is BSIZE at 14.13, which shows high performance in respect to other variables. Subsequently, TOBQ standard deviation of 0.08 is the lowest standard deviation among all variables used. This shows that TOBQ has low fluctuation with respect to other variables. The average percentage of grey directors and non-executive directors is 12.9% and 58.9% respectively. This clearly shows that most of the sampled companies have a mixture of outside directors and non-executive directors in their board composition. The average board size for the sampled firms is between 7 and 25. This means that the board size of the sampled firms is appropriate for firm's optimum performance as evidenced (Al-Matari et al., 2012) by who affirms that a firm with bigger board size has the potential for better performance. TOBQ shows a mean of 1.14 with minimum and maximum values ranging from 1.00 to 1.89.

Table 3 shows the preliminary test (panel unit root) for each variable. We based our test on four different criteria (Levin, Lin & Chu t, LPS, ADF-Fisher and PP-Fisher). All variables were significant at first difference using 1% and 5% significant level. Only TOBQ was significant at 5% while all other variables were significant at 1%. Since all variables are significant at I (1), we used panel VECM to estimate the short and long-run causality among the dependent and independent variables.

Table 4 shows the panel co-integration test. This test was used to examine the presence of a long-run relationship among variables. We present the statistics and a probability level of 11 tests. A long-run relationship exists when at least six out of the eleven tests are statistically significant at the level of 5 per cent. From Table 4, it is evident that a long-run relationship exists among variables since Panel PP-statistics, Panel ADF-Statistic, Panel PP-statistic (weighted), Panel ADF-statistics (weighted) and Group ADF-Statistics are statistically significant at the level of 5 per cent.

Table 5 presents joint short and long-run causality using TOBQ as the independent variable. Two hypotheses are tested each for joint long-run and short-run causality. For joint long-run causality, the null hypothesis of "no evidence of joint-long run causality" and the alternate hypothesis of "evidence of joint-long run causality". If the long-run coefficient is negative and its significance at the level of 5 per cent validate the joint long-run causality; by this, it means that the independent variables jointly cause the dependent variable in the long-run. In Table 5, C (1) indicates the long-run coefficient with the coefficient value of 0.000342 (which is positive) and a probability value of

**Table 3. Panel Unit Root Test**

Variable	Method	Level- I(0)	First Difference- I(1)
TOBQ	Levin, Lin & Chu t	0.1123	0.0000*
	LPS	0.1834	0.0128**
	ADF_fisher	0.1158	0.0234**
	PP- Fisher	0.6228	0.0459**
GRD	Levin, Lin & Chu t	0.1211	0.0000*
	LPS	0.5231	0.0000*
	ADF_fisher	0.1051	0.0005*
	PP- Fisher	0.1998	0.0000*
IND	Levin, Lin & Chu t	0.5123	0.0000*
	LPS	0.2119	0.0000*
	ADF_fisher	0.1023	0.0000*
	PP- Fisher	0.1141	0.0000*
NED	Levin, Lin & Chu t	0.1222	0.0000*
	LPS	0.2576	0.0001*
	ADF_fisher	0.1100	0.0000*
	PP- Fisher	0.2110	0.0000*
BSIZE	Levin, Lin & Chu t	0.2131	0.0000*
	LPS	0.4521	0.0089*
	ADF_fisher	0.1033	0.0046*
	PP- Fisher	0.1984	0.0000*
FSIZE	Levin, Lin & Chu t	1.0000	0.0001*
	LPS	0.6782	0.0011*
	ADF_fisher	0.1846	0.0006*
	PP- Fisher	0.1063	0.0001*

Note: \* and \*\* represent that variables are stationary at 1% and 5% respectively.

Source: Authors' Compilation (2019).

**Table 4. Panel Co-Integration Test**

Test	Statistics	Probability
Panel v-Statistic	0.704859	0.2404
Panel rho-Statistic	0.752549	0.7741
Panel PP-Statistic	-4.534109	0.0000**
Panel ADF-Statistic	-1.986611	0.0235**
Panel v-Statistic (Weighted)	0.732683	0.2319
Panel rho-Statistic (Weighted)	0.647196	0.7412
Panel PP-Statistic (Weighted)	-3.910744	0.0000**
Panel ADF-Statistic (Weighted)	-3.740551	0.0001**
Group rho-Statistic	-5.608717	0.9562
Group PP-Statistic	-5.608717	0.0000**
Group ADF-Statistic	-5.042313	0.0000**

\*\* represent that test is significant at 5% probability level.

Source: Authors' Compilation (2019).

**Table 5. Joint Short and Long-run Causality**

**Joint Long-run Causality**

Null Hypothesis: No evidence of joint long-run causality

Variable	Coefficient	Standard Error	t-statistics	Probability	Decision
C(1)	0.000342	0.069556	0.004912	0.9961	Accepted

**Joint Short-run Causality**

Null Hypothesis: No evidence of joint short-run causality

Variable	Statistics	Value	df	Probability	Decision
C(2): C(13)	Chi-square	29.99915	12	0.0028	Rejected

Source: Authors' Computation (2019).

0.9961. Since the coefficient value is positive and the probability value is higher than 0.05, hence, the null hypothesis of no joint long-run causality is accepted at the level of 5 per cent significance.

Likewise, for joint short-run causality, the null hypothesis of “no evidence of joint-short run causality” and the alternate hypothesis of “evidence of joint-short run causality”. Using the WALD test statistics, the significance of the short-run coefficients indicates joint causality moving from independent variable to the dependent variable in the short-run. C (2) to C (13) are the short-run coefficients. It can be depicted from Table 5, that the null hypothesis of no joint short is rejected at the level of 5 per cent since the chi-square value is 29.99915 with a probability value of 0.0028 which is lower than 0.05 significance level. Hence, the alternate hypothesis of “evidence of joint-short run causality” is accepted.

Table 6 presents the result of the fully modified ordinary least square (FMOLS) regression. We used the FMOLS to show long-run behaviour between grey directors and performance of deposit money banks in Nigeria. Our R-squared (coefficient of determination) is 80 per cent. This means that the variation in dependent variables is explained by 80 per cent of the variation in the independent variables. The Adjusted R-Squared of 78 per cent is lower than the R-Squared because into consideration the degree of freedom. Furthermore, examining the individual variables, grey directors (GRD) have a coefficient of 0.000464 and probability value of 0.4495, which is not statistically significant at 5%. Also, board size (BSIZE) has a coefficient of 0.000192 and probability value of 0.9273 which is not statistically significant at 5%.

However, the other variables are significant. Indigenous director (IND) has a coefficient of 0.050378 and probability value of 0.0241, which is statistically significant at 5%. Holding all other variables constant, one unit change in IND will lead to about 2.4 per cent increment in TOBQ in the long-run. Also, non-executive directors (NED) with a coefficient of 0.012317 and probability value of 0.0067 which is statistically significant at 5%. Holding all other variables constant, one unit change in non-executive directors- NED will lead to about 12 per cent change in the TOBQ. Lastly, firm size (FSIZE) with a coefficient of -0.086034 and probability value of 0.0405 which is statistically significant at 5%. The coefficient shows a negative relationship between firm size (FSIZE) and performance (TOBQ) of deposit money banks in Nigeria. Holding all other variables constant, one unit change in FSIZE will lead to about 9 per cent reduction change in TOBQ.

**4.2. Implications of findings**

This study investigates the relationship among grey directors, corporate governance and firm performance in Nigeria. Evidence from the descriptive statistics showed that variable with highest mean value is board size; this shows high performance in respect to other variables such as firm performance, grey directors, indigenous directors of the company, non-executive directors and

**Table 6. Fully Modified Least Square Result**

Series	Coefficient	Standard Error	t-statistics	Probability
GRD	0.000464	0.000611	0.759093	0.4495
IND	0.050378*	0.012360	4.07589	0.0241
NED	0.012317*	0.003771	3.26624	0.0067
BSIZE	0.000192	0.002103	0.091450	0.9273
FSIZE	-0.086034*	0.030543	2.816815	0.0405
R-Squared: 0.801122		Adjusted R-Squared: 0.782472		

Source: Authors' Computation (2019).

firm size within the period of 2010 to 2017. The significant performance of the board size may be as the result of the establishment of the indigenous act of 1977, which states that at least 60 per cent of the board members must be a Nigerian by citizenship. Subsequently, the indicator of firm performance has the lowest standard deviation in comparison to all other variables. This indicates that firm performance has low fluctuation with respect to other variables. The average percentage of grey directors and non-executive directors is within 12 and 58 per cent. This clearly shows that most of the sampled companies have a mixture of outside directors and non-executive directors in their board composition. Likewise, the average board size for the sampled firms is between 7 and 25, indicating that the board size of the sampled firms is appropriate for firm's optimum performance as evidenced in the study by Al-Matari et al. (2012).

Based on the outcome of the unit root test and cointegration result, the study used the Panel Vector Error Correction Model and adopted the approach outlined by Masih and Masih (1996) to establish the joint short and long-run causality, while the fully modified least square was used to investigate the long-run behaviour. Evidence from the unit root test showed that all variables are integrated of order one. Evidence from the causality shows that there is no significant long-run joint causality when firm performance is used as independent variables, this indicates that the jointly predictive power of the independent variables (Asaley et al., 2020); grey directors, indigenous directors of the company, non-executive directors, board size and firm size may not have significance improvement on firm performance in the long-run. However, this can be considered in the short-run given the presence of joint causality moving from the independent variables to the dependent variables. The difference regarding short-term results might be because of recent 2016 corporate governance reforms in Nigeria that show up in short-term results but not over the long term. Consequently, evidence from the cointegration result shows the presence of a long-run relationship among the variables. This indicates that a policy change in one target variable may have an aggregate response on other variables. As such, an effective policy change in one of the independent variable may be considered to simulate better performance in the long-run. Evidence from the fully modified least square showed grey director is not statistically significant with the independent variable, firm performance in the long-run in Nigeria despite the strong connection established theoretically. Many factors may be responsible for this among others include the inability to strengthen long-run relationship due presence of a conflict of interest; long-term increase on extra cost and mismanagement of resource; incapability to ensure long-term contractual agreement and information asymmetry. Scholars reported that the monitoring through the board of directors generates extra cost which may result in inefficiency in the long-run (Abu et al., 2016; Alchian & Demsetz, 1972); and also there is a tendency for conflict of interest in the long-run due to separation of ownership (Panda & Leepsa, 2017). The indicators representing indigenous directors of the company, non-executive directors and board size have a significant positive relationship with firm performance. This is in line with studies by (Obaretin, 2015; Otman, 2014) among others that stressed that the presence of directors creates an atmosphere for better firm performance. Long-term consideration benefits among agents may encourage patronizing self-interest rather than organization goals. Finally, board size with a positive significant relationship with firm performance indicates that there is a significant improvement of the effectiveness of group decision in the long-run while the negative relationship with firm size in the long-run may be as the result of substitution effect inputs used in operation.

## 5. Conclusion and policy recommendation

The relationship among grey directors, corporate governance and firm performance remains inconclusive in both in the theoretical and empirical literature. Agency theory stressed that the executive managers act to actualize the goals and objectives of the owners or shareholders of the organization. However, monitoring generated an extra cost on the organization and may lead to inefficiencies. Although, empirical studies in relation to grey directors are scanty in African, most especially Nigeria. Hence, this study investigates the impact of grey directors and corporate governance on the performance of selected Nigeria deposit money banks both in the long and

short run. This work also aims at determining how important grey directors are in the board composition of every company. Studies have established that there is a casual relationship between various board composition (inside directors, outside directors, non-executive directors, CEO duality, gender diversity) and financial performance of firms but the joint short-run and long-run causality were disconnected from many studies and make the analysis limited in policy recommendations in respect to time frame perspectives.

Therefore, the study examines the joint short-run and long-run causality relationship between grey directors on the corporate performance of deposit money banks in Nigeria. Additionally, this study assessed the long-run behaviour between grey directors and performance of the selected deposit money banks in Nigeria. The outcome of this study shows that there is no evidence of joint long-run causality grey directors and corporate performance of selected Nigeria deposit money banks. However, the findings reveal joint short-run causality between grey directors and corporate performance of selected Nigeria deposit money banks. Furthermore, examining the long-run behaviour, we found a positive significant relationship between indigenous directors, the board size, non-executive directors and performance of the selected deposit money banks in Nigeria, while a negative relationship was observed with firm size and grey directors was insignificant in the long-run. The general conclusion is that efforts should be geared to maximise the effectiveness of group decision in the long-run, given the long-run positive significance of board size with performance of the bank. This will reduce agency costs. This study only focused on the bank sector in Nigeria. It is suggested that future study should consider the implications of grey directors on other sectors such as the manufacturing sector and insurance companies. This would help to understand the behaviour in other sectors in order to promote aggregate benefit in the economy.

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