Effect of Board size on Earnings quality of Non-Financial Firms Listed at the Nairobi Securities Exchange

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Citation: Kangea, S. T., Nasieku, T., & Muturi, W. (2022). Effect of Board size on Earnings quality of Non-Financial Firms Listed at the Nairobi Securities Exchange. *Finance & Economics Review 4(1),* 41-54. https://doi.org/10.38157/fer.v4i1.377

Research Article

Abstract

Purpose: *The main purpose of the study was to analyze the relationship between board size and the earnings quality of non-financial firms listed on the Nairobi Stock Exchange (NSE) and also determine the effect of board size on earnings quality with ownership concentration as moderating variable.*

Methods: *A positivist research philosophy was adopted and a quantitative research design was employed. The target population of the study was the 39 non-financial companies listed in NSE as of 31st December 2020. Secondary data was the main source of information for the study. The data was s panel type of data based on a period of 13 years (2008-2020). Positivism research philosophy and quantitative research design were employed in the study. Data were analyzed based on the panel regression model. Both diagnostic and specification test for the model applied was conducted.*

Results: *The study established that board size had a significant effect on the earnings quality of non-financial firms listed at the NSE in the presence and absence of ownership concentration as moderator. Further, the results showed that the model with a moderator was superior to that without a moderator.*

Implications: *The non-financial firms listed in NSE should closely examine the criteria used in determining the size of the board and its composition to ensure that boards are more independent and diversified. This will reduce incidences of earnings manipulations and ensure that the directors are accountable to the shareholders which in turn will lead to improvement of investor confidence.*

Keywords: Board size, Earnings quality, Non-financial firms, Nairobi

1. Introduction

Board size has been a major global concern in corporate governance in the last decade (Tricker & Tricker, 2015). Board is the oversight engine that determines firms' financial performance expressed in terms of reported earnings quality. There are several aspects of a Board such as; board size, board diversity, board structure, and Board independence among others that may have a direct and indirect relationship with the earnings quality of firms. In this study, the focus was mainly to establish the relationship between board size and earnings quality for firms listed in NSE.

Board size can be described as the number of directors that are charged with the responsibility of ensuring that the activities of management within the firm are in line with stakeholders' interests (Isik & Ince, 2016). Anderson et al. (2004) concluded that the smaller the board the more enhanced the value of the firm arguing that the presence of a smaller board size increases the efficiency of company control while bigger boards tend to develop delays in their decision-making process. Vafeas, (2000) points out that small boards make

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it easier for members to exchange the most important ideas among the directors thus reducing the time for decision making. Majeed et al., (2015) demonstrated that the level of disclosure in financial reporting of an organization becomes more informative depending on the size of the board. According to Lipton and Lorsch (1992), for meaningful dialogue to take place, the board size should not exceed ten members.

Several studies indicate that there is a positive relationship between smaller board size and earning quality of firms, however, there are also other studies that give contradictive results indicating that larger boards depending on the size of the firms may influence firms' performance positively. This may be necessitated by the representation of geographical areas that the firm covers, the size of the firm, and diversity. According to Kiel and Nicholson (2003), based on agency theory, larger boards have the advantage of being keener on agency problems since a majority of the experienced directors can be deployed to monitor and review management actions. Adewumi, et al. (2020), argues that the board size plays a vital role, which is unique to the firm thus determining how firms behave as they conduct their affairs by choosing appropriate strategies with regards to improving their performance in terms of earning quality. However, in a descriptive study conducted by Musyoka (2015) with the objective to determine the effect of board size on earnings management among firms listed in NSE, the study results indicated that board size affects earnings management negatively among firms listed in the Nairobi Securities Exchange.

Other than board size, the other aspect of the study was concerned with earning quality. The quest for shareholder wealth maximization, which espouses the predominant paradigm in corporate finance policy, as persuasively articulated by Nyberg, Fulmer, Gerhart, and Carpenter (2010), requires a judicious alignment of a firm's cash flows and its cost of capital. The structure of the cash flows heavily relies on the operations structure of the business which in turn influences the financial reporting characteristics including the portrayal of accruals quality as a measure of earning quality.

Earnings are divided into two subcomponents; discretionary and innate accruals. The schools of thought on accruals quality (Deschow and Dichev 2002, McNichols 2002, & Francis et al. 2005) have the consensus in the accruals quality literature. McNichols's (2002) measure of accruals quality captures the mapping of working capital accruals into cash flows over periods. Discretionary accruals reflect creative accounting efforts and may relate to intentional manipulation of accruals to manage earnings and reflect a different result from the actual financial position of an organization. Accrual measures have been used in prior studies to capture quality in reported earnings. Several researchers have used these measures to quantify earnings quality via accruals. Jones (1991) used a common approach that is to divide accruals into the normal and abnormal categories based on the forecast model of total accruals. Researchers have used other models to identify earnings management or discretionary accruals.

Regarding ownership concentration, foreign ownership has also been linked to having a moderating effect on the relationship between corporate governance and earnings quality (Liu, Saidi& Bazaz, 2014). According to Bhaumik and Selarka, (2012), businesses with a high degree of foreign ownership are said to have good corporate governance. Jiang and Kim (2004) also agree that foreign ownership is associated with less opportunistic earnings manipulations and similar arguments are also presented by government ownership. Ramsey & Blair (2013) reveal that a firm with a bigger ownership concentration tends to attract a large number of shareholders who have adequate incentives that are needed to control the financial managers. Also, Demsetz and Lehn (2005) and Stiglitz (2005) claim that shareholders that form the block-based management must agree on the fixed costs they should bear if they are to engage in the effective management of finances. However, Maher and Andersson (2010) are skeptical about block management and they argue that it leads to distributed ownership, which weakens the incentive to monitor the management.

Despite much scholarly work in relation to the relationship between board size, earning quality, and ownership concentration, the challenge still exist since there is little regarding the impact of board size on earning in the presence of ownership concentration as a moderating factor with respect to firms listed in Nairobi Securities Exchange (Kenya), thus necessitating further research. This research gap is further

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aggravated by the fact that financial statements should accurately disclose all information necessary for users to make an informed decision on the value of shares and future cash flows of a company, and should not lead to making uninformed decisions by investors as witnessed globally by resulting in accounting fraud. The Board of directors is at the heart of corporate governance whose main objective is to regulate how companies are managed and controlled thereby safeguarding the interest of both the shareholders and the stakeholders whose interest is threatened by the agency problem.

In the last three decades, companies have been wound up across the globe leaving investors at a loss due to the implementation of unethical management policies tilted to benefit the management. This may also happen due to a lack of close monitoring and control from the board of directors. In addition to that, the problem is compounded due to the fact that the size of the board is not properly constituted in some cases. Various studies have remained non-conclusive regarding how board size relates to earnings quality, especially in the presence of ownership concentration as a moderator for firms listed in NSE thus giving rise to a research gap that calls for exhaustive research to unravel the mystery, which this study intends to contribute to. In order to resolve the research gap, the study investigated the relationship between board size and earnings quality of non-financial firms listed at the NSE, and the moderating effect of ownership concentration on the relationship between board size and earnings quality of firms listed at the NSE.

2. Literature Review

The study was anchored on the following theories; Agency Theory, Resource Dependence Theory, Stakeholders Theory, Positive Accounting Theory, and Ethical Theory.

Agency Theory was developed by Jensen and Meckling (1976) who contended that the ultimate goal of any business should be to maximize shareholder wealth (Blair, 1995). This theory was created to aid directors and shareholders in resolving disagreements. In their argument, Donaldson and Davis (1991) argued that firms would be incapable of increasing the value of their shares in the absence of unified corporate governance. Agency theory implies that owners' best course of action is to create contracts that align manager and owner interests (Rhoades, 2000). When an optimal compensation contract is impossible, or managers refuse to take additional risks, owners must develop or utilize existing mechanisms to monitor managerial behavior (Fama, 1980). In this study, the theory was linked to the role of the agents in wealth maximization, which involved the quality of earnings.

The Resource Dependency Theory was advanced by Freeman (1984) who introduced stakeholder theory into management in 1970, gradually expanding it to encompass corporate accountability to a diverse range of stakeholders. The theory was used to analyze how ownership structures in the board enable directors to provide relevant expertise used to legitimize decisions within firms and analyze the moderating effect of ownership structure on the relationship between Board size and earnings quality. The third theory was Stakeholders Theory also by Freeman (1984) where he stipulated that in both the divided and capital gains, shareholders' receipts of their return on their investment from a business add trust in management and also that board decision should be made in stakeholders' interests (Manville & Ober, 2003; White, 2009). The study adopted this theory to address varied stakeholders as far as board size is concerned and its impacts on o earning quality of the firms.

Positive Accounting Theory (PAT) employs specialized accounting techniques to determine how individuals allocate and utilize resources (Jensen, 1976). It anticipates future events and then interprets them in accounting transactions. Positive Accounting Theory, which is also one of the creative accounting theories, was used to analyze the earnings quality of non-financial businesses on the NSE. In this study, accrual and discretionary accrual quality were used as proxies for earnings quality, which is why this study looked at the NSE. Signaling Theory was another theory applied in the study, developed by Leland and Pyle (1977) and Myers and Majluf (1984). Signaling Theory stipulates that the payment method sends a message about the value of the company that is buying it. Cash offers are seen as good news, and equity offers are bad news. Signaling theory was also used to analyze earnings quality (Khan, 2009). High dividends signal

current performance, future cash flow expectations, and the expected value of the firm. The last theory used in the analysis is Ethical Theory which stipulates that business ethics enables the assessment of benefits and risks associated with ethical issues within an organization, and it is critical because it sheds new light on both contemporary and traditional ethical perspectives (Crane and Matten, 2007). The theory was considered in the study mainly to highlight the importance of ethics in the preparation of financial reports meeting the interest of interested parties cannot be underrated. Therefore, high ethical standards should be observed (Oliveras & Amat, 2007). Besides that, the theory was also used to analyze earnings quality (accrual quality and discretionary accrual).

The literature indicates that the effect of board size on earnings quality remains mixed whereby some studies reveal a negative relationship while others reveal a positive relationship between board size and earnings indicating that the subject is not conclusive. The reviewed empirical studies have not analyzed the effect of board size on earning quality using the two measures (accrual quality and discretionary accrual) hence the need for this study. The empirical literature reviewed also did not examine the moderating effect of ownership concentration on the relationship between board size and earnings quality of firms listed at the NSE which the current study analyzed. Thus, to attain the set objectives of the study, the following hypotheses were tested.

H_{01}: Board size has no significant effect on the earnings quality of non-financial firms listed at the NSE.

H_{02}: Ownership concentration has no moderating effect on the relationship between board size and earnings quality of non-financial firms listed at the NSE.

3. Research Framework

The reviewed empirical studies did not have Board size and its effect on earning quality of the non-financial firms listed in NSE. The empirical reviews did not analyze the effect of ownership concentration as a moderating variable on earnings quality and therefore, exploited this knowledge gap by testing the moderating effect of ownership concentration on the relationship between board size and earnings quality. In order to fill the identified research gaps, the variables were conceptualized as presented in Figure 1.

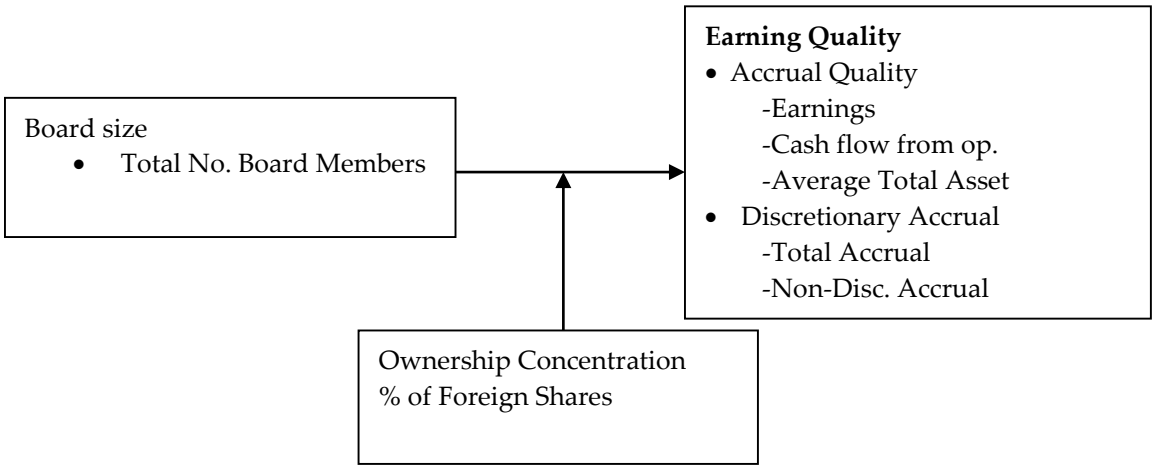

Fig. 1: Research Framework

3.1. Board Size and Earning Quality

As the board size increases, attributes in compositions keep changing. On the one hand, such a change could enhance control mechanisms by increasing the monitoring intensity. On the other hand, such diversification could bring in members with moral lapses and opportunistic tendencies, which could negatively impact governance effectiveness, thus leading to poor credibility in financial reporting. The authors hypothesize that board size can be achieved through leadership characteristics and professionalism.

Siam, Laili & Khairi (2014) explored the relationship between board characteristics and earning management, using board characteristics. Results supported the role of an effective board to reduce earnings

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management in terms of board size, and board meetings. Aygun &Sayim (2014) studied the impact of the size of the board and corporate ownership on earnings management and found a negative relationship between institutional ownership and board size on earnings management. Talbi et al. (2015) study investigated the effectiveness of board characteristics in limiting earnings management. Empirical results depicted a positive impact of board size on earnings management.

Bermig (2010) demonstrated that smaller boards are more effective in monitoring management and thus associated with better performance. He found a significant negative effect on board size and earnings management suggesting that smaller boards are more efficient in monitoring. But the benefits of this have to be compared with the disadvantages when other dimensions of the firm performance are taken into account.

Badu and Appiah (2017) examined the impact of corporate board size on firm performance using evidence from Ghana and Nigeria. The study was based on a sample of 137 listed firms in Ghana and Nigeria. The findings of the study suggested a statistically significant and positive relationship between board size and firm performance, implying that in Ghana and Nigeria increasing the number of members sitting in the corporate boards tended to improve firm performance.

Wangaruro (2016) in her study on the effect of corporate governance practices on earnings management for the listed commercial banks in Kenya on 11 commercial banks listed at NSE as of 2013 established that an increase in non-executive directors / total directors, as well as Executive compensation, is positively associated with earnings management. On the other hand, an increase in the total number of directors on the board, number of board meetings, Ratio of total debt to total assets, and Size is negatively associated with earnings management.

3.2. Ownership Concentration and Earnings Quality

Lu et al. (2011) investigated the relationship between ownership structure and voluntary disclosures in Singapore and the results revealed a significant negative relationship between managerial ownership and level of voluntary disclosure, while a significant positive relationship between government ownership and voluntary disclosure exists. However, they found no significant association between block holder ownership and voluntary disclosures. Shamsuddeen and Muhammad (2018) considered the influence of ownership structure on corporate social responsibility disclosure in Malaysia and Nigeria's capital market using a cross-sectional study and exploratory research design. The results showed that, companies in which the directors maintain a greater proportion of equity shares disclosed significantly less information due to the super owner syndrome that dictates every dos and don'ts of the firm, while firms in which the government is a major shareholder, disclosed significantly more information.

A study conducted in Kenya by Ongore and K'Obonyo (2011) on interrelations among ownership, board and manager characteristics and firm performance in a sample of 54 firms listed at the Nairobi Stock Exchange (NSE). Using PPMC, Logistic Regression, and Stepwise Regression, the paper presents evidence of a significant positive relationship between foreign, insider, institutional, and diverse ownership forms, and firm performance. However, the relationship between ownership concentration and government, and firm performance was significantly negative. The role of boards was found to be of very little value, mainly due to a lack of adherence to board member selection criteria. The results also show a significant positive relationship between managerial discretionary and performance. Collectively, these results are consistent with pertinent literature concerning the implications of government, foreign, manager (insider), and institutional ownership forms, but significantly differ concerning the effects of ownership concentration and diverse ownership on firm performance. These studies did not analyze the moderating effect of ownership concentration on the relationship between Board size and earnings quality of non-financial firms listed at the NSE, which was the object of the current study.

4. Methodology

To achieve the objective of the study positivism research philosophy was applied. The Philosophy emphasizes quantifiable observations that were used for statistical analysis and this was backed by regression model results. The research design employed in this study was a quantitative survey research design that emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected. The choice of this research design was because of the need to correlate the present situation regarding Board size and earnings quality to establish a relationship between the two or more variables.

A population is the total collection of all the elements about which the study wishes to make some inference (Blumberg, Cooper & Schindler, 2014). The target population for this study was the entire population of 39 non-financial firms listed at NSE (NSE, 2020), the financial institutions fall under separate categories later differently and would therefore not be part of this study. The non-financial firms listed at NSE are divided into 8 sectors namely Agriculture, Commercial and services, telecommunication and technology, automobiles and accessories, investment, Manufacturing and allied, Construction and allied, Energy and petroleum sectors (NSE, 2020). This study adopted a census of all the 33 firms in the non-financial firms listed at NSE, which were in operation between 2008-2020 the period of the study. The study purposively selected the 33 firms that were not delisted and deregistered. Secondary data was used based on the information published in the handbook for a period spanning 11 years from 2008 to 2018. Data analysis was conducted based on the proposed model using e-views and Stata as specified in equations 1 and 2.

4.1. Model Specification

The study adopted a panel regression analysis panel regression model was applied this was because panel data was involved where 33 sampling units (non-financial firms) for a period of thirteen years were adopted. In addition, the moderating effect of ownership concentration was also considered. The model was as follows:

$$Y_{it} = \beta_0 + \beta_1 x_{1it} + \varepsilon_{it} \qquad 1$$

Similarly in the presence of moderator (ownership concentration), equation 1 can be presented as follows:

$$Y_{it} = \beta_0 + \beta_1 x_{1it} + \theta_1 x_{1it} * z + \varepsilon_{it} \qquad 2$$

where: Y_{it} is the Earnings Quality, x_1 is Board size, $\beta_0 =$ Is the time-invariant intercept β_1 is the coefficient of the regressor variable (board size), θ_1 is the coefficients of the moderator variable(ownership concentration), Z is the moderator(ownership concentration), ε_{it} is an error term $i = 1,2,3,...,33$ firms listed in NSE and t is the time in years from the year 2008 to 2020.

The independent variable was board Size which was measured in terms of the number of directors on the board. The dependent variable earnings quality was measured in terms of accrual quality and discretionary accrual applying the modified Jones model (1991).In this case, the proxy of accrual quality was based on the metric ratio for the absolute value of abnormal accruals generated by the modified Jones (1991) approach where the cross-sectional regression of each of the 33 firms listed in NSE is first estimated in year t. that is

$$\frac{TA_{j,t}}{Assets_{j,t-1}} = \phi_1\left(\frac{1}{Asset_{j,t}}\right) + \phi_2\left(\frac{\Delta REV_{j,t}}{Assets_t}\right) + \phi_3\left(\frac{PPE_t}{Assets_t}\right) + \varepsilon_t \qquad 3$$

From the above equation, the parameter estimates obtained are then used to estimate firm-specific normal accruals (NA) as a percentage of lagged total assets expressed as follows:

$$NA_{j,t} = \hat{\phi}_1\left(\frac{1}{Asset_{j,t-1}}\right) + \hat{\phi}_2\left(\frac{\Delta REV_{j,t} - \Delta REC_{j,t}}{Assets_{j,t-1}}\right) + \hat{\phi}_3\left(\frac{PPE_{j,t}}{Assets_{t-1}}\right) + \varepsilon_{j,t} \qquad 4$$

where $\Delta REC_{j,t} =$ firm j's change in net receivable in year t less net receivable in year t-1. To compute abnormal accruals (AA) in year t1, WE use the expression

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$$AA_{j,t} = \frac{TA_{j,t}}{Assets_{j,t-1}} - NA_{j,t} \qquad 5$$

From the above equation, the absolute value of the resulting measure of abnormal accruals becomes an additional proxy for accruals quality considered in this study that is, low values of suggesting better accruals quality while large values $\left|AA_{j,t}\right|$ suggesting poor accrual quality.

The discretionary accruals (DA) was computed based on equation 3.6 given below

$$DA = TA_{j,t} - NDA_{j,t} \qquad 6$$

With Non-discretionary accrual (NDA_{jt}) being computed as illustrated in equation 7 presented below

$$NDA_{jt} = \phi_1\left(\frac{1}{Asset_{j,t}}\right) + \phi_2\left(\frac{\Delta REV_{j,t} - \Delta REC_{j,t}}{Assets_{j,t}}\right) + \phi_3\left(\frac{\Delta PPE_{j,t}}{Assets_{j,t}}\right) + \varepsilon_{j,t} \qquad 7$$

Where: DA_{jt} is firms j discretionary component of accruals at a time t, TA_{jt} is firms j total accruals at time t, NDA_{jt} is firms j non-discretionary accruals at a time, $\Delta REV_t =$ is revenues in year t less revenue in year t-1, $\Delta REC_t =$ is net receivables in year t less net receivable in year t-1, $\Delta PPE_t =$ is gross property plant and equipment in year t less gross property plant and equipment in year t-1.

Finally, equation 8 also illustrates how firms j total accruals at time t (TA_{jt}) were computed

$$TA_{jt} = \left(\Delta CA_{jt} - \Delta Cash_{jt}\right) - \left(\Delta CL_{jt} - \Delta STD_{jt} - \Delta TP_{jt}\right) - DEP_{jt} \qquad 8$$

Where:- $Assets_{T-1} =$ is total assets at the end of year t-1, ϕ_1, ϕ_2 and ϕ_3 are firm-specific parameters, $\Delta CA =$ is Current Assets in year t less current assets in year *t-1*, $\Delta Cash =$ is the cash / Cash equivalents in year t less cash / Cash equivalents in year t-1, $\Delta CL =$ is the Current Liabilities in year t less current liabilities in year *t-1*, $\Delta STD =$ is Short-term Debts in year t less short-term debts in year *t-1*, $\Delta TP =$ is Income Taxes Payables in year t few Income Taxes Payables in year-*1*, $DEP =$ Depreciation and Amortization expense.

4.2. Diagnostic Tests /Model specification test

Various diagnostic statistics analyses were performed to check the suitability of the data for panel regression analysis. The diagnostic tests conducted for the study were; the stationarity test using unit root test, panel cointegration test, heteroscedasticity test, outlier test, and autocorrelation. In addition to that, Hausman specification tests of the model were also performed.

5. Research Findings and Discussion

To start with, out of 33 firms listed in the NSE for a period of 13 years (2008-2020). Table 1 results show that the highest mean of board size was 8.7273 with a tally across 3 years. For median, there was a tie for the highest value recorded across years that is, 8.0000 for all years except 2011 and 2012. The maximum board size across the years was recorded in the years 2017 and 2018 while the minimum value for board size was recorded in the year 2008. The finding suggests that there was a slight almost unnoticeable increase in the board size across the years 2008 to 2020.

These findings were also in agreement with the studies done by Kalsie, and Shrivastav (2016), who found that out of 145 firms' samples for five years had an average board size of 10 for the five years under consideration. The implication of these facts demonstrates that firms listed in the NSE prefer to retain a specific number of board sizes over the years. The reason for this perhaps was to facilitate a faster decision-making process, easier coordination characterized by fewer problems, and an effective management process thus leading to an optimal earning quality as suggested by Dimitropoulos and Asteriou, (2010).

Similarly mean and median per sector was considered, and based on the finding it was established that firms associated with the telecommunication and technology sector recorded the highest mean for board size at

9.00 and the lowest was the agricultural sector, which recorded an average board size of 7.1818 as indicated on figure 2.

Table 1: Mean, Median for board Size across the years

year	Mean	Median	Increase/Decline in mean	Increase/Decline in mean
2008	8.0000	8.0000	-	-
2009	8.2424	8.0000	+0.2424	+0.0000
2010	8.1515	8.0000	-0.0091	+0.0000
2011	8.0606	7.0000	-0.0091	-1.0000
2012	8.0909	7.0000	+0.0030	+0.0000
2013	8.2121	8.0000	+0.0121	+1.0000
2014	8.3030	8.0000	-0.0091	+0.0000
2015	8.2424	8.0000	-0.0061	+0.0000
2016	8.2424	8.0000	+0.0000	+0.0000
2017	8.7273	8.0000	+0.048	+0.0000
2018	8.5151	8.0000	-0.0211	+0.0000
2019	8.7273	8.0000	+0.2121	+0.0000
2020	8.7273	8.0000	+0.0000	+0.0000

Source: Nairobi Securities Exchange (2008-2020)

The finding was an indicator of how the agricultural sector is less performing compared to telecommunication thus earning quality. From this point, it can also be argued that high-performing firms in various sectors are likely to have a large board size since the results indicate that some sectors have a larger board size than others. However, this may not be consistent with studies conducted by Guest (2009) who suggested that larger board size, negatively affects a firm's performance and therefore recommends a board size of fewer than 10 members mainly to enhance effective and quick decision process irrespective of the firms' size.

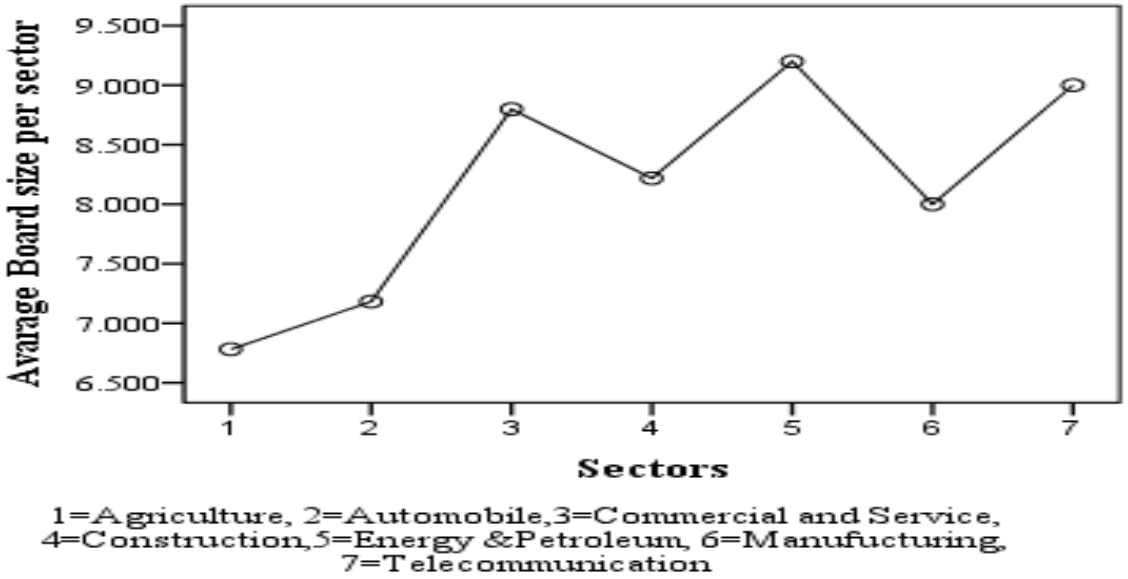

Fig.2: Average Board size per sector

Source: Nairobi Securities Exchange (2008-2020)

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5.1. Regression model

The empirical analysis to establish the relationship between Board Size and level of earnings quality of non-financial firms listed at the NSE was conducted. The null hypothesis was that there was no significant relationship between Board Size and on earnings quality of non-financial firms listed at the NSE.

Table 2 shows panel regression analysis findings between earnings quality of non-financial firms listed at the NSE and Board Size. The dependent variable earnings quality of non-financial firms was measured using accrual quality and discretionary accrual. Pooled OLS, Randomized and fixed models were compared for each output. From Table 2, R- square values recorded were; 0.20620, 0.684, and 0.6260 implying that 20.62%, 68.4%, and 62.6% of accrual quality were explained by Board size in the absence of a moderator. Likewise, in the presence of a moderator, R- square values recorded were; 0.244,0.719, 0.6261 also this result indicates that 24.4%, 71.9%, and 62.6% of the total variation in quality accrual of non-financial firms listed at the NSE were explained by Board Size in the presence of a moderator. In addition to that, it was also established that there was a general increase in R-square value when the moderator was present however this increase was only applicable to Pooled regression model and randomized panel regression model with the fixed model remaining constant. At this level, the preliminary finding of the study was that the randomized effects model was the most appropriate model.

Similarly, in Table 3 the R-square values recorded were; 0.2161, 0.4235, and 0.6261for discretional accrual again implying that 21.61%, 42.35%, 62.61%, of discretionary accrual of earnings quality for non-financial firms listed at the NSE were predicted by Board Size in the absence in of moderator for pooled, random and fixed-effects models. Further the results indicate that when the moderator was incorporated into the model, the R-square values recorded were; 0.2590, 0.4544, and 0.781.

Table 2: Panel regression analysis results for Board Size and accruals quality

Dependent Variable: Earnings quality, Quality Accrual,									
Method: Panel Least Squares: Sample: 2008 2020, Periods included: 13Cross-sections included: 33Total panel (balanced) observations: 429									
Type of Model	Variable	B	SE	T	P	R^2	Adj R^2	F	P-value
Pooled OLS	C	3.1689	0.1216	26.058	0.0000	0.206	0.204	93.767	0.000
	B.Size	0.1356	0.0140	9.6833	0.0000				
	S.E. of regression			0.7197	Akaike info criterion				2.1856
	Sum squared residual			186.99	Schwarz criterion				2.2070
Pooled OLS with moderator	C	4.2354	0.1070	39.572	0.0000	0.244	0.239	57.948	0.000
	B.Size	0.1409	0.0130	10.755	0.0000				
	B.SIZE*Z	-0.004	0.001	-3.215	0.0014				
	S.E. of regression			0.6328	Akaike info criterion				1.9311
	Sum squared residual			143.78	Schwarz criterion				1.9634
Random Effects Model	C	3.2802	0.2172	15.105	0.0000	0.684	0.657	26.524	0.0001
	B.Size	0.1221	0.0237	5.1454	0.0000				
	S.E. of regression				0.5168	Sum squared residual			96.452
Random Effects Model with Moderator	C	4.3698	0.1918	22.778	0.0000	0..71	0.668	13.915	0.0000
	B.Size	0.1162	0.0225	5.1522	0.0000				
	B.SIZE*Z	-0.0002	0.0002	-0.7741	0.4393				
	S.E. of regression			0.4665	Sum squared residual				78.112
	F-statistic			13.915	Durbin-Watson stat				1.2223
Fixed effect Model	C	4.4983	0.2326	19.338	0.0000	0.626	0.588	36.709	0.0000
	B.Size	0.0941	0.0280	3.3598	0.0009				
	S.E. of regression			0.4657	Akaike info criterion				1.3986
	Sum squared residual			71.134	Schwarz criterion				1.7641
Fixed effect Model with Moderator	C	4.4987	0.2329	19.312	0.000	0.626	0.587	16.106	0.0000
	B.Size	0.0909	0.0303	3.0062	0.003				
	*B.Size**Z	8.68	0.0003	0.2811	0.7788				
	S.E. of regression			0.4663	Akaike info criterion				1.4039
	Sum squared residual			71.115	Schwarz criterion				1.7802

Again, the results suggest that there was a significant improvement in the models in the presence of moderators. In this case, 25.9%, 45.4%, and 78.1% of discretionary accrual of earnings quality for non-financial firms listed at the NSE were predicted by Board Size in the presence of a moderator.

A casual look at the findings based on the R-square values, clearly suggests that the fixed-effect model in the presence of a moderator was the best. Besides that, the fitness of the models was also elaborated by p-values which were all less than 0.05. These findings, simply suggest that there was a significant relationship between Board Size and accrual quality, discretionary accrual as well as overall earnings quality of non-financial firms listed at the NSE. The finding was also incoherent with those conducted by Egbnike and Odum (2018) who found out that both board size and Board size significantly and positively affects earning quality of some selected manufacturing firms in Nigeria. Besides that, Badu and Appiah (2017) also managed to demonstrate how positively Board size significantly affects earning quality among 137 firms sampled in Nigeria and Ghana. However, the findings of this study contradict those of Topak (2011) based on panel data analysis who found that there was no significant relationship between board size and financial performance of 122 Turkish firms.

Table 3: Panel regression analysis results for Board Size and discretional accruals

Dependent Variable: Earnings quality of non-financial firms listed at the Nairobi Stock Exchange (), (Discretional Accrual,									
Method: Panel Least Squares Sample: 2008 2020, Periods included: 13Cross-sections included: 33Total panel (balanced) observations: 429									
Pooled OLS	C	0.5936	0.0827	7.1756	0.000	0.2161	0.214	90.393	0.000
	B.Size	0.0903	0.0095	9.5075	0.000				
	S.E. of regression			0.4690	Akaike info criterion				1.3295
	Sum squared residual			72.136	Schwarz criterion				1.3525
Pooled OLS with moderator	C	0.5967	0.0806	7.4081	0.000	0.2590	0.255	57.145	0.000
	B.Size	0.1051	0.0099	10.669	0.000				
	B.SIZE*Z	-0.0004	9.6601	-4.3532	0.000				
	S.E. of regression			0.4566	Akaike info criterion				1.2791
	Sum squared residual			68.184	Schwarz criterion				1.3138
Random Effects Model	C	0.86029	0.1452	5.9244	0.000	0.4235	0.394	14.5077	0.0001
	B.Size	0.0580	0.0152	3.8172	0.0002				
	S.E. of regression				0.2476	Sum squared residual			20.110
Random Effects Model with Moderator	C	0.85803	0.1437	5.9723	0.0000	0.4544	0.396	7.7832	0.0005
	B.Size	0.0640	0.0166	3.8666	0.0001				
	B.SIZE*Z	-0.0002	0.0002	-0.7998	0.4244				
	S.E. of regression			0.2484	Sum squared residual				20.175
Fixed effect Model	C	0.9894	0.1512	6.5422	0.0000	0.6261	0.583	36.7098	0.0000
	B.Size	0.0424	0.0182	2.3328	0.0203				
	S.E. of regression			0.2471	Akaike info criterion				0.1391
	Sum squared residual			18.068	Schwarz criterion				0.5304
	Log-likelihood			11.064	Hannan-Quinn criterion				0.2951
Fixed effect Model with moderator	C	0.9870	0.1515	6.5129	0.0000	0.8038	0.781	35.5408	0.0000
	B.Size	0.0381	0.0205	1.8537	0.0648				
	B.SIZE*Z	0.0001	0.0003	0.4554	0.6492				
	S.E. of regression			0.2473	Akaike info criterion				0.1444
	Sum squared residual			18.056	Schwarz criterion				0.5473

To choose the most appropriate model between randomized and fixed models, Hausman test was conducted and the result indicated that in the absence of a moderator, the Random-effects model was the most appropriate model since the test statistics values recorded was 0.5569, while in the presence of moderator it was established that fixed effect model was the most appropriate model for of non-financial institutions listed in NSE. Table 4 gives the details of the Hausman test results.

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Table 4: Hausman test table for Board size

Model	Correlated Random Effects - Hausman Test				
	Equation: Untitled				
	Test cross-section random effects				
Board Size Accrual quality with no moderator (Ownership concentration)	Test Summary		Chi-Sq. Sta	Chi-Sq. d.f.	Prob.
	Cross-section random		0.345034	1	0.5569
	Cross-section random effects test comparisons:				
	Variable	Fixed	Random	Var(Diff.)	Prob.
	B. SIZE	0.110312	0.122135	0.000405	0.5569
Board Size Accrual quality with moderator	Cross-section random	0.002451	2	0.00407	0.00367
	Cross-section random effects test comparisons:				
	Variable	Fixed	Random	Var(Diff.)	Prob.
	B. SIZE	0.130312	0.142135	0.000405	0.03569
	B. SIZE*Z	0.000014	0.000011	0.000010	0.02545
Board Size with Discretional Accrual in the presence of a moderator	Test Summary		Chi-Sq. Sta	Chi-Sq. d.f.	Prob.
	Cross-section random		0.145084	1	0.72369
	Cross-section random effects test comparisons:				
	Variable	Fixed	Random	Var(Diff.)	Prob.
	B. SIZE	0.210312	0.202132	0.000405	0.72369
Board Size with Discretional Accrual in the presence of a moderator	Cross-section random		0.1345034	2	0.00297
	Cross-section random effects test comparisons:				
	Variable	Fixed	Random	Var(Diff.)	Prob.
	B. SIZE*Z	0.038106	0.064037	0.000148	0.00332
		0.000127	-0.000157	0.000000	0.01525

To select the most optimal model based on Hausman results above, R-square values were compared and the findings were based on table 2, it was obvious $R^2_{RM} < R^2_{FM}$ so the fixed effect model in the presence of a moderator was the most optimal model given by the expression:

$$QA = 4.49869 + 0.09094*BOARD\ SIZE + 8.6803BOARD\ SIZE *Z$$

[Note: R^2_{RM} is the R-square value for the random effect model R^2_{FM} is the R-square value for the fixed effect model]

Similarly, for the discretional accrual of non-financial institutions listed in NSE, it was established that both fixed-effects models were appropriate in the presence of a moderator and in the absence of a moderator. The findings were also backed with p-values 0.00367and 0.032 respectively as disciplined in Hausman table 4. Areferringering to the R-squares values in table 4, it was concluded that the fixed effect model with a moderator was superior to the fixed-effect model with no moderator, that is, $R^2_{FW} < R^2_{FM}$. In summary, the final models selected in this case were;

$$DA = 0.9869 + 0.0381*BOARD\ SIZE + 0.0013\ BOARD\ SIZE*Z$$

6. Conclusion

There was a significant effect of Board size on financial performance therefore; it could be applied in predicting the financial performance of non-financial firms in the Nairobi Security Exchange. The two models; random effects and fixed effect were employed both with and without a moderator and the results indicated that there was a significant effect of board size on both return on assets and discretional accrual (Financial performance) of the firms listed at the. The findings also demonstrated there was a significant increase in R^2in the two models when the moderator was included in the models and this demonstrated the effect of the moderating variable (firm size) on both models. According to the finding, it was established that; the fixed effect model was the most appropriate since the null hypothesis was rejected. Based on these

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facts, Board size, therefore, could be used to predict earning quality in the presence of ownership concentration as a moderator for non-financial firms listed in the Nairobi Security Exchange.

7. Implications of the Findings

Based on the established significant relationship between the board size and earnings quality, the implication is that board members should be looked at by listed firms as a strategy for reducing incidences of earnings manipulations by ensuring that the directors are accountable to the shareholders, which will lead to improvement of investor confidence**.** Non-financial firms listed on the Nairobi Securities Exchange should enhance their earnings quality through various aspects of board characteristics as the study found that the size of the board, audit committee independence, gender diversity, and board independence had a significant effect on earnings quality among the firms. Capital Market Regulatory Authorities should engage in regular stringent monitoring and reviews of the disclosures reporting systems used by the non-financial listed firms to ensure compliance. The process would improve ethics in reporting entities regarding those critical disclosures that affect decision-making by investors seeking where to place resources. The authorities should have a functioning, robust technology that integrates the website of the listed firms on a real-time basis, thereby making their reports available at the click of a button at all times to the interested public.

8. Limitations and Direction for Future Research

The current study did not analyze the effect of board characteristics on the earnings quality of financial firms listed at the Nairobi Securities Exchange. A comparative study on the effect of board characteristics on the earnings quality of financial and non-financial firms listed on the Nairobi Securities Exchange should be carried out. Board characteristics are essential controls on firms' accounting practices, especially earnings reporting among these firms. The result from such studies will bring to light the variability between the two categories of the firms listed at NSE to facilitate comparability in the categories and learn from one another.

Authors' Contributions: Sammy Thuo Kangea was the Principal Investigator (PI), who identified the gap between board size and earnings quality in the non-financial firms listed in NSE. He conceptualized the study area and the hypotheses then collected required time-series data, analyzed the data, and wrote the report. Tabitha Nasieku and Willy Muturi were the co-authors who gave the necessary guidance and helped in the proofreading process that led to the output of the paper.

Conflict of Interest: The authors declare no conflict of interest.

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