Relationship between intangible assets, called-out directors' operational dichotomy and corporate financial performance

Etumudon Ndidi Asien
Department of Accounting, Faculty of Management Sciences, Federal University Otuoke, P.M.B.126 Yenagoa, Bayelsa State, Nigeria
ndidi_66@yahoo.co.uk

Abstract
Purpose: This study examines the relationship between intangible assets (*INTAN*), Executive Directors (EDs), Non-Executive Directors (NEDs) and corporate financial performance.
Research methodology: This study utilizes multivariate regression models to analyze datasets of 670 firm-year observations, from 2012-2020.
Results: Our main OLS and FE multivariate regression results in Model 2 suggest that *INTAN*, *CHAIR*, *CEOs*, *CFOs* and strong *BDIND* significantly increase corporate financial performance. In Model 1 of our main tables (Tables 5 and 6), *INTAN* and *CHAIR* do not appear to be significant, although their observed signs suggest that they increase corporate financial performance. Except for *YEAR*, the rest control variables significantly affect corporate financial performance. Taken together, these results provide conclusive evidence that *INTAN*, *CHAIR*, *CEOs*, *CFOs* and *BDIND* have positive and significant effects on corporate financial performance. We, therefore, recommend that Nigerian companies should strengthen their corporate governance mechanisms to boost financial performance.
Limitation: The study is limited by incomplete data on all variables, especially relating to running Fixed Effects models, where the data is unbalanced.
Contribution: The study extends the literature on call-out Board members' operational dichotomy.
Novelty: This is the first from a developing economy to make a testable hypothesis on the relationship between intangible assets and corporate financial performance.
Keywords: *Corporate governance, intangible assets, executive directors, non-executive directors, financial performance*
How to Cite: Asien, E. N. (2023). Relationship between intangible assets, called-out directors' operational dichotomy and corporate financial performance. *International Journal of Financial, Accounting, and Management*, 5(2), 149-164.

1. Introduction

This study leans on two relevant theoretical frameworks. The first is the Agency Theory of William H and Michael (1976). The theory postulates that agency relations underlie the nexus of contracts between principals and agents whereby the latter provides products and services in the name of the former. The second theory, the Upper Echelon Theory of Hambrick and Mason (1984) states that top-level management's attributes affect organizations' dynamics, such as, for example, corporate financial performance.

Nigerian Code of Corporate Governance (2018) and Companies and Allied Matters Act, CAMA, (2020) called out three top members of the Board of Directors of public interest entities and assigned roles to

them. For example, sections 405 and 265 of CAMA (2020) assigned clear responsibilities to Chairmen, Managing Directors/Chief Executive Officers and Chief Financial Officers. *Principle 3.2* of Part *A* of NCCG (2018) says that "the Chairman of the Board should be a non-executive director (NED) and should not be involved in the day-to-day operations of the Company..." Chairmen focus on the long-term horizon as they are not evaluated on yearly financial performance targets. On the other hand, CEOs and CFOs perform day-to-day functions such as being able to dictate cost and revenue decisions; as well as having yearly performance targets upon which they are evaluated. In specific terms, *Principle 4* recognizes Managing Directors/Chief Executive Officers as the heads of EDs delegated by the Board to run the affairs of the Company to achieve its strategic objectives, including corporate financial performance. The NCCG (2018) goes further to recommend in subsection 4.3 that the MD/CEO should establish a culture of integrity, conformance and *performance* which should be assimilated by personnel at all levels of the Company (emphasis deliberate for the sake of this study). The functions and responsibilities of MD/CEO include the day-to-day management of the Company (subsection 4.4.1), proper implementation and achievement of the Company's strategic imperatives to ensure sustainable development and growth of the Company (subsection 4.4.2), and ensuring prudent management of the Company's finances and other resources (subsection 4.4.3). *Principles 5 and 6* of NCCG (2018) dichotomize between executive directors (EDs) and non-executive directors (NEDs). In particular, *Principle 5* says that EDs should support the Managing Director/Chief Executive Officer in the operations and management of the Company as NEDs should not be involved in the day-to-day operations of the Company (see also section 6.3).

We believe that being an ED or a NED carries some measure of influence or aura that should elicit adherence, obedience or compliance by company employees. In plain corporate language, while EDs personally interact with the generality of company employees, NEDs do not. In particular, Chairmen and other NEDs have access to senior management personnel through the MDs/CEOs. Recommended Practice 6.4 of NCCG (2018). Accordingly, we expect Chairmen, CEOs, CFOs and board independence to have significant effects on corporate financial performance.

This study examines the relationship between intangible assets, Executive Directors (EDs) Non-Executive (NEDs) and corporate financial performance. The link between intangible assets and financial performance has received scholarly and practitioner interest from developed economies such as the USA, but this cannot be said of developing economies. In this regard, extant studies appear to lack scientific rigor principally because, so far, there have not been any formal hypotheses on the relationship between intangible assets and financial performance, let alone subjected the same to empirical tests. Apart from expressing that relationships exist among given variables, there ought to be scientific justifications for how relationships are linked. We provide a reason for the hypothesized link between intangible assets and financial performance. Some prior papers from developing economies are also limited in scope by selecting only one or a few company(ies) from only one or a few sector(s) of the economy. The scant research and identified shortcomings in recent attempts warranted our keen interest in examining the relationship between intangible assets and corporate financial performance. This study is straightforward in operationalizing intangible assets: It is the book values assigned to them in statements of financial positions. In the meantime, we expect that the book value of intangible assets should have a direct relationship with corporate financial performance. Although extant studies have addressed the relationship among various facets of corporate governance (e.g., Roy, 2022; Hossain, Sultan &Ahmed, 2021; Zulaecha & Murtanto, 2019) and corporate financial performance, further work remains to be done due to the inconclusive findings documented in those studies. In particular, the study considers executive, non-executive directors (henceforth, EDs and NEDs, respectively) and independence of the Board of Directors.

According to Asien (2019, 2021) and Drury and El-Shishini (2005), accounting theory has not proffered an acceptable metric of financial performance. Hence ASIEN (2022) argues that profit before tax is a fair representation of financial performance (unlike, for example, Tosin & Otonne, 2019; and Hossain, Sultan &Ahmed, 2021; who used return on assets) because of tax accounting dilution of the efforts of management concerning financial performance.

The significance of our current study is that it can help to appreciate the reason for the linkage between intangible assets and financial performance, rather than a mere discussion of the relationships and outcomes. The study can also aid our understanding of the impact of executive and non-executive directors on corporate financial performance.

The paper's findings are briefly encapsulated here. Returns from correlation analyses (Table 3) provide *prima facie* evidence consistent with our *a priori* expectations that our research variables have a positive and significant relationship with corporate financial performance. Our main results from pooled OLS and Fixed Effects regressions (in Tables 5 and 6) show that increases in intangible assets (*INTAN*), the appointment of one more top executive (Chief Executive Officer (*CEO*), Chief Financial Officer, *CFO*) and a strong independent board (*BDIND*) increase the corporate financial performance of companies. *CEOs* and *CFOs* are significant in both OLS and FE regressions in Models 1 and 2. *BDIND* is (marginally) significant in (Model 1) Model 2 (see, Table 5) and (in)significant in (Model 1) Model 2, see Table 6. *INTAN* and *CHAIR* are not significant. The signed results accept our alternative hypotheses. All our control variables except *YEAR* significantly affect the corporate financial performance of the quoted companies. Our heteroskedasticity-robust regression results contained in Table 7 are consistent with the main findings so they further lend credence for us to accept our alternative hypotheses.

The paper provides new insights into the corporate governance literature. First, it extends the literature on call-out Board members' operational dichotomy by hypothesizing and then examining the effects of executive and non-executive members on corporate financial performance. Second, and to the best of our knowledge, the study is the first from a developing economy to make a testable hypothesis on the relationship between intangible assets and corporate financial performance.

The rest of the paper proceeds as follows. The next section reviews prior related literature. Section 3 is th methodology, including the population of the study, sample and data sources as well as model specifications. Section 4 presents the findings while Section 5 concludes the study.

2. Literature review
2.1. Theoretical frameworks
2.2.1. Agency Theory
The segregation between ownership and control of public companies has brought about Agency Theory, which was pioneered by William H and Michael (1976). Agency theory states that agency relationships exist between principals and agents whereby agents act in the name of the principals. The relationship requires that agents keep their principals informed about the agents' performance in running the principal's business (Asien, 2019). Boards of Directors are the highest strategic decision control hub within the firm. The Board is saddled with the responsibility of minimizing losses emanating from agency problems. The skewed information asymmetry in favor of agents sometimes them to use the same to shirk. According to Drury and El-Shishini (2005), an agency relationship exists whenever the principal employs an agent to perform some services involving the delegation of decision-making authority to agents. Such a relationship exists between shareholders, on the one hand; and the Board of Directors, on the other hand. In a corporate setting, shareholders are the principals and the Board of Directors are the agents.

2.1.2. Upper Echelon Theory
Upper Echelon Theory can be traced to the work of Hambrick and Mason (1984), who asserted that the choice of corporate strategies can be influenced by top-level management idiosyncrasies (Fiegener, Nielsen, & Sisson, 1996; Joenoes & Rokhim, 2019; Messabia, Fomi, & Kooli, 2022). This means that corporate behaviors can be explicated by attributes of top-level management. In particular, Messabia et al. (2022) explained the innovative measures adopted by Small and Medium Scale business owners in Canada to overcome the COVID-19 crisis; in order to stay afloat, to survive and to prosper. Mnzava (2022), Theodossiou and White (1998), Westphal and Milton (2000) and Williams, Fadil, and Armstrong (2005) applied the theory to investigate the nexus between characteristics of top-level management and financial performance, employee commitment, and work involvement, amongst

others. Extant studies agree that Upper Echelon Theory has a lot to offer in explaining the effect of Board attributes on financial performance. The theory is suitable for the study of financial performance because employees take instructions or directives from members of the Board of Directors.

2.2. Empirical Literature
2.2.1. Intangible assets
International Accounting Standard (IAS) 38 addresses *Intangible assets* by describing their intangible assets as identifiable non-monetary assets without physical substance. For our purpose, intangible assets are non-physical assets owned by an entity from which the entity derives future streams of economic benefits when put to good use. Examples of intangible assets include software, brands, intellectual property rights and patents. Bushee (1998) presents evidence that the level of intangible assets can be managed to suit management's desired reporting objectives. Olaoye, Akingbade, and Okewale (2020), Eisfeldt and Papanikolaou (2013), Li, Qiu, and Shen (2018) and Peters and Taylor (2017) evidence indicate that intangible assets can improve or worsen corporate efficiency, productivity and firm value. To that end, Lev, Radhakrishnan, and Zhang (2009) showed that intangibles are key drivers of corporate value and growth while Boguth, Newton, and Simutin (2022) suggest that intangible assets represent an important production factor for companies. Kundelis and Legenzova (2019) empirically investigated the impact of intangible assets on profitability. They found that intangible assets have a positive but insignificant relationship with financial performance. However, Zalewska (2014) found a negative but significant association between intangible assets and various measures of financial performance. Okoye, Offor, and Juliana (2019) and Manukaji (2019) and Olaoye et al. (2020) are two recent attempts that studied the relationship between intangible assets and financial performance in Nigeria. In particular, Okoye et al. (2019) studied only one company each from the financial services, consumer goods, oil and gas, industrial goods and healthcare sectors of Nigeria's economy. The number of years covered by Okoye et al. (2019) is confusing (compare their Abstract or Conclusion and Recommendations section, which states from 2008 to 2017 with their Methodology section, which states five years from 2013 to 2017). Olaoye et al. (2020) examined 9 out of 15 companies over 11 years from the money deposit banks subsector only. As discussed in the Intro, the lack of a formal hypothesis coupled with the scant research from developing economies and identified shortcomings in recent attempts warranted our interest in studying the relationship between intangible assets and financial performance.

2.2.2. Chairman as the head of the board as well as a non-executive director
To date, researchers have concentrated on the effect of the *number* or the *size* of executive or non-executive directors on financial performance (e.g., El Mokrani & Alami, 2021). Ibrahim, Howard, and Angelidis (2003) opined that NEDs are more likely than EDs to oppose a narrow definition of corporate performance that focuses mainly on firms' financials as they tend to be more responsive to the needs of society. Of interest to our current study is the recommended practice in 6.3, which says that NEDs should not be involved in the day-to-day operations of companies as this should be the primary responsibility of MDs/CEOs and their management teams. Recommended practice 6.4 goes on to say that NEDs should have unfettered access to the EDs […] while access to other senior management personnel should be through MDs/CEOs.

Prior studies have not considered the influence of Board members on pretax profit, in spite of Janský and Palanský (2019) observation that there are natural persons (such as chairmen and chief executive officers, for example) whose decisions affect pretax profit but who cannot be traced in data. As important as it may appear, there has not been interest in the study of Board members' attributes in relation to corporate financial performance as opposed to the numerous studies that have examined the effect of Board size on financial performance. In light of the identified gaps in the literature, we decided to study the impact of NEDs and EDs on corporate financial performance.

2.2.3. Independence of the Board
Independence of the Board is an important corporate governance dynamic that disciplines management and protects the interests of minority equity holders. Independence of the board assures that Board

members remain impartial in oversight and monitoring the top management team. This is to ensure that opportunistic behaviors are curtailed for the good of a corporate entity. Adams, Hermalin, and Weisbach (2010) and Goh, Rasli, and Khan (2014) and El Mokrani and Alami (2021), amongst others) opine that an independent board plays a moderating role in a way that it is expected to be more effective in addressing agency problems than most of the normal governance devices. P. Brown, Beekes, and Verhoeven (2011) asserted that the independence of the board has a crucial role to play in monitoring the effectiveness of the board. Consequently, one expects board independence to be more effective in addressing agency problems than the traditional mechanisms of board size or number of board meetings. (Chahine & Tohmé, 2009) argue that board independence can be an indication of the exercise of power. However, some authors have gone to the extent of considering board independence to be cosmetic in developing economies. One example, Haniffa and Hudaib (2006) have argued that in developing economies board independence is employed to legitimize the activities of businesses instead of being used to monitor the activities of management.

Previous studies have documented inconsistent results on the effect of board independence on firm performance (L. D. Brown & Caylor, 2009; Conyon & Peck, 1998) and Weisbach (1988); who argued that board independence enhances financial performance). To date, results on the association between board independence and firm performance remain mixed at best (Al-Gamrh, Al-Dhamari, Jalan, & Jahanshahi, 2020). Indeed, Kanakriyah (2021) and Muniandy and Hillier (2015) found board independence to have a positive and synergistic effect on accounting-based performance. Caylor (2009) reported that the proportion of independent directors on the board influences firm performance. However, Goh et al. (2014), Haniffa and Hudaib (2006) and Van Essen, van Oosterhout, and Carney (2012) found no significant role of independent board in influencing firm performance.

2.3. Hypotheses development
2.3.1. Intangibles assets
The assertion exists that intangible assets can improve firms' efficiency, productivity and value (Eisfeldt & Papanikolaou, 2013; Li et al., 2018; Peters & Taylor, 2017). Lev et al. (2009) empirically showed that intangibles are the key drivers of corporate value and growth. Zalewska (2014) found a negative but significant association between intangible assets and various measures of financial performance. (Kundelis & Legenzova, 2019) reported a positive relationship between intangible assets and profitability. We think that the high book value of intangible assets can motivate management to aim for improved financial performance. Given that hitherto there is no formal testable hypothesis on the relationship between intangible assets and corporate financial performance, we hypothesize that,

$H_0.1$: Book value of intangible assets is not likely to significantly affect corporate financial performance

$H_1.1$: Book value of intangible assets is likely to significantly affect corporate financial Performance

2.4. Chief executive officers and chief financial officers
Chief executive officers and chief financial officers perform operational day-to-day functions that command enormous executive powers, including having a major say on cost reduction or revenue generation and maximization. Therefore, we hypothesize that,

$H_0.3$ and $H_0.4$: Chief executive officers and chief financial officers are not likely to significantly affect corporate financial performance

$H_1.3$ and $H_1.4$: Chief executive officers and chief financial officers are likely to significantly affect corporate financial performance

2.5. Independence of the Board
Independence of the board ensures that Board members remain impartial while discharging their oversight function and monitoring of the top management team against opportunistic behaviors. Board independence can work for the good of a corporate entity (Kooli, 2019). We hypothesize that,

$H_0.5$: Board of directors' independence is not likely to significantly affect corporate financial performance

H₁.5: Board of directors' independence is likely to significantly affect corporate financial performance

3. Research methodology

3.1. Population, sample and data sources

Industry grouping is well organized in Nigeria, where Nigerian Exchange Group, NGX, Limited at. www.ngxgroup.com/exchange/trade/equities/listed-companies classify companies according to 11 industry groupings (population), from which we draw a sample of 10 except the financial services sector, which was excluded due to reasons given by (ASIEN, 2022). We identified companies in the sample based on the sectorial groupings of quoted companies. We used alphabetical listing to identify companies in each industry category from top to bottom of the page. Thereafter, we traced the companies to their web addresses which were provided at www.ngxgroup.com/data/company-profile. Companies whose audited annual reports and accounts were downloadable from their websites were included in the sample. Where a company did not have a website, or if it had one but the audited annual reports and accounts could not be downloaded, we resorted to other proprietary but free internet sources through the Google search engine. Table 1 shows that the consumer goods sector (coded 3) has the highest cumulative number of firm-year observations 152, followed by the services, industrial goods and oil and gas sectors.

Table 1. Industrial groupings and Year (number of observations and valid percentages)

INDUS	# of Obs.	Valid Percent	YEAR	# of Obs.	Valid Percent
1 = Agric	44	6.6			
2 = Conglomerate	52	7.8	2012	70	10.4
3 = Consumer goods	152	22.7	2013	73	10.9
4 = Construction & Real Estate	18	2.7	2014	76	11.3
6 = HealthCare	54	8.1	2015	76	11.3
7 = Industrial goods	94	14.0	2016	77	11.5
8 = Natural Resources	31	4.6	2017	77	11.5
9 = Oil & Gas	78	11.6	2018	77	11.5
10 = Services	105	15.7	2019	74	11.0
11 = ICT	42	6.3	2020	70	10.4
Total	670	100.0		670	100.0

Source: Author's compilation

Overall, we accessed 77 audited annual reports and accounts from 2012 to 2020, inclusive. Out of the 693 firm-year observations, 23 of them were deleted because of incomplete data. This left us with 670 firm-year observations.

Fig. 1 shows the industrial sector by total book value of intangible assets between 2012 and 2020. It can be seen that the oil & gas sector has the highest reported book value of intangible assets, followed by consumer goods, information, communication and technology, conglomerates, industrial goods, non-financial services, construction and real estate, natural resources, agriculture and healthcare.

Fig. 1. Industrial Sector by Book Value of Intangible Assets between 2012 and 2020
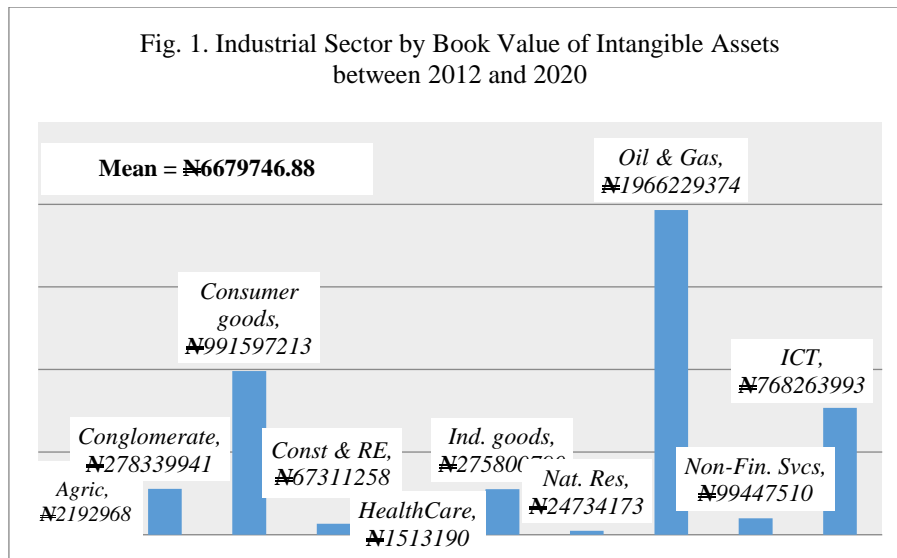
3.2. Model Specifications

We propose that financial performance is a function of intangible assets, the operational status of called-out directors, Board independence and four control variables including foreign directors, firm size, industry grouping of a company and year-fixed effects. We formulate a general functional relationship that expresses the relationship as $\ddot{Y} = f(X_1, X_2, X_3, ..., X_n)$. The functional relationship is given as,
Financial performance = f (intangible assets, status of called-out directors, board independence, proportion of foreign directors, firm size, industry groupings and year) ...(3.1)

This reduces to multivariate equations where financial performance is regressed on intangible assets, directors' dichotomy, Board independence and the four control variables. The general model is formulated as:

$$P = Constant + \sum_{j=i}^{N} Intangible\ assets + hypothesized\ variables + \sum_{j=i}^{N} Controls + \varepsilon \dots (3.2)$$

Equation (3.2) morphs into the following econometric models,

$$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO + \beta_5 BDIND \\ + \beta_6 PFD + \beta_7 Ln(TA) + \beta_8 INDUS + \beta_9 YEAR + \varepsilon \qquad (3.3)$$

$$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO \quad + \beta_5 BDIND + \varepsilon \qquad (3.4)$$

Where: $Ln(FP)^2$ is the dependent variable. Because some companies reported negative profits, our first transformation squared the reported pretax profits (±). Thereafter, we logged the transformed squares of the pretax results. The independent variables are *INTAN* = closing net book value of intangible assets; *CHAIR* = Chairmen or NEDs; *CEO* = Chief Executive Officers; *CFO* = Chief Financial Officers. *BDIND* = Board independence, which is the number of independent board members to the total number of board members. The control variables are: *PFD* = Proportion of foreign directors; *Ln(TA)* = Natural logarithm of total assets, used as surrogate for firm size, *INDUS* = Industrial grouping representing industry fixed effects, and *YEAR* = Year fixed effects. *CHAIR*, *CEO* and *CFO* are categorically coded variables, with "0" for Nigerians and "1" for foreigners. β_0 = Constant, ε = residual error term, i.i.d. Our statistical analyses are implemented on SPSS version 26.

4. Result and discussion
4.1. Descriptive statistics
Descriptive statistics of the categorical variables are presented in Table 2, Panel A. the Majority of the chairman (*CHAIR*), chief executive officers (*CEO*), and chief financial officers (*CFO*) are Nigerians. The consumer goods sector (3) predominates by having the mode. Descriptive statistics of the quantitative variables are presented in Table 2, Panel B. Minimum, maximum and average natural logarithm of financial performance are ₦12.12, ₦39.48 and ₦27.6541, respectively. Minimum, maximum and average *INTAN* is ₦0, ₦432321760,000 and ₦6679746880, respectively. *BDIND* has a maximum (average) of 1.09 (.6596). There were twenty missing firm-year observations for *BDIND*.

Table 2. Panel A. Descriptive statistics of categorical variables

		CHAIR	CEO	CFO	INDUS
N	Valid	670	670	670	670
	Missing	0	0	0	0
Mean		.06	.32	.17	6.15
Mode		0	0	0	3 (Cons. Goods)
Minimum		0	0	0	1 (Agric.)
Maximum		1	1	1	11 (Services)

Source: Author's compilation

PFD has a maximum (average) of.71 (.2007). *PFD* has seven missing firm-year observations. Minimum, maximum and mean natural logarithm of total assets, *Ln(TA)*, is ₦10,750, ₦21,430 and ₦16,531.70

Table 3. Panel B. Descriptive statistics of quantitative variables

	N	Minimum	Maximum	Mean
$LN(FP)^2$	670	12.12	39.48	27.6541
INTAN (₦'000)	670	0	432321760	6679746.88
BDIND	650	.00	1.09	.6596
PFD	663	.00	.71	.2007
Ln(TA) (₦'000)	670	10.75	21.43	16.5317
Valid N (listwise)	642			

Source: Author's compilation

4.2. Pearson bivariate correlation analysis
Table 3 presents Pearson bivariate correlations. As we can see from the first column of the table, all the variables are positive and significantly correlated with corporate financial performance except *INDUS*, which is negative and *YEAR*, which is weakly positive but insignificantly. Of the bivariate correlations, *Ln(TA)* has the strongest positive correlation (rho=.828) with financial performance, followed by *CFO* – rho = .424, *CEO* – rho = .358, *PFD* – rho = .347, *INTAN* – rho = .258, *CHAIR* – rho = .178 and *BDIND*, rho = .107. These suggest that *INTAN, CHAIR. CEO, BDIND, CFO, PFD* and *Ln(TA)* move in the same positive direction with corporate financial performance, $LN(FP)^2$. These correlations confirm our *a priori* expectations on these variables. There are moderate-to-strong inter-correlations among the explanatory variables, ranging from .30 (between *INTAN* and *Ln(TA)* to .692 (between *CEO* and *PFD*, which is considered spurious).

Table 3. Pearson Bivariate Correlations

	$LN(FP)^2$	INTAN	CHAIR	CEO	CFO	BDIND	PFD	Ln(TA)	INDUS	YEAR
$LN(FP)^2$	1									
INTAN	.258**	1								
CHAIR	.178**	-.039	1							

CEO	.358**	.043	.029	1					
CFO	.424**	.003	.216**	.440**	1				
BDIND	.107**	.044	.010	.046	.009	1			
PFD	.347**	.036	.268**	.692**	.522**	-.014	1		
Ln(TA)	.828**	.300**	.194**	.360**	.399**	.075	.390**	1	
INDUS	-.077*	.073	-.066	-.261**	-.312**	.006	-.298**	-.119**	1
YEAR	.046	-.002	.017	-.005	-.048	.043	-.004	.058	.002	1

**. *Correlation is significant at the 0.01 level (2-tailed).*
*. *Correlation is significant at the 0.05 level (2-tailed).*

Source: Author's compilation

Table 4 shows that controlling for *Ln(TA)*, *INDUS*, *PFD* and *YEAR* yields a small negative but significant inter-correlation (rho = .243) between *CHAIR* and *CEO*. The rest hypothesized variables are weakly inter-correlated. But for *BDIND*, *INTAN* moves in the opposite direction with the *CHAIR*, *CEO* and *CFO*.

Table 4. Pearson Partial Correlations
(Controlling for *Ln(TA), INDUS, PFD* and *YEAR*)

	INTAN	CHAIR	CEO	CFO	BDIND
INTAN	1	-.087**	-.015	-.086**	.020
CHAIR		1	-.243***	.072*	.005
CEO			1	.087**	.066*
CFO				1	.000
BDIND					1

***, **, *. *Correlation is significant at the 0.01, .05 and .10 level (2-tailed), respectively*

Source: Author's compilation

4.3. Multicollinearity checks
We triangulated for multicollinearity. First, we showed in Table 3 that the strong inter-correlations of .692 between *CEO* and *PFD* are spurious because both variables do not relate in reality. Thus, this is an initial indication that there is no multicollinearity amongst the independent variables. In any case, Tabachnick, Fidell, and Ullman (2007) argue that multicollinearity occurs when inter-correlations among independent variables exceed .90. Second, the highest condition index (untabulated) is 8.920, relating to *BDIND*. This is less than the theoretically suggested threshold of 30 (Belsley, Kuh, & Welsch, 1980; Cohen, Cohen, West, & Aiken, 2003; Tabachnick et al., 2007). Finally, as can be seen from Table 5 below, the highest Variable Inflation Factor (VIF) is 2.391, relating to *PFD*. Hair, Black, Babin and Anderson (2009) and Cohen et al. (2003) argued that VIF greater than 10 signals a problem of multicollinearity.

4.4. Multivariate regression analysis
Table 5 presents the results of pooled OLS multivariate regressions as captured in Model 1 which incorporates all research variables and Model 2, which contains the five hypothesized variables only. We present the results according to our hypotheses (H_1 through H_5).

4.4.1. Test on hypothesis 1 (on intangible assets)
INTAN is positive in the two models. While it is insignificant in Model 1, it is significant in Model 2, where the regression coefficient, *t-value* and (**Sig**. *ρ*) are .238, 7.174 and (**.000**). This result suggests that *INTAN* has a positive effect on corporate financial performance. The economic meaning of the semi-elasticity of *INTAN* is that a ₦100 increase in the book value of intangible assets leads to ₦23.80 increase in corporate financial performance. We therefore infer that the book value of intangible assets

is likely to significantly affect corporate financial performance. This result supports our alternative hypothesis $H_1.1$ while failing to accept the null hypothesis.

4.4.2. Test on hypothesis 2 (on Chairmen or NEDs)

CHAIR is positive in the two models. It is insignificant in Model 1 but significant in Model 2, where the regression coefficient, *t-value* and (*Sig*. ρ) are .116, 3.406 and (*.001*), which indicates that *CHAIR* has a positive effect on corporate financial performance. Drawing our inference from Model 2, the economic meaning of the semi-elasticity of *CHAIR* is that the addition of one more chairman increases corporate financial performance by ₦1. We therefore infer that Chairmen are likely to significantly affect financial performance. This result supports our alternative hypothesis ($H_1.2$) while failing to accept the associated null hypothesis.

4.4.3. Test on hypothesis 3 (on CEOs as EDs)

CEO is positive and significant in both models. In Model 1, the coefficient, *t-value* and (*Sig*. ρ) are .084, 2.703 and (*.007*) and in Model 2, the values are .205, 526 and (*.000*). This result suggests that *CEO* has a positive and significant effect on corporate financial performance. The economic interpretation of the semi-elasticity of the *CEO* is that the addition of one more *CEO* leads to an increase of up to ₦20.5 (Model 2) in corporate financial performance. This result confirms our alternative hypothesis that Chief Executive Officers are likely to significantly affect corporate financial performance ($H_1.3$) while failing to accept the associated null hypothesis. We therefore infer that *CEOs* are likely to significantly increase corporate financial performance.

4.4.4. Test on hypothesis 4 (on CFOs as EDs)

CFO is positive and significant in Models 1 and 2. In Model 1, the regression coefficient, *t-value* and (*Sig*. ρ) are .136, 5.071 and (*.000*) and in Model 2, the values are .314, 8.307 and (*.000*). This result suggests that *CFO* is positive and significantly affects corporate financial performance. Economically, the semi-elasticity of the *CFO* is interpreted to mean that the addition of one more *CFO* leads to an increase of up to ₦31.4 in corporate financial performance. This result confirms our alternative hypothesis that Chief Financial Officers are likely to significantly affect corporate financial performance ($H_1.4$) and fails to accept the associated null hypothesis. We therefore infer that *CFOs* are likely to significantly affect corporate financial performance.

Table 5. Multivariate analysis of intangible assets, called-out directors' dichotomy and corporate financial performance

Pooled OLS Regression Results

$$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO + \beta_5 BDIN + \beta_6 PFD + \beta_7 Ln(TA) + \beta_8 INDUS + \beta_9 YEAR + \mathcal{E} \qquad (3.3)$$

$$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO + \beta_5 BDIN + \mathcal{E} \qquad (3.4)$$

		Model 1				Model 2			
	Std Error	Coefficient	t	ρ	*Std Error*	Coefficient	t	ρ	VIF
(*Intercept*)	75.418	19.164	.254	.800	.546	24.847	45.548	.000	

Dependent Variable: *Ln(FP)²*

Independent Variables:

INTAN	.000	.018	.793	.428	.000	.238	7.174	*.000****	1.126
CHAIR	.441	.021	.921	.358	.643	.116	3.406	*.001****	1.178
CEO	.292	.084	2.703	*.007****	.347	.205	5.526	*.000****	2.119
CFO	.307	.136	5.071	*.000****	.432	.314	8.307	*.000****	1.570
BDIND	.514	.042	1.952	*.051**	.788	.083	2.498	*.013***	1.015

PFD	.669	-.068	-2.056	*.040***			2.391
Ln(TA)	.057	.764	29.562	*.000****			1.456
INDUS	.031	.066	2.885	*.004****			1.152
YEAR	.037	-.006	-.277	.782			1.012

R^2	.707	.298
Adjusted R^2	.703	.292
F-Change	171.090	54.579
Sig. F change	*.000*	*.000*
Durbin-Watson	1.229	.655
Number of observations	649	650

Source: Author's compilation

4.4.5. Test on hypothesis 5 (on Independence of the Board)

Independence of the Board of Directors is positive and (marginally) significant (at Sig. $\rho = .051$) in Model 1, and at the 5% level in Model 2. In Model 1, the regression coefficient, *t-value* and (**Sig**. ρ) is .042, 1.952 and (*.051*) and in Model 2, the values are .083, 2.498 and (*.013*). This result suggests that *BDIND* have a positive significant effect on corporate financial performance. Economically, the semi-elasticity of *BDIND* means that an increase in the number of independent directors will likely increase corporate financial performance up to ₦8 (in Model 2). This result is in support of our alternative hypothesis ($H_1.5$), whereas it fails to accept the associated null hypothesis.

4.4.6. Results on the control variables

In Model 1, the proportion of foreign directors (*PFD*) negatively but significantly affects corporate financial performance. The regression coefficient, *t-value* and (**Sig**. ρ) are -.068, -2.056 and (*.040*). Natural log of total assets, *Ln(TA)* and industry membership (*INDUS*) have positive and significant effects on corporate financial performance. The regression coefficient, *t-value* and (**Sig**. ρ) of *Ln(TA)* are .764, 29.562 and (*.000*). Industrial membership (*INDUS*) has a coefficient, *t-value* and (**Sig**. ρ) of .066, 2.885 and (*.004*). *YEAR* has a negative insignificant effect on corporate financial performance. Model 1 explains up to about 70% (Adjusted R^2) of the variation in corporate financial performance, which leaves about 30% of unexplained variation in corporate financial performance to factors not examined by our study.

4.5. Additional Analyses

4.5.1. Robustness analyses

In addition to the above tests, we estimated Linear Fixed Effects regressions with Type III Restricted Maximum Likelihood (REML) with Satterthwaite approximation, 100 Maximum iterations and 10 Maximum step-halvings. Table 6 contains the results. The ensuing analysis focuses on the hypothesized variables only. As we can see, *BDIND* is no longer significant in Model 1, although the sign remains positive whereas it is still significant at the .05 level, 2-tailed. Still in Model 2, *INTAN*, *CHAIR*, *CEO* and *CFO* have positive and significant effects on corporate financial performance. These results further demonstrate support for $H_1.1$, $H_1.2$, $H_1.3$, $H_1.4$ and $H_1.5$, and strengthen our earlier findings.

Table 6. Multivariate analysis of intangible assets, called-out directors' dichotomy and corporate financial Performance

Linear Fixed Effects Regression[a,b]

$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO + \beta_5 BDIN + \beta_6 PFD + \beta_7 Ln(TA) + \beta_8 INDUS + \beta_9 YEAR + \mathcal{E}$ (3.3)	$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO + \beta_5 BDIN + \mathcal{E}$ (3.4)
Model 1	***Model 2***

Estimates of Fixed Effects

Parameter	Estimate	Std. Error	t	Sig.	Estimate	Std. Error	t	Sig.
Intercept	-1.033360	1.120695	-.922	.357	24.847	.546	45.548	*.000*
INTAN	1.828969	2.869846	.637	.524	2.979	4.153E-9	7.174	*.000****
CHAIR	.195224	.455682	.428	.668	2.192	.643	3.406	*.001****
CEO	.921493	.311173	2.961	*.003****	1.917	.347	5.526	*.000****
CFO	1.539442	.313802	4.906	*.000****	3.591	.432	8.307	*.000****
BDIND	.654517	.528910	1.237	.216	1.969	.788	2.498	*.013***
PFD	-1.762706	.689175	-2.558	*.011***				
Ln(TA)	1.712182	.060895	28.117	*.000****				
[INDUS=1]	-.371461	.547647	-.678	.498				
[INDUS =2]	-1.208707	.517026	-2.338	*.020***				
[INDUS =3]	-.534780	.444862	-1.202	.230				
[INDUS =4]	-2.629094	.712229	-3.691	*.000****				
[INDUS =6]	-1.081022	.511525	-2.113	*.035***				
[INDUS =7]	.108871	.484564	.225	.822				
[INDUS =8]	.043000	.594419	.072	.942				
[INDUS =9]	-.054133	.486413	-.111	.911				
[INDUS =10]	-.233810	.460006	-.508	.611				
[INDUS =11]	0[b]	0	.	.				
[YEAR=2012]	.286549	.414072	.692	.489				
[YEAR=2013]	.106766	.409780	.261	.795				
[YEAR=2014]	.311212	.403644	.771	.441				
[YEAR=2015]	.269223	.399881	.673	.501				
[YEAR=2016]	.009154	.400415	.023	.982				
[YEAR=2017]	.180403	.399218	.452	.652				
[YEAR=2018]	.315632	.398026	.793	.428				
[YEAR=2019]	.246909	.401510	.615	.539				
[YEAR=2020]	0[b]	0	.	.				

R^2 = .718 (Adjusted R^2 = .707)				R^2 = .298 (Adjusted R^2 = .292)			
Wald/Sig. *p*	17.664 / *.000*			17.944 / *.000*			

Information Criteria [c]

-2 Restricted Log Likelihood	2991.005	3576.047
Akaike's Information Criterion (AIC)	2993.005	3578.047
Hurvich and Tsai's Criterion (AICC)	2993.011	3578.053
Bozdogan's Criterion (CAIC)	2998.441	3583.515
Schwarz's Bayesian Criterion (BIC)	2997.441	3582.515

[a]. This parameter is set to zero because it is redundant.

[b]. Computed using alpha = .05

[c]. The information criteria are displayed in smaller-is-better form.

Source: Author's compilation

The Wald test statistic is about 18, with Sig. $p < 0.05$, which indicates goodness-of-fit of the model. All information criteria tend to converge to almost similar values, which also confirm the model fit.

4.5.2. Heteroskedasticity

Heteroskedasticity in the error term may arise due to omitted variable bias. Heteroskedasticity in the errors can be viewed as a model misspecification such as omitting key variables that cause a correlation between the error term and some of the explanatory variables (Andren, 2005; Daryanto, 2020; Wooldridge, 2010). However, irrespective of the number of explanatory variables included in a model, there will always be some factors that are excluded, which are contained in the error term. In the presence of heteroskedasticity, the usual OLS will never be the best linear unbiased estimator (BLUE),

however Sig. p-values will not be affected. The Breusch-Pagan, White, Modified Breusch-Pagan and F tests results received small p-values of less than .05, which suggests the presence of heteroskedasticity of the error term. Heteroskedasticity was corrected for using HC4 model (Cribari-Neto, 2004) of estimation. We obtained heteroskedasticity-robust standard errors and test statistics by running Fixed Effects Type III Sum of Squares regression, Restricted Maximum Likelihood (REML) model, using General Linear Model (GLM) univariate analysis of variance where the distribution of error terms need not be normal, and the relationship between the dependent variable and predictors need only be linear through a specified transformation (see, e.g., IBM SPSS Statistics 23 Command Syntax Reference). The results of the GLM estimation are presented in Table 7, and they all strengthen our earlier findings regarding our hypotheses.

Table 7. Multivariate Analysis of Intangible assets, called-out directors' dichotomy and corporate financial performance

Parameter Estimates with Robust Standard Errors [a]

$$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO + \beta_5 BDIN + \beta_6 PFD + \beta_7 Ln(TA) + \beta_8 INDUS + \beta_9 YEAR + \mathcal{E} \quad ... (3.3)$$

$$Ln(FP)^2 = \beta_0 + \beta_1 INTAN + \beta_2 CHAIR + \beta_3 CEO + \beta_4 CFO + \beta_5 BDIN + \mathcal{E} \quad ... (3.4)$$

Parameter	B	Robust Std. Error	t	Sig.	B	Robust Std. Error	t	Sig.
Intercept	-1.033360	1.566	-.660	.509	24.847	.617	40.259	*.000*
INTAN	1.828969	3.794	.482	.630	2.979	6.724	4.431	*.000***
CHAIR	.195224	.352	.554	.580	2.192	.635	3.454	*.001***
CEO	.921493	.307	3.003	*.003***	1.917	.363	5.275	*.000***
CFO	1.539442	.283	5.437	*.000***	3.591	.451	7.961	*.000***
BDIND	.654517	.581	1.237	.260	1.969	.928	2.121	*.034***
PFD	-1.762706	.687	-2.558	*.011***				
Ln(TA)	1.712182	.089	19.141	*.000***				
[INDUS=1]	-.371461	.634	-.586	.558				
[INDUS =2]	-1.208707	.580	-2.085	.037				
[INDUS =3]	-.534780	.534	-1.002	.317				
[INDUS =4]	-2.629094	.699	-3.760	.000				
[INDUS =6]	-1.081022	.592	-1.827	.068				
[INDUS =7]	.108871	.580	.188	.851				
[INDUS =8]	.043000	.733	.059	.953				
[INDUS =9]	-.054133	.626	-.086	.931				
[INDUS =10]	-.233810	.557	-.420	.675				
[INDUS =11]	0[b]	.	.	.				
[YEAR=2012]	.286549	.423	.678	.498				
[YEAR=2013]	.106766	.436	.245	.807				
[YEAR=2014]	.311212	.393	.791	.429				
[YEAR=2015]	.269223	.403	.668	.505				
[YEAR=2016]	.009154	.432	.021	.983				
[YEAR=2017]	.180403	.429	.420	.675				
[YEAR=2018]	.315632	.440	.717	.474				
[YEAR=2019]	.246909	.484	.510	.610				
[YEAR=2020]	0[b]	.	.	.				

[a]. HC4 method

Source: Author's compilation

5. Conclusion

This study examines the relationship between corporate financial performance and book value of intangible assets, board of director's dichotomy, board independence and corporate financial performance, drawing upon Agency Theory (William H & Michael, 1976) and Upper Echelon Theory (Hambrick & Mason, 1984). The study utilizes multivariate regression models to analyze datasets obtained from *e*-annual reports of 77 companies from 2012 to 2020. Returns from correlation analyses (Table 3) provide *prima facie* evidence consistent with our *a priori* expectations that our hypothesized variables have a positive and significant relationship with corporate financial performance. Our main results from pooled OLS and Fixed Effects regressions (in Tables 5 and 6) show that increases in intangible assets, the appointment of more Chief Executive Officers, Chief Financial Officers and strong board independence increase the financial performance of the sampled companies. *CEOs* and *CFOs* are significant in both OLS and FE regressions in Models 1 and 2. *BDIND* is (marginally) significant in (Model 1) Model 2 (see, Table 5) and (in)significant in (Model 1) Model 2, see Table 6. *INTAN* and *CHAIR* are not. The signed results accept our alternative hypotheses H_1:1, H_1:2, H_1:3, H_1:4 and H_1:5. All the control variables but *YEAR* significantly affect the financial performance of the quoted companies. Our heteroskedasticity-robust regression results contained in Table 7 are consistent with the main findings as they lend further credence to our main findings. These results from additional robustness analyses allow us to conclude that the book value of intangible assets, Chairmen, Chief Executive Officers, Chief Financial Officers and Board of Directors independence have positive and significant effects on corporate financial performance. Our econometric model specification explains up to about 70% (Adjusted R^2) of the variation in corporate financial performance, leaving about 30% of unexplained variation in corporate financial performance to factors not examined by our study.

5.1. Implication

The study makes two major contributions to the corporate governance literature. First, it extends the literature on call-out board members' operational dichotomy by hypothesizing and examining the effects of executive and non-executive members of the board of directors on corporate financial performance. This has not been done by extant studies. Second, to the best of our knowledge, our paper is the first from a developing economy to make a formal hypothesis on the relationship between intangible assets and corporate financial performance.

The study is limited by incomplete data on all variables, especially relating to running Fixed Effects models, where the data is unbalanced.

References

Adams, R. B., Hermalin, B. E., & Weisbach, M. S. (2010). The role of boards of directors in corporate governance: A conceptual framework and survey. *Journal of Economic Literature,* 48(1), 58-107.

Al-Gamrh, B., Al-Dhamari, R., Jalan, A., & Jahanshahi, A. A. (2020). The impact of board independence and foreign ownership on financial and social performance of firms: evidence from the UAE. *Journal of Applied Accounting Research,* 21(2), 201-229.

Andren, T. (2005). Econometrics. Thomas Andren Ventus Publishing APS.

Asien, E. N. (2019). Effects of operating segments financials on choice of basis of segmentation and number of operating segments: a lagged analysis. *EuroMed Journal of Management,* 3(1), 25-41.

Asien, E. N. (2021). Firm-level characteristics as determinants of tax havens and tax haven share: Nigerian evidence. *African Journal of Accounting, Economics, Finance and Banking Research,* 14(14), 27-50.

ASIEN, E. N. (2022). Effects of Emerging and Extant Corporate Governance Structures on Firms' Financial Performance. *FUOYE JOURNAL OF ACCOUNTING AND MANAGEMENT,* 5(1).

Belsley, D. A., Kuh, E., & Welsch, R. E. (1980). Regression diagnostics: Identifying influential data and sources of collinearity. *Wiley Series in Probability and Mathematical Statistics*.

Boguth, O., Newton, D., & Simutin, M. (2022). The fragility of organization capital. *Journal of financial and quantitative analysis,* 57(3), 857-887.

Brown, L. D., & Caylor, M. L. (2009). Corporate governance and firm operating performance. *Review of quantitative finance and accounting, 32*(2), 129-144.

Brown, P., Beekes, W., & Verhoeven, P. (2011). Corporate governance, accounting and finance: A review. *Accounting & finance, 51*(1), 96-172.

Bushee, B. J. (1998). The influence of institutional investors on myopic R&D investment behavior. *Accounting review*, 305-333.

Chahine, S., & Tohmé, N. S. (2009). Is CEO duality always negative? An exploration of CEO duality and ownership structure in the Arab IPO context. *Corporate Governance: an international review, 17*(2), 123-141.

Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). Applied multiple regression/correlation analysis for the behavioral sciences. Lawrence Erlbaum Associates. *Mahwah, NJ*.

Conyon, M. J., & Peck, S. I. (1998). Board control, remuneration committees, and top management compensation. *Academy of Management Journal, 41*(2), 146-157.

Cribari-Neto, F. (2004). Asymptotic inference under heteroskedasticity of unknown form. *Computational Statistics & Data Analysis, 45*(2), 215-233.

Daryanto, A. (2020). Tutorial on heteroskedasticity using heteroskedasticityV3 SPSS macro. *The Quantitative Methods for Psychology, 16*(5), 8-20.

Drury, C., & El-Shishini, H. (2005). *Divisional performance measurement: An examination of the potential explanatory factors*: Chartered Institute of Management Accountants.

Eisfeldt, A. L., & Papanikolaou, D. (2013). Organization capital and the cross-section of expected returns. *The Journal of Finance, 68*(4), 1365-1406.

Fiegener, M., Nielsen, J., & Sisson, J. R. (1996). Tenure characteristics of outside directors and financial performance: Results from the banking industry. *American business review, 14*(1), 89-96.

Goh, C. F., Rasli, A., & Khan, S.-U.-R. (2014). CEO duality, board independence, corporate governance and firm performance in family firms: Evidence from the manufacturing industry in Malaysia. *Asian Business & Management, 13*(4), 333-357.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review, 9*(2), 193-206.

Haniffa, R., & Hudaib, M. (2006). Corporate governance structure and performance of Malaysian listed companies. *Journal of business finance & accounting, 33*(7-8), 1034-1062.

Ibrahim, N. A., Howard, D. P., & Angelidis, J. P. (2003). Board members in the service industry: An empirical examination of the relationship between corporate social responsibility orientation and directorial type. *Journal of Business Ethics, 47*(4), 393-401.

Janský, P., & Palanský, M. (2019). Estimating the scale of profit shifting and tax revenue losses related to foreign direct investment. *International Tax and Public Finance, 26*(5), 1048-1103.

Joenoes, M. Z., & Rokhim, R. (2019). Does foreign board increase the company's performance? the evidence from Indonesia. *Journal of Economics, Business, and Accountancy Ventura, 22*(2), 213-222.

Kanakriyah, R. (2021). The impact of board of directors' characteristics on firm performance: a case study in Jordan. *The Journal of Asian Finance, Economics and Business, 8*(3), 341-350.

Kooli, C. (2019). Governing and managing higher education institutions: The quality audit contributions. *Evaluation and program planning, 77*, 101713.

Kundelis, E., & Legenzova, R. (2019). Assessing impact of base erosion and profit shifting on performance of subsidiaries of multinational corporations in Baltic countries. *Equilibrium. Quarterly Journal of Economics and Economic Policy, 14*(2), 277-293.

Lev, B., Radhakrishnan, S., & Zhang, W. (2009). Organization capital. *Abacus, 45*(3), 275-298.

Li, K., Qiu, B., & Shen, R. (2018). Organization capital and mergers and acquisitions. *Journal of financial and quantitative analysis, 53*(4), 1871-1909.

Messabia, N., Fomi, P.-R., & Kooli, C. (2022). Managing restaurants during the COVID-19 crisis: Innovating to survive and prosper. *Journal of Innovation & Knowledge, 7*(4), 100234.

Mnzava, B. (2022). Do Foreign Directors affect Corporate Performance? Evidence from Tanzanian listed Firms. *African Development Finance Journal, 1*(1), 25-46.

Muniandy, B., & Hillier, J. (2015). Board independence, investment opportunity set and performance of South African firms. *Pacific-Basin Finance Journal, 35*, 108-124.

Okoye, P., Offor, N., & Juliana, M. I. (2019). Effect of intangible assets on performance of quoted companies in Nigeria. *International Journal of Innovative Finance and Economics Research,* 7(3), 58-66.

Olaoye, S. A., Akingbade, A. O., & Okewale, J. A. (2020). Intangible Assets and Financial Performance of Nigeria's Deposit Money Banks. *KIU Journal of Humanities,* 5(2), 391-395.

Peters, R. H., & Taylor, L. A. (2017). Intangible capital and the investment-q relation. *Journal of Financial Economics,* 123(2), 251-272.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5): pearson Boston, MA.

Theodossiou, I., & White, M. J. (1998). Does tenure affect earnings? *Journal of Economic Studies*.

Van Essen, M., van Oosterhout, J. H., & Carney, M. (2012). Corporate boards and the performance of Asian firms: A meta-analysis. *Asia Pacific Journal of Management,* 29(4), 873-905.

Weisbach, M. S. (1988). Outside directors and CEO turnover. *Journal of Financial Economics,* 20, 431-460.

Westphal, J. D., & Milton, L. P. (2000). How experience and network ties affect the influence of demographic minorities on corporate boards. *Administrative science quarterly,* 45(2), 366-398.

William H, M., & Michael, J. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*.

Williams, R. J., Fadil, P. A., & Armstrong, R. W. (2005). Top management team tenure and corporate illegal activity: The moderating influence of board size. *Journal of Managerial issues*, 479-493.

Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data, 2nd eds. *MA: MIT Press Cambridge*.

Zalewska, A. (2014). Gentlemen do not talk about money: Remuneration dispersion and firm performance relationship on British boards. *Journal of Empirical Finance,* 27, 40-57.