The Impact of Board Characteristics on Audit Quality, Evidence-based on Listed Firms in Ghana

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Abstract
This paper examines board characteristics' impact on audit quality, evidence from Ghana Stock Exchange. The study employed a panel regression model to examine the effect of board characteristics (board size, board independence, gender diversity, and CEO duality)on audit quality (DAC) for the period of 2012 to 2019 for twenty-five (25) listed firms in Ghana. The regression analysis results revealed that board size, board independence, and board gender diversity have a positive relationship with audit quality by reducing discretionary accruals. In contrast, a negative relationship was recorded between CEO duality and audit quality in the form of an increase in discretionary accruals. The shareholder accountability system and minority protection system in most enterprises in Ghana seem to exist only but need more improvement. Therefore, it is recommended that a more independent board of directors is appointed and also the engagement of auditors from the big4 audit firms to provide quality audit reports.

Keywords: Audit Quality; Board Independence; Board Size; CEO Duality; Gender Diversity.

1. Introduction

Every firm's core motive around the globe is to create wealth or make a profit and continuously exist. Ownership and management in most companies are separated, causing inconsistencies in financial reporting. Due to this, the area of audit work has become a crucial part of any firm. The owners employ managers to control the day-to-day operation of the business in return for rewards for their service rendered. The motive of the management is to maximize the shareholders' value or to create wealth for the shareholders.

Moreover, the likelihood that the management would work for their selfish interest to the disadvantage of the shareholders is normally high. This results from information asymmetry between management and shareholders (Lin & Hwang, 2010). This brings about Principal - agency theory, which creates an agency problem. Agency theory throws more light on the availability of agency problems between management and investors because of the parting of ownership from management, which may also result in entrenchment and expropriation of the
investors' value by management (Sultana et al., 2019). An independent audit has always been the control factor, which can mitigate most managers' misappropriation. Audit quality is an essential ingredient behind every successful and sustainable organization. Nevertheless, ensuring the quality of audits is not done in a vacuum but rather with good corporate governance practices, most especially the board. The board of directors, seen as a key integral part of Corporate governance in the contemporary business environment, particularly in the accounting and auditing industry, has seen significant changes (Agyei-Mensah, 2019; Inaam Zgarni & Khamoussi Halioui, 2016).

Since 2013, there have been sustained challenges in both individual and state-owned businesses, especially in Ghana's financial sector. For example, the case of the collapse of DKM, a microfinance institution in Ghana, in 2015 caused millions of dollars in depositor's financial losses. Notwithstanding the previous losses, additional five commercial banks collapsed eight months later in the year 2018. A report by the Government of Ghana (GOG) highlighted that these activities cost the country approximately 2.2 billion dollars (Ministry of Finance, 2018). This collapse has brought about losses and resulted in mistrust by investors in these sectors. As a result, KPMG, an auditing firm, was tasked to investigate what might have caused the failure of the banks. The Report from KPMG (2018) acknowledged several factors, including misappropriations of the board of directors, auditing irregularities, related party transactions, managerial incompetence, and disregard for banking laws as the major causes of corporate failure to weak or lacking best practices in this sector. These findings opened a debate on the influence of auditors in all these corporate failures. Dr. Richmond Atuahene, a lecturer at Ghana Banking College and founder of Universal Capital Management, also said that significant issues harming the banking industry are incompetent board members, lack of independence from the board, and many others. Therefore, a stronger corporate governance board is needed (Ghana Web, 2017).

The failure of respective governance to act has been identified as the principal cause of several failures of most companies (Beasley & Petroni, 2001). In an organization where shareholders are absent, a potent corporate governance structure guarantees management's effective utilization of resources. Several mechanisms can be adopted to enhance financial reporting to achieve greater accountability, maximize the utilization of resources dedicated to audit function, and improve corporate governance policies (Saudagaran, 2003).

In summary, this study area is mainly done in the developed and some part of Africa, for example, the United States, Singapore, Iran, India, Nigeria, Malaysia, Egypt, and other countries. But from the Ghanaian perspective, there is little or no research on the impact of board characteristics being an integral component of corporate governance on audit quality, which needs to be investigated to fill this gap. These issues, together with the limited number of research on how board characteristics practices impact audit quality in Ghana, call for this study.

This paper contributes to the current literature by introducing gender diversity as a variable of the board to help firms to assess the influence that gender diversity (female) has on the board since most of the studies ignore board gender diversity, especially Ghanaian studies. Further, most of the study on the subject area uses audit firm size as a proxy of audit quality by ignoring
other proxies like DAC that influence the quality of audit of client financial statement. In the case of this study, DAC was used as a proxy of audit quality, contributing to current literature.

Therefore, the findings of this study are expected to serve as an important source of reference for future researchers on the board characteristics, audit quality, and related areas generally and specifically in Ghana. Secondly, the findings provided are expected to be set as very useful information for policymakers and other relevant stakeholders in Ghana, such as the Securities and Exchange Commission, Ghana Stock Exchange, the regulators of the auditing and accountancy profession, and its relatedness in a bid to formulate new policy guidelines or improve on the existing corporate governance systems.

The paper is structured as follows: Section two presents the study area's literature review and hypothesis development. In section three, the research methodology is presented. Section four also presents descriptive statistics of study variables, data analysis, and a detailed description of the empirical estimation model. Findings from the analyzed data are also presented in this chapter. Section five presents the summary of the outcomes and conclusions.

2. Literature Review and Hypothesis Development

2.1 Theoretical Framework

The theoretical footage for corporate governance has developed from the field of Agency theory. The application of other theories of Corporate Governance, such as stewardship, stakeholder, social contract, and resource dependency, is a basis of the concepts of Agency theory. The growing interest, predominantly concerning the monitoring role of directors, has called for attention in corporate governance. As a result, the relevant theories to support this study are based on the structures of governance and disclosure practices that affect firms' value.

Agency theory argues that the fundamental problem of the principal-agent relationship (Agency problem) in contemporary firms is mainly due to ownership separation and control. Because company owners cannot perform the day-to-day activities of their firm, they hire and entrust the responsibilities to third parties, also known as agents. Agency theory explores the problems that emerge since investors and managers of most firms are separated, and its emphasis is to address them. Managers are expected to manage the resources in the interest of shareholders to maximize economic gain. Dispersed ownership characteristics of modern firms have made accountability to owners of resources very difficult. As a result, the demand of the board of directors to serve as a representative for the dispersed owners. The existence of this disagreement between shareholders and managers is termed an Agency problem. The main intuition behind Agency conflict is that humans are predisposed to forgiving Similarly, McColgan, (2001), in his contribution to the subject matter, defines an agency relationship as a contractual agreement between the Principal (company's shareholders) and agents (management and company's directors) where the Principal entrusts the agent with the responsibility to transact business on behalf of the Principal. They further claim that if the parties concerned seek the best satisfaction, there will be evidence that the agent has not taken action in the Principal's best interests. Therefore, the Principal may...
provide the agent with appropriate incentives to limit differences with his or her interests and generate monitoring costs to limit the irregular actions of the agent.

2.1 Summary of board characteristics practice in Ghana

Over the years, the board's characteristics as an integrating feature of Corporate Governance have advanced, particularly in light of corporate failure. Essentially, a significant part of the protection laws in the United States was set up following the securities and exchange crash of 1929 (Borgia, 2005). The British introduced the regulation in Ghana way back in the colonial period. Therefore the legal regime and corporate governance practices reflect the British design (Okike, 2007). However, the registration under the code did not bring the corporate governance practices of Ghanaian enterprises to the high standards prescribed by the law. The Ghana companies act of 1963 (act 179) is mainly guided by the British Companies Act 1948 (Adda & Hinson, 2006), which serves as the main regulator of companies in Ghana. The Securities Industry Laws, 1993 (PNDCL 333), as amended by the Securities Industry Act, 2000 (Act 590), the Security and Exchange Commission Regulations, 2003 (L. I. 1728), the listing regulations of the Ghana Stock Exchange (GSE), 1990 (L. I. 1509). These are the various frameworks that regulate corporate governance practice in Ghana. The framework for corporate governance in Ghana mandates all firms to make available information about management and their remuneration, majority shareholders and voting power, material going concerns, and board members and investors. Again the firms are also required to provide a financial position as well as an annual report to shareholders. The boards of directors, whose mandates are to enhance forcible corporate governance, are liable to shareholders. Again, it states that the size of the board of various corporate entities must be determined to increase how effective the board is and the right representation of needs.

However, under new companies Act, 2019 (Act 992) of Ghana, which the Ghana parliament passed in August 2019, requires that the board should constitute at least five (5) board members plus the chairperson and a maximum of thirteen (13) members, of which majority should be non-executive and must Ghanaian resident. It emphasizes an official and explicit nomination process of its members to the board and also makes available information on all the appointed nominees to shareholders. The controlling hierarchy of the corporate body specifically is that different individuals should hold the role of the CEO and the board chairperson. For the board to carry out its duties successfully, the board should also meet frequently, and in the matter of mentioned corporate entities, it should be at least six times a year. The board should also introduce committees as it might be proper to aid the board in carrying out its responsibilities.

2.3 Hypothesis Development

2.3.1 Board Sizes and Audit Quality

Board size is referred to as the total number of directors acting on the board, and it serves as the most significant corporate governance characteristic that determines the effectiveness and efficiency of the board. The debate as to whether smaller or large board sizes help improves the
audited quality financial report by way of checking management effectively still remains ambiguous (Hassan, 2016).

Dwekat et al. (2018) examine the impact of corporate governance mechanisms by focusing on the characteristics of the board on auditor quality choice in Palestine. Their results reveal that board with larger sizes normally demands higher quality auditors. Regarding independence, Alzoubi & Selamat (2012) added that small board size has a more significant magnitude of independent directors, which can bring about expanding the monitoring capacities.

Moreover, studies by Boone et al. (2007) highlighted the influence of board size on firm incentives, just as both firm performance and audit quality. Some studies have shown that boards with smaller members are said to be more efficient because of good director-to-staff communication (Basiruddin, 2011). Relevant to this study, there is an indication that the size of the board has a positive impact on the demand for higher audit quality (Makni et al., 2012). Studies have also reported that a board with a small board size can aid auditors in providing quality audits rather than a large board size by focusing more on communication gaps or information asymmetry. Other studies have argued that there is a negative relationship between board size and audit quality. For example, studies by Mustafa et al. (2018) reported that board size impacts audit quality negatively.

Similarly, previous studies have shown that larger board sizes are more effective; for example, Usman et al. (2018) recorded that there is a negative correlation between board size and CEO Powers. Another study by Saidu & Aifuwa (2020) investigated the impact of board characteristics on the audit quality of listed manufacturing firms in Nigeria and discovered a positive connection between board size and audit quality. Similarly, scholars like Al-Najjar (2018) and Khundhair et al. (2019) reported a positive association between board size and audit quality. Farooq (2018) found that board size positively impacts audit fees in their studies, as auditors who provide higher quality audits charge higher fees.

Kane & Veluri (2005) argue that board size significantly impacts the selection of higher-quality auditors. In fact, in such cases, the external auditor could achieve several objectives, such as improving internal control capacity, the reliability of financial reporting, and the resolution of conflicts and alliances among members. Therefore, the higher the board size, the higher the information asymmetry. Hence, board members tend to hire auditors who can provide a quality, reliable report and reduce the risk of information asymmetry (Farooq et al., 2018). Based on these prior studies, the study hypothesized that;

**H1:** A positive relationship exists between board size and audit quality.

### 2.3.2 Board Independent and Audit Quality

The Independent Board of directors is the persons with no family relationship with the firm's authorities who have power and do not hold a share in the firm. The board is independent if members do not have any ownership interest in the company. Have no family relationship with the company owner and have not been an employer in the past, excluding a member of the board or any subsidiary. According to Aifuwa & Embele (2019), an independent director is non-
executive of an organization whose interest or shareholding directly or indirectly does not exceed 0.1% of the organization's paid-up capital

Findings from the study of Dwekat et al. (2018) reported that board independence does not impact the choice of quality auditors. According to Saidu & Aifuwa's (2020) analysis of board characteristics and audit quality in Nigeria, the relationship between board independence and audit quality is negative. According to Callen et al. (2003), the board's directors are the finest control instrument for monitoring management behavior. Akhidime (2015) asserts that a higher percentage of independent executives on the board has the possibility of inducing a more effective oversight function that would lead to more reliable financial statements.

Past studies by O'Sullivan (2000); Salle et al. (2006) have found that the percentage of non-executive directors positively affects audit quality. They commended that non-executive directors encourage more intensive audits to complement their monitoring role while reducing institutional costs through significant management ownership expectations, thereby reducing the need for intensive audits. Marjene & Azhaar (2013) explore the impact of board characteristics on the quality of external audits in Belgium. They also found a positive correlation between board independence and audit quality.

Also, Beasley & Petroni (2001) found that boards with a higher percentage of external directors would seek higher-quality auditors to monitor corporate governance more effectively. Furthermore, in their findings, Farooq et al. (2018) reported that board independence has a positive relationship with audit fees since they will always demand reputable audit firms to provide a quality audit report. Consistent with previous studies, board independence was positively correlated with audit cost, as independent directors requested high-quality audits to obtain further audit assurance (Bozec & Dia, 2017; Jizi & Nehme, 2018). In line with prior literature, the study hypothesized that;

**H2**: There is a positive correlation between board independence and audit quality.

2.3.3 CEO Duality and Audit Quality

CEO- Chairman Duality is referred to as the state where one person occupies the position of the CEO and the board chairman. At a point where there is a CEO duality, the board is perceived in effective because of conflict of interest. One of the vital roles of the chairman is to chair the board meeting and administer the process of evaluating, dismissing, recruiting, and compensating the CEO. Jensen (1993) found that performing the CEO function and at the same time serving as chairman relate to conflict of interest. In his view, it is important to separate the posts of both positions. Most corporate governance codes do not recommend CEO- Chairman Duality (Makani et al., 2012). Besides, previous studies on the perspective of dual governance of CEO roles have found that the duality of CEO roles is positive with the dominance of the CEO (Usman et al., 2018). Abdul-Rahman et al. (2006) and Abdullah et al.; (2010) found that the CEO, who also acts as the chairperson, does not engage in earnings management or restatements in Malaysia.
Also, the literature on audit quality reported that the duality of the role of the CEO increased the risk of external auditors, resulting in increased audit costs (Bliss et al., 2007; Jizi & Nehm, 2018). CEO duality was found not to influence the choice of auditor quality, according to (Dwekat et al., 2018). According to Abdullah et al. (2008), Zengin (2013), Karim et al. (2013), and Brad et al. (2015), the board must appoint external auditors when the board structure is dual, which requires more audit investigation. CEO-Chairman duality has a negative association with audit quality. According to Peel & Clatworthy (2001), auditors may perceive the risk of audit failure to be higher when the responsibilities of the chairman or CEO are collective. This can make room for the possibility of a cover-up. Hence, this influences auditors' assessments of both control risk and audit risk, audit hours, and the level of substantive testing.

On the other hand, Makni et al. (2012a) discovered that CEO-Chairman duality positively impacts the call for higher audit quality. The study by Nasser DAA (2015) reported that "earnings quality is positively related to the independence of the board of directors that play a major role on the audit committee, but the board is weakening when the board chairman occupies the position of the CEO. Therefore, the study hypothesized that.

H3: The relationship between CEO-Chairman Duality and audit quality is negative.

2.3.4 Gender Diversity and Audit Quality

Females' representation on the boards and senior management has become a controversial issue and a new field of research worldwide. This is most evident in countries where the share of females on boards and senior positions is low. The feminist conflict theory embraces that men in society have thoroughly oppressed females. This is from the perspective of women's fundamental assets in companies (Agyapong & Appiah, 2015). The boards of many organizations are dominated from the outset by men, with few female representations in both developed and developing countries (Şener & Karaye, 2014).

Okiyeoga (2013) defines board females as a set of interlocking rules through which companies, shareholders, and management manage their behavior. Each country has a combination of legal systems that set out several common governance standards and systems of conduct, which the company determines. According to Okiyeoga (2013), the representation of women on corporate boards worldwide remains uneven. Studies by Abu, Okpeh, and Okpe (2016) show that women specialize in different jobs due to natural requirements. As a result, arguments and rebuttals have been argued and refuted about the important features necessary for women to demonstrate good governance.

Oba (2014) investigated the capability of some board changes to impact audit quality management attitudes of listed companies in Nigeria. Specifically, it has been argued that females are vigilant, competent in accounting and finance, and good at making decisions. Damagum et al. (2014) examined the effect of females on the boards and audit quality. They employed a sample of 20 companies demonstrating several sectors of the Nigerian Stock Exchange to perform an arbitrary accrual-based group regression on a set of explanatory variables constituting a gender mix. The outcomes provide strong evidence that the presence of
women directors did not specifically add value to the quality of audited company reports but that the quality of audit reports increased with the proportion of women on boards. Diversity means numerous of many people that are different from each other in the firm. As a result, arguments and rebuttals have been argued and contested about the important features necessary for women to demonstrate good governance. Diversity on the board has been linked to risk acceptance and changes in auditors (Mustafa, Chen-Ahmad & Chandren, 2018, Saidu & Aifuwa, 2020). The study disputes that female on audit committee decreases the choice of audit work, hence lessening audit fees.

On the other hand, female representatives on the Chinese corporate board are related to increasing requests for higher audit quality, which increases the amount paid as audit charges Kuang and Chen (2011). Lai et al. (2017) found that female director member has the possibility of demanding a higher quality audit, with the notion that female on the board frequently serves as a tokenism. Again, previous studies have reported that the relationship between gender diversity and audit quality is positive, hence an increase in audit fees, for instance (Hay et al., 2006, FCMA & Afroze, 2019). Based on the above argument, we predicted that,

H4: There is a positive association between gender diversity and audit quality.

3. Methodology

3.1 Data and Sample

The study used a purposive method for the selection of listed firms based on the following criteria: (1) Included companies with the full annual report (not just the annual financial statement) at its website or other online portals and was accessible to the researcher; (2) Excluded companies with the full annual report but not for the full study period; and (3) Excluded companies with the full annual report, and had corporate governance present but details of the structure, and the composition of corporate governance, as well as the profile of its members, are either absent and insufficient. Based on the above criteria, 25 out of 37 listed firms were selected for the study, totaling 200 firm-year observations from 2012 to 2019.

This period is because, within this period, a lot of crises have happened in most firms in Ghana, especially the banking sectors, due to board incompetence, insider dealings, misconduct by management, and many others. The study employed a panel regression model to examine the impacts of board characteristics on audit quality among selected firms listed on the Ghana Stock Exchange. The selection of panel dataset over cross-sectional "data in this study is to make the study's findings more robust as panel data helps reduce the magnitude of a key econometric problem that often arises in empirical studies.

3.2 Empirical Model

The panel regression model was used as the method of data analysis. The panel model is the most suitable tool for studying relations between variables. The data analyzed assumes the characteristics of multiple regression and has a model of the form.
Where $Y_{it}$ represents the dependent variable of the period of the year, $\beta_0$ is the constant, and $\beta$ is the coefficient of the explanatory variable. $\beta X$ represents the independent variable, and $\varepsilon_{it}$ is the error term.

\[
Y_{it} = \beta_0 + \beta_1 X_{it} + \varepsilon_{it} \tag{1}
\]

Table 1 Measurement of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAC</td>
<td>Discretionary Accruals</td>
<td>Measure by modified Jones model</td>
</tr>
<tr>
<td>AUDF</td>
<td>Audit fees</td>
<td>Natural log of audit fees</td>
</tr>
<tr>
<td>ARL</td>
<td>Audit Report Lag</td>
<td>The number of days from when the company's financial year-end to the time of audit report publication</td>
</tr>
<tr>
<td>BRDSZE</td>
<td>Board Size</td>
<td>Measure by the total number of board members.</td>
</tr>
<tr>
<td>BRDIND</td>
<td>Board Independence</td>
<td>percentage of non-executive board members to total board</td>
</tr>
<tr>
<td>CEOD</td>
<td>CEO-Chairman Duality</td>
<td>A dummy variable of 1 if CEO duality exist and 0 if otherwise</td>
</tr>
<tr>
<td>GND</td>
<td>Gender Diversity</td>
<td>Percentage of females on the board</td>
</tr>
<tr>
<td>FSIZE</td>
<td>Firm sizes</td>
<td>The variable firm size is measured by the natural log of the firm's total assets.</td>
</tr>
<tr>
<td>FAGE</td>
<td>Firm Age</td>
<td>Measure by the number of years since the company was established.</td>
</tr>
<tr>
<td>LEV</td>
<td>Leverage of the firms</td>
<td>This was calculated as the total debt/ total assets of the Company.</td>
</tr>
<tr>
<td>BIG4FRM</td>
<td>Big4 Firm</td>
<td>A dummy variable of 1 if the company is audited by any of the big 4 and 0, if otherwise</td>
</tr>
</tbody>
</table>

Where DAC$_{it}$ is Discretionary Accruals, BRDSZE$_{it}$ is Board Size, BRDIND$_{it}$ is Board Independence, CEOD$_{it}$ is CEO Duality, GND$_{it}$ is Gender Diversity, FSIZE$_{it}$ is Firm Sizes, FAGE$_{it}$ is Age of Firm, LEV$_{it}$ is leverage of the firms, BIG4FRM$_{it}$ is Big4 Firm, $\varepsilon_{it}$ is Random Error.
4. Empirical Results and Analysis

4.1 Descriptive Statistics

Table 2 presents the results of descriptive statistics. At the onset, the research has to examine the validity of data for statistical analysis. For this purpose, the data was winsorized at one and ninety-nine percentile to ensure normal data distribution and removal of outliers. Most importantly, the logarithm of audit fees and audit time lag was utilized purposely to reduce the scale of their values.

From table 4.1, the minimum board size is four and a maximum of 12, with an average board size of 8.03 and a standard deviation of 1.813. The minimum value of board independence was 29%, with a maximum of 91%, with a corresponding average of 0.731 and a standard deviation of 14.547. The lowest average value within the data set is reported in the table as 0.04 from CEO duality. This has a standard deviation of 0.196 due to its maximum number of 1 and its minimum number of 0. The average gender diversity found within the sample companies was 17.795% (minimum of 0% and maximum of 60%) and a standard deviation of 0.134.

The average days between the fiscal year-end and the date of the signed audited report was 92 days. This showed that, on average, audited annual reports for sampled companies listed on the Ghana Stock Exchange are ready by the third month (March) each year. Most of the company's fiscal year starts on 1st January and ends on 31st December in the calendar year. This indicates that the data are suitable for analysis and will not lead to bias due to outliers.

Note. OBS= Observation. STD.DEV= Standard Deviation. AUDF = audit fees in Ghana cedis. ARL= Audit report lag. BRDSZE= Board size. BRDIND= Board independent. CEOD= CEO duality. GND= Gender diversity. FAGE= Age of the firm. DAC= Discretionary accruals. BIG4= Big 4 audit firms. LEV= Leverage and LOG=Log of audit

4.2 Correlation Matrix

To check for multicollinearity among variables, we performed a correlation analysis. As observed in Table 3, the correlation among the independent variables was not strong except for the correlation between the dependent and independent variables. As observed from the table, the correlation coefficient among the independent variables is not more than 0.7. According to Hair
et al. (2009), serious multicollinearity exists if the correlation between two or more explanatory variables is above 0.8. Based on the results, it can be stated that no serious correlation problem exists. In confirming this claim, the variance inflation factors show that there was no problem of multicollinearity among the variables. Following the thumb rule of variance inflation factors, the null hypothesis, which says multicollinearity exists among the independent variables, is rejected since none of the variance inflation factors for the variables exceed 5. Hence, it is concluded the data does not suffer multicollinearity.

**Correlation matrix**

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAC</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lnAUDFE</td>
<td>-</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>0.477**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRDSZE</td>
<td>0.369**</td>
<td>0.436**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRDIND</td>
<td>0.0214*</td>
<td>-</td>
<td>0.157*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEOD</td>
<td>0.759**</td>
<td>0.258**</td>
<td>-</td>
<td>0.250**</td>
<td>0.0997</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>GND</td>
<td>-0.308*</td>
<td>0.0427</td>
<td></td>
<td>-</td>
<td>-</td>
<td>0.462**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAGE</td>
<td>-0.0495*</td>
<td>-</td>
<td>0.0047</td>
<td>0.0132</td>
<td>0.0523</td>
<td>0.0465</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIG4FR</td>
<td>-0.355**</td>
<td>0.409**</td>
<td>0.269**</td>
<td>-0.132</td>
<td>-</td>
<td>-</td>
<td>0.096</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>0.500**</td>
<td>0.363**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.572**</td>
<td>1</td>
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</tr>
<tr>
<td>FSIZE</td>
<td>0.675**</td>
<td>0.806**</td>
<td>0.615**</td>
<td>-</td>
<td>-</td>
<td>0.0358</td>
<td>-</td>
<td>0.304**</td>
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</tr>
<tr>
<td>LEV</td>
<td>0.143**</td>
<td>0.404**</td>
<td>0.433**</td>
<td>-</td>
<td>0.0101</td>
<td>0.198**</td>
<td>-</td>
<td>0.0270</td>
<td>0.572**</td>
<td>1</td>
</tr>
</tbody>
</table>
4.3 Regression Results and Interpretation

A preliminary test was undertaken to help compare and emphasize the most applicable panel model for the study. Thus, following the thumb rule, the Hausman test was performed to resolve between the fixed effect (FE) and the random effect (RE) panel model. The outcome of the Hausman test showed that the values of Prob>Chi2 are barely 0.0000 for the model. This outcome indicates that the difference in coefficient is systematic, and thus, the fixed-effect model is appropriate. Therefore, the fixed-effect model is prioritized as the estimation method for the model presented in equations (1). Henceforth, the researcher provides the results of the fixed-effect model for all the regression equations.

Table 4 Regression results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>DAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRDSZE</td>
<td>-0.0429** (0.014)</td>
</tr>
<tr>
<td>BRDIND</td>
<td>-0.0561*** (0.028)</td>
</tr>
<tr>
<td>CEOD</td>
<td>0.3482*** (0.065)</td>
</tr>
<tr>
<td>GND</td>
<td>-0.0494* (0.038)</td>
</tr>
<tr>
<td>FAGE</td>
<td>-0.0243** (0.011)</td>
</tr>
<tr>
<td>BIG4FRM</td>
<td>-0.0373** (0.015)</td>
</tr>
<tr>
<td>FSIZE</td>
<td>-0.0945*** (0.012)</td>
</tr>
<tr>
<td>LEV</td>
<td>0.0833*** (0.029)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.6892*** (0.099)</td>
</tr>
<tr>
<td>Required</td>
<td>0.835</td>
</tr>
</tbody>
</table>

Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1
Table 4 shows the preferred estimation result of board characteristics on DAC in which the fixed effect model was prioritized. DAC, as a measure of audit quality, is a negative indicator. Thus a decrease in DAC indicates higher audit quality.

The results show a significant negative association between board size and DAC at a 5 percent level of significance. This suggests that a unit increase in the board size will result in a 0.0429 decrease in DAC. In other words, an increase in the board size leads to an increase in audit quality since a decrease in DAC means a reduction in financial report manipulation. This could be interpreted from the point that as the board size increases, there is more room to share responsibilities among members. Again, a larger board size brings effective supervision by way of getting financial expertise and independent members to handle the audit committee. In order to overcome the adverse effect of information asymmetry, board members tend to hire auditors who can provide a quality, reliable report and reduce the risk of information asymmetry. The results are in support of prior researchers who stated that the board size has a negative relation with DAC hence quality audit (Peasnell et al., 2005), (Alzoubi, 2016). Also, a positive relationship between board size and audit quality has been recorded in prior studies like (Akhine 2015), (Al- Najjar 2018) and (Khundhair et al., 2019). Meanwhile, Mustafa et al. (2018) and Marjene et al. (2013) also found that board size and audit quality have a negative relationship.

Similarly, a negative and significant relationship exists between an independent board of directors and DAC. Thus, an increase in a unit of independent members on the board leads to a 0.0561 unit decrease in DAC, hence audit quality. These results suggest that independent boards are most often than not concerned about the shareholder's welfare and their own reputation or good image. Therefore, they often demand higher audit quality from reputable and highly recognized external auditors, leading to higher audit quality. Again Non-executive directors on board who are independent hire and demand an extra and broad audit effort from the auditor to confirm their monitoring role. As a result, this decreases DAC and apparently leads to quality audits. This result is consistent with prior studies by Sáenz González & García-(Davidson et al., 2005), Meca(2014), (Alzoubi, 2016), and Lippolis & Grimaldi(2020), who also found that board independence has a negative relation with DAC which indicates higher audit quality. Research by Al- Najjar (2018), Mustafa et al. (2018), and Musa saidu et al. (2020) found that board independence does not influence audit quality.

A statistically positive relationship at a 5 percent level of significance was found between CEO duality and DAC. This infers that a unit increase in the duality of the CEO in the business will result in a 0.3482 unit increase in DAC. Hence a decrease in audit quality. This outcome suggests that conflict of interest and many irregularities are most likely to happen in businesses where the CEOs of the businesses also occupy the board chairmanship positions CEO duality will increase by earnings manipulation because one person performing both roles will make him or her powerful to dictate for the board, to the extent of interference in the appointment of the audit committee members. Accordingly, to cover up, the boards will most often than not appoint audit committee members who may not have a financial expert to discover such manipulation and therefore hire low audit firms to conceal their anomalies, resulting in a reduction in audit quality.
quality. The results are consistent with prior literature (Aysha S. Latif and Fahad Abdullah, 2015), (Alzoubi, 2016).

Gender diversity, as predicted from the results, has a negative but statistically insignificant association with DAC. The result suggests that a 0.0494 decrease in DAC as a unit of females on the board increased. Females are considered more vigilant and responsive and would like to protect their reputations and shareholders. Therefore, they would see that financial results are transparent and free from financial fraud to improve the quality of audit reports. The outcome is consistent with a related study by Afenya et al. (2022), who found that audit committee gender diversity improves financial reporting quality. Furthermore, Chen- Ahmad & Chandan(2018) and Saidu & Aifuwa(2020) reported that gender diversity has no effect on audit quality. The empirical insignificance of this variable could probably be a result of the small number of females.

The study reveals that there is a negative relationship between firm age and DAC. This implies that as the year since the firm was founded increases by a unit, DAC also decreases by 0.0243 units at a 5 percent level of significance. The results reveal that there is a negative relationship between firm size and DAC. This implies that a unit increase in a firm's size will cause DAC to decrease by 0.0945 units, significant at level 1 percent. This implies that larger firms have the potential to reduce DAC more than smaller firms. Also, a positive relationship exists between firm leverage and DAC from the study's outcome, which implies that a unit increase in firm leverage will lead to a 0.0833 unit increase in DAC. Finally, a negative statistical association between the big four firms and DAC was recorded. At a 5 percent level of significance, a unit increase in the big4 audit firms will decrease DAC by 0.0373 units. This result is in support of a study by Elshafie & Nyadro (2014), who argue that big4 auditors are more often than not protecting their image and therefore provide higher audit quality to reduce DAC.

4.4 Robustness Check

Alternative proxies of audit quality audit fees and audit report lag were utilized for robustness checks. All things being equal, audit fees as a measure of audit quality is a positive indicator, which indicates higher audit fee charges. Hence audit quality increases. Likewise, audit report lag is a negative indicator of audit quality. Thus the shorter timeliness of ARL, the higher the audit quality. The results from the robustness check are in agreement with the main model regression results. Although the signs are in the opposite direction; but, the connotation of the results is not substantially different from the main results. From the robustness check results, the impact of board characteristics is consistent with the main results despite different proxies with a different direction on audit quality; hence the results are robust even to an estimation of an alternate proxy of audit quality. Also, as part of the robustness check, columns 1 and 3 were re-estimated to get models 2 and 4, respectively, using robust standard errors. This was done purposely to account for the possible Heteroskedasticity and autocorrelation in the error term. The results of models 3 and 4 are quantitatively similar to Models 1 and 2, respectively.
Table 5: Robustness check results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Audit Fee (1)</th>
<th>Audit Fee robust (2)</th>
<th>Audit Time Lag (3)</th>
<th>Audit Time Lag robust (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRDSZE</td>
<td>0.0321**</td>
<td>0.0321**</td>
<td>-0.0423**</td>
<td>-0.0423**</td>
</tr>
<tr>
<td></td>
<td>(0.031)</td>
<td>(0.040)</td>
<td>(0.021)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>BRDIND</td>
<td>0.3247**</td>
<td>0.3247**</td>
<td>-0.5188**</td>
<td>-0.5188**</td>
</tr>
<tr>
<td></td>
<td>(0.087)</td>
<td>(0.082)</td>
<td>(0.051)</td>
<td>(0.060)</td>
</tr>
<tr>
<td>CEOD</td>
<td>-0.2133**</td>
<td>-0.2133**</td>
<td>0.3684**</td>
<td>0.3684**</td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td>(0.035)</td>
<td>(0.042)</td>
<td>(0.042)</td>
</tr>
<tr>
<td>GND</td>
<td>0.1001*</td>
<td>0.0217</td>
<td>-0.0902*</td>
<td>-0.0902</td>
</tr>
<tr>
<td></td>
<td>(0.302)</td>
<td>(0.323)</td>
<td>(0.077)</td>
<td>(0.087)</td>
</tr>
<tr>
<td>FAGE</td>
<td>0.0810</td>
<td>0.0810</td>
<td>0.0434***</td>
<td>0.0434***</td>
</tr>
<tr>
<td></td>
<td>(0.213)</td>
<td>(0.122)</td>
<td>(0.009)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>BIG4FRM</td>
<td>0.1956**</td>
<td>0.1956**</td>
<td>-0.1966**</td>
<td>-0.1966**</td>
</tr>
<tr>
<td></td>
<td>(0.046)</td>
<td>(0.068)</td>
<td>(0.037)</td>
<td>(0.045)</td>
</tr>
<tr>
<td>FSIZE</td>
<td>0.1460***</td>
<td>0.1460***</td>
<td>-0.0045**</td>
<td>-0.0045**</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.017)</td>
<td>(0.031)</td>
<td>(0.032)</td>
</tr>
<tr>
<td>LEV</td>
<td>0.3338**</td>
<td>0.3338**</td>
<td>0.0771</td>
<td>0.0771</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.030)</td>
<td>(0.171)</td>
<td>(0.131)</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.0518**</td>
<td>-1.0518**</td>
<td>3.0322***</td>
<td>3.0322***</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.615</td>
<td>0.615</td>
<td>0.238</td>
<td>0.238</td>
</tr>
</tbody>
</table>

Standard/robust errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 5 shows the preferred estimation result of board characteristics on audit fees in which the fixed effect model was prioritized. The results show a significant positive association between board size and audit fees at a 5 percent significance level. This suggests that a unit increase in the board size will result in a 0.0321 percent increase in audit fees. This could be interpreted from the point that information asymmetry gets deepened as the board size increases. The results of Farooq et al. (2018) and Jizi and Nehme (2018) also reported that board size and audit fees have a positive relationship. Similarly, a positive and significant relationship was found at 95 percent confidence intervals between board independence and audit fee. Thus, an increase in the percentage of independent members on the board leads to a 0.3247 percent increase in audit fees, hence increasing audit quality. These results suggest that independent boards are more often than not concerned about the shareholder's welfare and their own reputation or good image. Therefore, they often demand higher audit quality from reputable and highly recognized external auditors, leading to higher audit fees. This outcome agrees with the results of Yatim et al. (2006). They asserted that independent boards help to boost internal control capacity and reliability of financial reporting through demands for quality external auditors. Research by (Jizi and Nehme 2018; Farooq et al. 2018) also found that board independence and audit fees have a positive relationship.

Also, a statistically negative relationship at a 5 percent level of significance was found between CEO duality and audit fees. This suggests that a unit increase in the duality of the CEO in the business will result in a 0.2133 percent decrease in audit fee, hence audit quality. Accordingly, to cover up, the boards will often hire low-audit quality firms and pay a small amount of audit fees to conceal their anomalies. This result confirms the findings of Lin and Liu (2009) and confutes the findings of Makani et al. (2012), who disputed the point that the existence of leadership duality increases managerial opportunism and agency losses at the expense of shareholders. Gender diversity, as envisaged from the results, has a positive but statistically insignificant association with audit fees. The result is in agreement with other study's findings. For example, Lai et al. (2017), FCMA, and Afroze (2019) postulated that female director member has the possibility of demanding a higher quality audit, with the notion that female on the board frequently serves as a tokenism. Columns 3 and 4 in table 5 show the preferred estimation result of board characteristics on audit report lag in which the fixed effect model was also selected. From the results, the association between board size and audit report lag is negative and significant at a 5 percent level. This proposes that a unit increase in the board size will result in a 0.0423 percent decrease in audit report lag. Timeliness of audit report is equally audit quality; the shorter audit report lags, the better. The reason is that the timeliness of audit reports affects shareholders to make a decision. The timeliness of financial statements to the shareholder would be influenced by the time it takes external auditors to complete their report (Reza and Poudesh, 2014). The results shows that there is a negative relationship between the independence of the board and audit report lag. Thus, an increase in the percentage of independent members on the board leads to a 0.5188 percent decrease in audit report lag, hence an increase in audit quality as far as timelines are concerned. To reduce audit delay, the independence board will make sure information gets to all the members to reduce information asymmetry, thereby reducing audit report lag. The results are in line with many previous studies like, (Afify 2009, Swami et al. 2013, and Handayani 2016). Again, the results found a positive relationship between CEO
duality and audit report lag, implying that a percentage increase in CEO duality will lead to a 0.3684 percent increase in audit report lag at a 5 percent level of significance. This may be due to a dominant personality in both roles, chairman and CEO, which stands a chance of threatening to monitor quality and cover up unfavourable information to external users. Mohamad-Nor et al. (2010) found that CEO duality leads to increased audit report lag, similar to our findings. Finally, we found a negative relationship between gender diversity and audit report lag. A percentage increase in gender diversity will cause a 0.0902 decrease in audit report lag. Kuang and Chen (2011), among other authors (Gui, Hutchinson, Lai, 2013 and Ahmed & Che-Ahmad, 2016), found that gender diversity and audit report lag are negatively related.

5. Conclusion

The study's objective is to investigate how board characteristics impact audit quality based on listed firms on the Ghana stock exchange. The study employed a panel regression model to examine the effect of board characteristics on audit quality (DAC) from 2012 to 2019 for twenty-five (25) listed firms in Ghana. The analysis revealed that board size, independence, and gender diversity positively impact audit quality by decreasing DAC. On the other hand, the results show that CEO duality has a negative impact on audit quality by way of an increase in DAC. The reason is that board size, independence, and gender diversity significantly monitor management activities to decrease DAC. Hence audit quality increases. In addition, alternative proxies were conducted to test for robustness (audit fees and audit report lag). From the robustness check results, the impact of board characteristics is consistent with the main results despite different proxies with a different direction on audit quality; hence the results are robust even to an estimation of an alternate proxy of audit quality.

The paper has a few setbacks. Firstly, the data available for this study was not enough for the study predictions. This is because most companies in Ghana fail to disclose corporate governance issues, and obtaining data from their annual report and portal where is difficult. Lastly, the sample size was not enough for the studies due to the smaller number of firms listed on the Ghana Stock Exchange. This study employed a quantitative methodology to examine the impact of board characteristics on audit quality. It is recommended that further study can be conducted on this same study by using a qualitative approach in order to aid investor decision-making.

Further study can be conducted on the impact of DAC on financial report quality, as DAC affects financial reporting quality, either decreasing or increasing. The shareholder accountability system and minority protection system in most enterprises in Ghana seem to exist only on paper. This activity gives the management and insiders a lot of room for self-dealing. Moreover, due to the harmonization of accounting standards, further study can be conducted on the subject area by focusing on Africa. Finally, further study should be conducted on firms not listed on the Ghana Stock Exchange using the same variables.

Disclosure statement

The authors reported no potential conflict of interest.
Reference


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