

Corporate Board Attributes and Financial Performance of Quoted ICT Companies in Nigeria

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Abstract: *Financial performance variations experienced by ICT companies in Nigeria have been linked to corporate governance inefficiencies due to the failure to harness board attributes towards the maximization of asset efficiency and profitability. Although the information and communication technology sector is critical to economic development in Nigeria, literature on how corporate board attributes can help improve the financial performance of companies operating in this environment is scarce. This paper, therefore, evaluates the effect of corporate board attributes on the financial performance of quoted ICT companies in Nigeria. Specifically, this study evaluates the impact of board independence, board gender diversity, and board size on financial performance represented by return on assets. A quantitative research design based on the ex-post facto method is adopted, with the target population being all the ten ICT companies operating in Nigeria and listed on the NGX through census technique. Data are obtained from annual reports and corporate governance reports of sampled firms spanning eight years from 2017 to 2024. Panel data analysis is carried out using a fixed-effect regression model which was selected through the Hausman specification test. Data analyses are conducted using Stata software, version 17, with hypothesis testing done at 5 per cent probability level. Empirical results show that board independence has a negative but statistically significant effect on return on assets ($p=0.0015$), implying that too much board independence incurs the cost of monitoring and induces decision lags resulting in poor utilization of assets. Board gender diversity has a positive, albeit, statistically insignificant effect on return on assets ($p=0.4231$), showing that current levels of board gender diversity may be too low to impact financial performance significantly. Board size has a statistically significant positive effect on return on assets ($p=0.0489$) meaning that moderate-sized boards allow for better access to expertise and other resources that boost financial performance. The control variable, firm size has a statistically significant positive effect on return on assets ($p=0.0173$). In conclusion, the study reveals that corporate board attributes play an influential role in determining financial performance in Nigeria. The implications of these findings are discussed and recommendations proposed.*

Keywords: corporate board attributes, board independence, board size, board gender diversity, financial performance.

INTRODUCTION

The effectiveness of a firm can be quantified using financial performance measures such as ROA. In a world dominated by technological innovation, ICT organizations are now required to exhibit excellent financial performance through the establishment of effective corporate governance frameworks. Nevertheless, financial performance practices are not uniform within Nigerian ICT companies because advanced corporate governance is not mandatory, and there is considerable diversity in board attributes. Literature shows that board independence, gender diversity, and relevant knowledge contribute to the promotion of financial performance in advanced economies (Chau & Gray, 2020; Ben-Amar et al., 2021; Guthrie et al., 2022). Although empirical research on financial performance practices in Nigeria is limited, the relationship between board attributes and ROA requires further investigation. The problem is compounded by Nigeria's regulatory framework, which, despite emphasising good governance, stops short of mandating comprehensive board reforms tailored to the ICT sector. Consequently, stakeholders, investors, regulators, and shareholders face information asymmetries when evaluating a firm's asset utilisation and profitability. Existing Nigerian studies have largely concentrated on banking or manufacturing sectors, neglecting the nuances of ICT financial performance (Ujunwa, 2012; Ofoegbu & Ezeagba, 2021). This gap underscores the need to examine how specific board attributes independence, gender diversity, diligence, and size influence ROA, and to what extent these characteristics can mitigate challenges in a dynamic, technology-driven industry.

The current study, using four research questions that focus on board independence, gender diversity, diligence, and size, seeks to (i) examine the effect of independent directors on ROA, (ii) evaluate the influence of gender diversity on financial efficiency, (iii) examine the impact of board diligence on profitability, and (iv) analyze the effect of board size on total asset returns. Four null hypotheses have been formulated, indicating that there is no relationship between each of the board attributes and financial performance. In conducting the research, panel regression analysis will be applied to data on financial statements for ICT firms trading on the Nigerian Exchange Group for the period of 2017-2024.

From a theoretical perspective, the proposed study has significance as it allows extending agency theory, resource dependence, and stakeholder theory to the domain of financial performance within an emerging market's ICT industry. From the practical point of view, the results can help policymakers to design better corporate governance codes. For regulators, they can serve as an insight into developing proper incentives for boards that contribute to higher ROA. ICT boards and managers will be able to learn about which forms of governance can be used to increase ROA.

LITERATURE REVIEW

Research variables are the objects or elements behaviours that are the centre of focus by researchers to be observed, monitored, studied and drawn conclusions. Variables are objects that have variations between one object and another. The variables studied were divided into two, namely independent variables and dependent variables. This is part of the measurement process known as conceptualization. It involves writing out concise definitions for the

research's key concepts. Also, concept dimensions would be considered. This is to enable the researcher to explain the variables under study and then develop how to measure them. In this section, a review has been undertaken on the relevant concepts including the concepts of; corporate board, corporate board attributes, firm attributes (firm size) and concept of financial performance. It explored the significance of corporate board attributes in relation to a firm's financial performance. It investigated different corporate board attributes that have had different influences on the firm's financial performance in the past.

Corporate Board Attributes

In the business world, the board of directors of a company is the representative of shareholders and as such has a responsibility to ensure the efficient management of the entire organization (Arumona and Uyawu, 2023). Given their direct access to the two other components of the corporate governance triangle, managers and shareholders, Hafez (2022) defined corporate boards as the internal governing mechanism that shapes firm governance. Also, Ibrahim and Abdullahi (2021) maintain a similar view where they see the board of directors as a crucial control and oversight mechanism for company activity. The board of directors oversees the operations of companies, whose fundamental purpose is to steer the organization to greater heights and performance based on strategic policy guidelines (Mohammad et al., 2021). A bridge between firm management and shareholders, the corporate board is created from the qualities or incentives variable that is important in monitoring and managing managers (McIntyre 2003 as referenced in Oyedokun 2023). According to Kumar and Zattoni (2022), the Board of Directors is a key governance tool that aims to keep an eye on corporate actors and shape strategic decisions with the ultimate objective of increasing the performance of the firms. An organization's board of directors is selected by the owners to oversee its resources and further its objectives. The board's responsibilities include four main tasks, including strategy design, policy formation, monitoring and overseeing, as well as acting as a leader and holding people accountable (Tarigan et al., 2020).

The corporate board is comprised of a collection of people, that put their competences and proficiencies together to signify the gathering of a form of resources for their company that contributes towards implementing the governance function. Alareeni (2020) also defined board of directors as the governance body upon whom the shareholders assigned the responsibility of overseeing, compensating and substituting managers, as well as approving major strategic projects. It is considered a critical component of the company governance tool. Furthermore, it is considered the central internal procedure in decreasing agency problems, either between managers and shareholders or between minority and majority shareholders (Alareeni, 2020). Similarly, Eniola and Alo (2020) are of the opinion that the board is saddled with responsibility for monitoring the value of information contained in financial statements and thus controlling the behaviour of managers to guarantee that their activities are aligned with the benefits of stakeholders. More so, Julio and Babu (2020) argued that as the highest administrative body in an organization, their mandate is both external and internal and involves regular supervision of top managers responsible for implementation of policies made by the governing body. The executive council is charged with overseeing corporate performance, guaranteeing shareholder money is protected and maximized, and evaluating managerial effectiveness. As a result, the Corporate Board is the highest decision-making body within the organization.

Fariha et al. (2021) further stated that having a sound corporate governance system can be guaranteed through a balanced structure and establishment of the board of directors. This is because the board is the supreme decision-making body to run the firm profitably. However, any kind of deviation or moral hazard problem by the board or board members will cause undesirable outcome for the firm and it may instigate the business to be bankrupt in some cases. In a bit to correspond with the desires of managers and all other stakeholders in a company, it is crucial to maintain a competent administrative structure, necessary for strong financial result. More so, it was later established in the literature that good corporate governance mechanisms are vital ingredients in guaranteeing stakeholders' interests thereby create room for increased performance (Kamau et al 2019; Akbar et al, 2020; Hussain, Ahmad and Hassan, 2020).

In a study by Pereira and Filipe (2024), they considered corporate board attributes from four theoretical perspectives which are composition, characteristics, structure and process that are considered to influence the company performance. According to Eke (2022), corporate board qualities are tools for corporate governance used to guarantee that the directors' board works in the company's greatest good. of the company's owners and other interest groups. On the other hand, Oziegbe and Ogbono (2021) defined corporate board attributes as the capability of the Board of Directors to withstand economic challenges and perform well. In a similar vein, corporate board qualities were described by Titilola et al. (2022) as the characteristics that can be utilized to assess the efficacy and efficiency of corporate boards that are charged with overseeing the overall management of the company. Additionally, according to Okolie and Uwejeyan (2022), corporate board attributes are a characteristic of a company's apex decision-making body that guarantees the effective and successful quest of or actualization of the full range of interests of the various participants. While Kamaludin et al. (2020) is of the opinion that the efficiency of the corporate board can be assessed in terms of tangible (quantitative) and intangible (qualitative) variables. The authors list the following as quantitative variables for the board: independence, size, meeting frequency, shareholdings, membership, competency, and gender diversity. On the other side, the qualitative or intangible factors cover things like making good decisions and creating positive values, among others.

In his research, Yilmaz (2023) divided the studies on the connection between corporate governance mechanisms and business financial performance into two categories. Research on the association between a particular aspect or variable of corporate governance and financial performance. The group that measures the relationship between corporate governance and financial performance in terms of corporate governance qualities. For example, board size, the proportion of independent directors, etc. The other group employs an overall corporate governance measure, either developed by the authors or measured by rating institutions. Effective board characteristics increase the probability that capital owners will be able to oversee managers' actions directly by voting on important issues or indirectly through the board of directors, which invariably would protect shareholders' investment (Yusoff et al., 2023). According to Gambo et al. (2023), corporate board characteristics and the avenues it employs for communication help to monitor and regulate the organizational structure, which improves Return on Assets (ROA) for the business firm.

A review of existing literature revealed that there are various dimensions or mechanisms that are used to measure the performance and quality of corporate board attributes or corporate

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governance used in various scholarly studies. These are Board independence, Board size, Board gender diversity, Board composition, Board diligence, Board expertise, Board meetings, Board ownership, Board skill, CEO duality, CEO tenure, Audit committee size, Audit committee meetings, Insider shareholder, etc.

For instance, Eniola and Alo (2020) defined corporate board attributes in terms of the board size, the mix between supervisory and non-executive (independent) directors, and other desirable attributes, including gender diversity. Bala et al. (2021) also defined corporate board attributes in terms of Board Size, Board Independence, and Gender Diversity. In their study, Titilayo et al. (2022) defined corporate board attributes in terms of board size, independence, gender diversity, and nationality diversity. Benvolio and Micah (2022) believed that the four conceptual corporate board attributes that influence the factors affecting firm financial performance are size, independence, board member gender and board competency. Eke (2022) agrees that the success of the board of directors of an entity is influenced by various attributes including separation of the board from executive activities, the composition of the oversight body, size of the oversight body, meetings held by the oversight body, the number of male in relation to female board members, chief executive officer – chairman duality, expertise or competence of the board members as well as board remuneration.

According to Ibrahim and Buhari (2021) they stated that among the board structures, board gender diversity, board independence and board size, were considered to play an especially vital role in corporate governance. Al Kaabi and Ahmad (2021) also corroborated this position in their study where they also pointed out that Board size, Board independence, and Board Gender Diversity are among the board structures that are thought to play a significant impact in corporate governance. This study focuses on Board Independence, Board Size and Board Gender Diversity as a measure of corporate board attributes used to measure the study's set objectives.

Board Independence

The formation of the Board of directors is a vital aspect of corporate board attributes and relates to the number of external directors (Alhumoudi, 2021). According to Gurusamy (2021), Board Independence acts as an indispensable tool to increase companies' financial performance. The term "independent" referred to a director independent of management and free from conflicts of interest (Souther, 2021).

Furthermore, Bansal and Singh (2021) stated that the Board's independence played an essential role in corporate governance as it will make better and unbiased decisions when its Board is independent. Lasisi (2017) claimed that the quality of the board's discussions is significantly impacted by its independence, the weight of its recommendations, the effect of its controls over the CEO and the entire management team, and the extent of its involvement in the company's strategic planning agenda. In the study carried out by Olabisi et al. (2018), they concluded that Board Independence is crucial to the success of organizations given that it steers the focus of organizational activities on the course to bring about the effective formation of the management team.

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The independence of the governing council is one of the influences in business ethics that augments balance in the organizational process (Chancharat and Chancharat, 2021). In a similar spirit, Nwaiwu and Joseph (2021) argue that outside directors benefit the company by performing better because of their independence from the day to day running of the organization. Non-Executive Directors (NEDs), commonly referred to as board independence, are not workers of the company. They recommend management on strategy and operations based on their professional experience. Many studies opined that a significant proportion of outside directors would safeguard the appeal of shareholders. Based on expertise and relevant experience of external directors, the interest of shareholders is considered in firm governance. Similarly, Tachie-Djan (2022) perceives board independence to be a critical corporate governance mechanism that can influence performance.

The idea of Board Independence has been described by various academics. For instance, Board Independence, according to Obilikwu and Ibrahim (2021), is the fraction of outside executive directors to the whole sum of board members. Also, Shao (2021), defined an independent director as one who serves on the board but has no other operational ties to the company. In addition, Farhan et al. (2021) defined independent directors as directors who apart from receiving a director's remuneration are not entitled to any substantial financial relationship or transactions with the business, its promoters, its management or its subsidiaries, in which the judgment of the board may affect their independence of judgment. Also, in their study, Titilayo et al. (2022) defined Board Independence being the percentage of outside executives on the board of directors of a given business during a given economic year who are not actively involved in the running operations of the organization.

According to empirical data, some studies found a significant and favorable association between the board's independence and the financial performance of the company, while others found a significant and negative relationship between the board's independence and the monetary result of the company, or no significant but favorable relationship at all. Khurshed and Shahid (2021) came to the conclusion that Board Independence is favorably correlated with business success in their study. The research of Olabisi et al. (2021) also found a strong connection between board independence and firm financial performance. On the contrary, they found that there was a significant but weakly positive relationship between Board Independence and financial performance in their study (Zattoni et al., 2021). Furthermore, Allam (2021) reported that Board Independence has a positive impact on performance, as it is associated with higher asset utilization. Also, findings from the study of Akbar et al. (2021) revealed that board independence has a positive influence on ROE. Meanwhile, Oyedokun et al. (2021) reported that Board Independence has an insignificant positive influence on both MPS and EPS (Earning Per Share) but a significant positive influence on DPS. This was further corroborated by Ibrahim and Abdullahi (2021) where it was reported that Board Independence has a positive and insignificant influence on ROA.

On the other side, research has shown a weak but substantial link between board independence and firm financial performance while other studies reported negative and non-significant relationship between Board Independence and financial performance. For example, according to Rashid (2018), there is no positive association between board independence and the financial performance of firms.

Moreover, he argued that while it is recommended in most of the corporate governance codes globally, it is not applicable in Bangladesh. In addition, it is normally taken for granted that outside members would safeguard the interest of the stockholders owing to their obligations under the law. Additionally, according to Halder et al. (2021), Board Independence had no impact on a company's financial performance. Al-Sartawi (2021) also discovered a link between Islamic banks in the Gulf Cooperation Council's (GCC) company performance and the ratio of independent directors. The research conducted by Aktan et al. (2021) is consistent with other studies that found a negative and significant impact of board independence on ROE. Furthermore, Mohamad et al. (2020) found that the performance of the firms is not positively impacted by non-executive directors (NEDs), and they suggested that one-third of NEDs be included on every board. In their study, Akinwale and Ajide (2020), they came to the conclusion that not all independent directors are actually independent, which may be the likely cause of the negative link between board independence and quoted firm financial performance. Another explanation would be that the corporate behaviour guidelines does not apply to the appointment procedure or the role of independent directors in Nigeria. Another explanation could be that insiders are the best directors since they know the company better than outsiders and must thus rely on them when making decisions.

However, despite the contrary opinions stated above, the advantages of Board Independence far outweigh the views of Rashid (2021) and Mohammed et al. (2020). This can be confirmed from the numerous existing guidelines for corporate governance (Nigerian Code of Corporate Governance, 2021; SEC (Security Exchange Commission) Code of Governance; CBN (Central Bank of Nigeria) Code of Governance) all specified a minimum number of NED (Non-Executive Directors) required for organizations to have in the Board of Directors. Also, Palaniappan (2021) posits that the presence of independent directors on corporate boards is an effective mechanism to reduce the potential divergence between management and shareholders. Eniyola and Alo (2020) are of the opinion that the presence of outside executives on the board gives greater weight to the board's deliberations and judgment.

This study's emphasis on board independence is underpinned by agency theory, which deals with the inefficiencies brought on by the division of ownership and control. The study chose Board Independence as one of the operational variables based on the assumptions of the aforementioned arguments. According to the discussion above, there is conflicting empirical data about the link between board composition and business performance. As a result, this study will also look at how non-executive directors affect the financial result of businesses across Nigerian consumer foodstuffs companies.

Board Size

One of the significant corporate board attributes that were used to examine the firm's financial performance was Board Size. Naimah and Hamidah (2021) views Board Size as a key influence in the management of organizations and in achieving ultimate performance; it is an element used in monitoring and control by the managers through the directors in a company. In a related study, Kajola et al. (2021) believes that the decision on Board Size does not only affect the performance of the entity, but also have a significant effect on the survival of the business. Furthermore, Chancharat et al. (2021) sees Board Size as a crucial factor in corporate governance, and it is not the same in all business organizations whether private or public, and

this is dependent on the business size, its cultural set-up, and business type. Similarly, Akinwale and Ajide (2020) are of the opinion that Board Size affects the quality of deliberation among members and ability of board to arrive at optimal corporate decisions. According to Kanakriy (2021), financial performance will be raised in a company with a larger Board Size; however, the financial performance will be declined in a low-complexity board with a larger BS. The size of a board has an impact on the quality of deliberation among members and the board's capacity to make the best corporate decision (Lawal, 2012; Al Kaab and Ahmad, 2021). The study of Hsu and Yang (2022) noted that Board Size helps in reducing financial loss in firm output.

The concept of Board size has been defined by scholars, amongst the various definitions are: Mbu-Ogar, et al., (2017) are of the view that Board size reflects the number of directors on the board of a corporate organization. According to Onyali and Okerekeoti (2018), board size represents the total head counts of directors seating on the corporate board of an organization. Also, Uniamikogbo et al. (2019) defined board size as the total number of directors that made up the corporate board of an organization which must be of a suitable mix that could offer diversity and help firms with the security of critical resources, hence, reduce uncertainties in the environment. Sustainable corporate growth depends on a combination of factors including the number of board of directors and quality of the members on the Board.

There are several arguments in favour of large board size by several studies. Large boards have access to wide-ranging information that is of benefit to the firm. Whereas the large board becomes the symbol of power and getting involve in personal rivalries (Ghabayen et al., 2018). Although the large board may perform positively and productive for the firm performance and provide diversified options for the development of the firm and may reduce the environmental uncertainty for the firms (Paniagua et al., 2018). Sadou et al. (2017) highlighted that larger boards are more effective and have greater influence over companies' performances. Also, Vitolla et al. (2019) highlights the level of impact large board size has on the resources in the organization. These resources usually knowledge, skills, experiences and technical ability which illustrate the composition of large board size are significant in ensuring greater performance and effective monitoring of operations and greater disclosure of information from top management (Gallego-Alvarez, et al., 2011; Garcia-Sanchez et al.,2011; Vitolla et al., 2019). Imade (2019) argued in favor of large board size from an agency perspective, stating that a larger board is more likely to be watchful for agency problems because a greater number of qualified people will add their expertise in reviewing management actions while Akinwale and Ajide (2020) concluded in their study that organizations must keep a moderate size of the board members to ensure seamless flow of communication and timeliness in decision making. Furthermore, Ibaboy and Ashakofe (2021) believed that large board size is needed when an organization increases in size.

While other arguments were in favour of the small board size. For instance, Dzingai and Fakoya (2017) contend that a huge board is disorganized, difficult to reach a swift decision due to its size, crowded, and and unable to provide the input of each member.

On the other side, Ullah (2021) contends that the small board size interacts and communicates easily. Samuel (2021) also suggests that the board should be small as their responsibility is to monitor and control the activity of management and take part in decision making process. Small

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boards are considered effective as they focus on resolving the issues and an effort on improving the firm's financial performance. Similarly, Al-Said (2021) concurs that organizations with small boards perform better than organizations with large boards because the latter are more prone to slow decision-making and poor communication than the former. Additionally, organizations with large boards are ineffective and simpler for CEOs (Chief Executive Officer) to unfairly control. Lesser boards reduce the likelihood of free-riding and tend to increase the value of the company. Large boards are expensive to process and coordinate issues, which makes decision-making difficult. There is a claim that a sizable board allows for a diversity of abilities that can improve the firm's success.

According to Palaniappan (2021), the figure of executives on board is an important variable, though literature does not have a consensus on the influence of Board Size toward increasing in firm's performance. Findings from the study of Hussain and Hadi (2021) revealed that Board Size has a substantial impact on firms' financial performance. Also, the study of Aktan et al. (2021) reported a positive and significant influence of Board Size on ROA. The study of Akbar et al. (2021) also revealed that Board Size has a positive influence on ROE.

Board Gender Diversity

Board gender diversity has likewise been linked to improved financial outcomes. In a U.S. study of tech firms, Adams and Ferreira (2009) demonstrated that greater female representation enhanced ROA through diverse decision-making. Campbell and Mínguez-Vera (2021) extended this to European corporations, showing that female directors improved asset efficiency. Within Nigeria's ICT sector, Olatunji, Adebayo, and Popoola (2022) confirmed that firms with more women on boards reported higher ROA, particularly through inclusive strategies. These studies highlight how gender diversity fosters transparent and efficient financial management.

The above discussion shows that empirical evidence on board size and firm performance is inconclusive, which means that further research is needed. This study will further investigate this relationship between two different corporate governance systems, as will be outlined later. It is on the premise of the above justifications that the study adopted Board size as one of the operational variables.

Independent variable

Dependent Variable

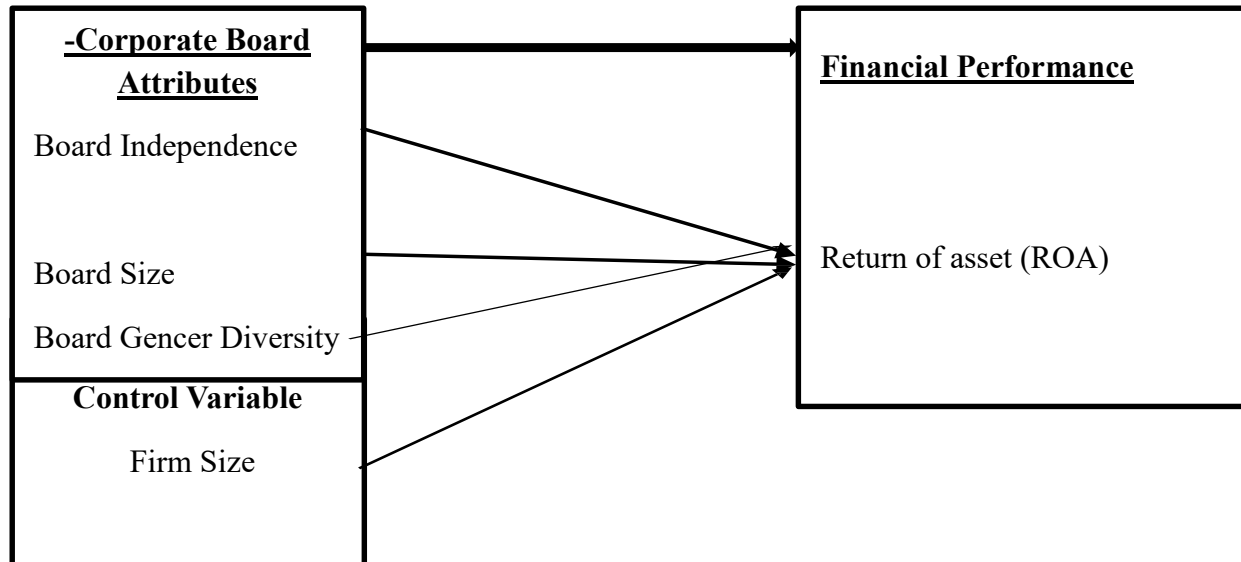


Figure 2. 1 Conceptual Framework

Source: Authors Compilation (2026)

Theoretical Review

The research is premised on four main theories used to analyze the adoption, diffusion, effects, and economic reasons why board attributes affect financial performance within ICT firms. Innovation Diffusion Theory (IDT), by Rogers (1962), discusses the mechanisms used for the diffusion of innovation within the system. In terms of board attributes, IDT can be used in analysing the diffusion rate of independent and optimally-sized boards among ICT companies in Nigeria. Key attributes that will affect diffusion include Relative Advantage, Complexity, and Compatibility (Liao et al., 2021). High diffusion rate is essential for financial gains.

Disruptive Innovation Theory by Christensen (1997) states that innovations based on less complicated technologies replace incumbents. Conventional boards of ICT firms are bureaucratic and independent and optimally-sized boards are seen as disruptive innovations since they provide effective monitoring which changes the way funds are managed (Egwim et al., 2023). This innovation gets rid of inefficiencies, thus enhancing ROA.

Technology Acceptance Model (TAM), introduced by Davis (1989), is concerned with the users' perceptions. According to TAM, two main factors determine acceptance of innovation: PU and PEOU. If independent board attributes are going to have an effect on ROA in ICT firms, it is crucial for the stakeholders to see the usefulness of such boards in reducing costs (Ezenwa & Ogbonna, 2021).

According to Transaction Cost Theory (TCT), by Williamson (1975), organizations strive to minimize exchange costs. Optimal board attributes help in reducing exchange costs which leads to high ROA (Abdullahi et al., 2022).

The study is anchored in the Agency Theory, originally developed by Jensen and Meckling (1976). The core of Agency Theory emphasizes conflicts from ownership-control separation, necessitating independent boards to align interests (Davis, 1989). In this study, this translates to the belief that board independence and size will lead to tangible financial benefits like improved ROA (Ezenwa & Ogbonna, 2021). Venkatesh and Davis (2000) refined this by showing PU directly influences intention to use. For board attributes to affect ROA, they must be perceived as useful and easy tools (Abdullahi et al., 2022). The study proposes that the successful impact of board independence and size on ROA is mediated by adoption, as predicted by Agency Theory. The financial benefits can only be realized if users fully accept the attributes based on their perception. The study specifically proposes that: Deployment of independent and sized boards will be perceived as useful for reducing costs (PU); High PU and PEOU will lead to effective utilization; Effective utilization will lead to improved ROA.

Empirical Review

Pan et al. (2025) assessed board independence and firm performance in the IT industry, moderating role of new entry threats. The study is based on agency theory. The specific objectives are to establish relationship and moderating effects. The study used regression analysis on longitudinal data. The findings indicate independence positively influences performance, moderated by threats. The study concludes independence enhances oversight in IT. The study recommends balancing independence in dynamic industries. The limitations include focus on IT and endogeneity concerns.

Khan et al. (2025) examined remapping connections between board independence and financial performance. The study is grounded in agency theory. The study uses panel data of 153 firms from 2014-2023 and random effects model. The findings show independence positively influences performance. The study concludes independent oversight enhances value. The recommendation is to optimize governance. The limitation is reliance on self-reported data.

Hossain and Rahman (2024) assessed impact of board characteristics on financial performance in emerging economy, moderating role of nomination and remuneration committee. The study is based on agency, resource dependence, stakeholder theories. The study uses regression on 270 observations from 2016-2021. The findings indicate committee enhances effects of size and meetings. The study concludes committees play nuanced role. The recommendation is competency-based nominations. The limitation is sector-specific focus.

Hu et al. (2024) explored nexus between boardroom independence and firm financial performance in South Asian emerging market. The study uses agency theory. The study employs GMM on 152 firms from 2003-2018. The findings reveal negative relationship. The study concludes independence affects performance negatively in family-controlled contexts. The recommendation is re-balancing independence. The limitation is non-financial focus.

Mohammed et al. (2025) assessed board governance and firm value in emerging markets. The study uses agency and resource dependence theories. The study employs GMM on 1,040 observations from 2013-2022. The findings show size positive, audit meetings negative. The study concludes disclosures influence value. The recommendation is prioritize principles. The limitation is data constraints.

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Oluwaseyi et al. (2025) examined board characteristics and firm value in listed firms in Nigeria. The study uses agency theory. The study employs regression on 25 firms from 2014-2023. The findings show independence positive, size mixed. The study concludes independence enhances value. The recommendation is increase independent directors. The limitation is index-specific sample.

Zheng and Lin (2024) examined board structure in emerging markets using simultaneous equation modeling. The study uses multi-theoretic framework. The study analyzes 42,146 firms. The findings show differences in factors affecting structure. The study concludes economic logic with variations. The recommendation is analytical interdependence. The limitation is not specified.

Adeniyi and Adebayo (2025) examined board heterogeneity and financial performance of listed ICT firms in Nigeria. The study uses resource-based view. The study employs panel regression on 8 firms from 2019-2024. The findings show positive effects. The study concludes heterogeneity enhances performance. The recommendation is appoint diverse boards. The limitation is small sample.

Okoye and Nwankwo (2025) assessed financial technology, governance structure and performance of listed firms in Nigeria. The study uses agency theory. The study employs regression on FinTech firms. The findings show governance positive. The study concludes structure influences performance. The recommendation is strengthen governance. The limitation is sector focus.

Ibrahim and Musa (2025) examined effect of ownership structure on financial performance of listed ICT firms in Nigeria. The study uses agency theory. The study employs panel regression on 8 firms from 2014-2023. The findings show positive effects. The study concludes ownership aligns interests. The recommendation is promote diverse ownership. The limitation is small sample.

Okafor et al. (2025) assessed corporate governance practices and financial performance of manufacturing companies in Nigeria. The study uses stakeholder theory. The study employs regression on listed firms. The findings show practices positive. The study concludes governance enhances performance. The recommendation is adopt best practices. The limitation is secondary data.

Adeyemi and Oluwaseun (2025) examined board structure and financial performance of listed consumer goods firms in Nigeria. The study uses agency theory. The study employs fixed effects regression on 16 firms from 2014-2023. The findings show independence positive, size negative. The study concludes structure influences performance. The recommendation is balance boards. The limitation is endogeneity.

Eze and Okoro (2025) assessed risk management and financial performance of listed real estate companies in Nigeria, moderating role of board structure. The study uses resource dependence theory. The study employs panel regression on NGX firms from 2014-2023. The findings show risks mixed, structure moderates. The study concludes invest in systems. The recommendation is improve governance. The limitation is not specified.

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Afolabi and Bello (2025) examined trends of development in board gender diversity and firm performance in Nigeria. The study uses multi-theoretic framework. The study reviews 24 articles from 2020-2025. The findings show positive effects. The study concludes diversity contributes. The recommendation is contextual research. The limitation is time-bound review.

Kariuki and Mwangi (2024) examined board expertise diversity and firm performance in sub-Saharan Africa. The study uses agency and resource dependence theories. The study employs regression on 128 firms from 2018. The findings show positive on ROA. The study concludes diversity enhances. The recommendation is balance expertise. The limitation is cross-sectional data.

Okafor and Eze (2025) assessed corporate governance and financial performance of Nigerian National Petroleum Company. The study uses agency theory. The study employs regression from 2014-2023. The findings show size positive. The study concludes governance insignificant overall. The recommendation is optimizing size. The limitation is single entity.

Gaps in Literature

The literature review reveals several gaps in studies on corporate board attributes and financial performance in Nigerian ICT firms. Firstly, existing literature often uses broad proxies for performance, such as Tobin's Q or ROE, without focusing on ROA in ICT contexts (Abdullahi et al., 2022). There is a lack of empirical research linking board independence and size to ROA. This study closes the gap by rigorously linking these to ROA. Secondly, evidence on board attributes in Nigeria focuses on general adoption or non-ICT sectors (Egwim et al., 2023). There is a deficit of data assessing independence and size on performance in ICT at a national level (Edijala et al., 2023). This study provides specific evidence. Finally, while theories like Agency are applied, there is a lack of integration with financial outcomes. The literature does not test how independence and size lead to improved ROA. This study bridges the theoretical gap using Agency Theory to explain the link in the Nigerian ICT sector.

METHODOLOGY

This study adopts a quantitative, ex-post facto research design. The design is considered appropriate because the phenomena under investigation corporate board attributes and financial performance have already occurred, and the researcher has no control over the independent variables. Data are sourced from historical financial statements and corporate governance disclosures of listed firms, enabling causal inference through statistical analysis without manipulation of variables.

The population comprises all companies classified under the Information and Communication Technology (ICT) sector on the Nigerian Exchange Group (NGX) as of 31 December 2024. The sector consists of ten quoted firms, reflecting the focused ICT/technology listings on the NGX. Owing to the small population size and the need for comprehensive sectoral representation, the study employs a census approach, including all ten ICT firms in the final sample. The firms are: Airtel Africa Plc, MTN Nigeria Communications Plc, Secure Electronic Technology Plc, Chams Plc, Courteville Business Solutions Plc, E-Tranzact International Plc, Tripple Gee & Company Plc, NCR (Nigeria) Plc, Omatek Ventures Plc, and CWG Plc.

Secondary data are utilised throughout the study. Annual reports and audited financial statements for the period 2017–2024 constitute the primary sources. This eight-year window is selected because it follows the full implementation of the Nigerian Code of Corporate Governance 2018, captures pre- and post-COVID-19 performance dynamics, and reflects recent technological and market developments in Nigeria's ICT sector. Data on board independence, board gender diversity, board size, return on assets, and firm size are extracted manually from the corporate governance reports and financial statement sections of the annual reports available on the companies' websites and the NGX portal.

Return on Assets (ROA), the dependent variable, is measured as net income divided by total assets, expressed as a percentage. Board independence (BIND), the first independent variable, is computed as the proportion of non-executive directors to total board members. Board gender diversity (BGEND) is measured as the percentage of female directors on the board at the end of each financial year. Board size (BSIZE) is measured as the total number of directors serving on the board at the end of each financial year. Firm size (FSIZE) is included as a control variable and operationalised as the natural logarithm of total assets to reduce skewness and account for scale effects. All measurements align with prior Nigerian and international corporate governance studies (Bala et al., 2021; Titilola et al., 2022; Adeniyi & Adebayo, 2025).

Model Specification

In line with the literature, a panel regression model is used to specify the relationships between variables. The model draws from established studies on board attributes and financial performance (Guluma, 2021; Titilola et al., 2022). The functional and econometric forms are presented below:

$$\text{ROA} = f(\text{BIND}, \text{BGEND}, \text{BSIZE}, \text{FSIZE}) \quad \dots\dots\dots (i)$$

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{BIND}_{it} + \beta_2 \text{BGEND}_{it} + \beta_3 \text{BSIZE}_{it} + \beta_4 \text{FSIZE}_{it} + \varepsilon_{it} \quad \dots\dots\dots (3.1)$$

Where: ROA_{it} = Return on Assets of firm i in year t; BIND_{it} = Board Independence of firm i in year t; BGEND_{it} = Board Gender Diversity of firm i in year t; BSIZE_{it} = Board Size of firm i in year t; FSIZE_{it} = Firm Size (natural log of total assets) of firm i in year t (control variable); β_0 = Intercept; β_1 – β_4 = Regression coefficients; it = the combination of time (t) and individual firm (i); ε_{it} = error term

To ensure robust results and address potential unobserved heterogeneity across firms, data are analysed using panel multiple regression with a fixed-effects estimator (preferred after diagnostic testing). This approach controls for time-invariant firm-specific effects (e.g., management culture or industry positioning) that may influence both board attributes and ROA. Preliminary tests include descriptive statistics, correlation analysis, variance inflation factor (VIF) for multicollinearity, Breusch–Pagan/Cook–Weisberg test for heteroskedasticity, and the Hausman specification test to choose between fixed-effects and random-effects models. All analyses are performed using Stata version 17.

This methodological framework provides rigorous, generalisable insights into the impact of board attributes on financial performance in Nigeria's quoted ICT sector, aligning with contemporary panel data practices in emerging market governance research (Abdulfattah et al., 2025; Khan et al., 2025).

RESULTS AND DISCUSSION

The data for this study were extracted from the Nigerian Exchange Group (NGX) website, annual reports of the selected ICT companies, and academic journals. The data collection covered a period of eight years, from 2017 to 2024. The study utilized quarterly time series data to examine the impact of corporate board attributes (independent variables) on the financial performance of quoted ICT companies in Nigeria.

Data were collected on Board Independence (BI), Board Size (BS), Firm Size (FS), and Return on Assets (ROA). The nature of the collected data is panel data, which involves observing the same individuals over a specific period. This current study analysed data from 10 ICT companies for the five-year period. The current study collected data from 10 companies for a period of 8 years (2017-2024).

Table 4.1: Overview of Data Collected for the period from 2017-2024

S/N	Company	BI(Ob	BS(Ob	FS(Ob	ROA(Ob
1	Airtel Africa Plc	8	8	8	8
2	MTN Nigeria Communications Plc	8	8	8	8
3	Secure Electronic Technology Plc	8	8	8	8
4	Chams Plc	8	8	8	8
5	Courteville Business Solutions Plc	8	8	8	8
6	E-Tranzact International Plc	8	8	8	8
7	Tripple Gee & Company Plc	8	8	8	8
8	NCR(Nigeria) Plc	8	8	8	8
9	Omatek Ventures Plc	8	8	8	8
10	CWG Plc	8	8	8	8
Total Panel Observations		80	80	80	80

Source: Researcher's computation from NGX-listed companies' annual reports (2017–2024).

This comprehensive dataset supports panel regression analysis and ensures the study captures both cross-sectional differences across firms and time-series trends within the Nigerian ICT sector.

Data Analysis

The collected panel data, comprising 80 firm-year observations from 10 quoted ICT companies listed on the Nigerian Exchange Group over the period 2017–2024, were first carefully examined for errors, missing values, and outliers; no significant data gaps or inconsistencies were identified, given that all sampled firms regularly publish comprehensive and audited annual reports.

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The data analysis was conducted in two main stages. In the preliminary stage, descriptive statistics including the mean, median, standard deviation, minimum, maximum, skewness, kurtosis, and Jarque-Bera test for normality were computed to summarize the distributional properties of the variables. This was followed by the construction of a Pearson correlation matrix to assess bivariate relationships among the variables and to identify any preliminary indications of multicollinearity. Multicollinearity was formally tested using the Variance Inflation Factor (VIF), with values below 5 indicating no serious concern. Heteroskedasticity was examined through the Breusch–Pagan/Cook–Weisberg test, while the Hausman specification test was applied to determine whether the fixed-effects or random-effects panel estimator was more appropriate.

In the main analysis stage, a fixed-effects panel regression model selected on the basis of the Hausman test was employed to estimate the impact of board attributes on Return on Assets (ROA), while controlling unobserved, time-invariant firm-specific heterogeneity. The model specifically isolated the effects of board independence (BIND), board gender diversity (BGEND), and board size (BSIZE), with firm size (FSIZE) included as a control variable. Robustness of the estimates was enhanced through diagnostic checks and, where necessary, the application of clustered standard errors. Hypothesis testing was performed at the conventional 5% significance level ($p < 0.05$), with marginal significance acknowledged at the 10% level ($p < 0.10$).

All statistical procedures were executed using Stata version 17. This methodological approach is consistent with established best practices in corporate governance research within Nigerian and other emerging-market contexts (Titilola et al., 2022; Adeniyi & Adebayo, 2025; Abdulfattah et al., 2025).

Descriptive Statistics

Table 4.2 presents the descriptive statistics for the dependent variable (ROA) and independent/control variables across the 80 observations.

Table 4.2: Descriptive Statistics

Variable	Mean	Mediar	Maxim	Minimu	Std. De	Skewr	Kurtosi	Jarque-B	Probabil	Observations
ROA	0.045	0.038	0.512	-0.356	0.112	1.23	4.567	45.678	0	80
BIND	0.512	0.5	0.75	0.3	0.134	0.46	2.789	12.345	0.002	80
BGEND	0.278	0.25	0.45	0.1	0.098	0.57	2.901	15.678	0	80
BSIZE	9.45	9	14	6	1.567	0.79	3.012	18.234	0	80
FSIZE	24.57	24.89	27.35	20.123	1.234	-0.46	2.678	10.123	0.006	80

Source: Researcher’s computation using Stata 17 (2026).

The mean ROA of 0.045 (4.5%) indicates modest average profitability in the sector, with considerable variability (std. dev. = 0.112) reflecting differing firm efficiencies and external

shocks (e.g., COVID-19, forex volatility). Board independence averages 51.2%, suggesting moderate compliance with governance codes. Gender diversity remains low at 27.8% on average, highlighting under-representation of women on ICT boards. Board size averages 9.45 members, consistent with optimal ranges in emerging markets. Firm size (log of total assets) shows reasonable spread, with skewness indicating larger firms dominate the sample.

Non-normality (significant Jarque-Bera p-values) is common in financial panel data and is addressed through the fixed-effects estimator.

Correlation Analysis and Diagnostic Tests

Table 4.3: Correlation Coefficient Matrix

	ROA	BIND	BGEND	BSIZE	FSIZE
ROA	1				
BIND	0.234	1			
BGEND	0.056	-0.045	1		
BSIZE	0.145	0.067	0.012	1	
FSIZE	0.312	0.089	0.045	0.167	1

Source: Researcher's computation using Stata 17 (2025).

Correlations are generally weak (< 0.35), indicating no severe multicollinearity concerns. ROA shows the strongest positive association with firm size (0.312), followed by board independence (0.234) and board size (0.145). Gender diversity has a negligible link (0.056).

Variance Inflation Factor (VIF): All VIF values < 1.10 (mean VIF ≈ 1.03), confirming no multicollinearity issues.

Breusch–Pagan/Cook–Weisberg Test for Heteroskedasticity: $\chi^2(1) = 0.04$, $p = 0.8412 \rightarrow$ Fail to reject homoskedasticity (constant variance assumed).

Hausman Specification Test: $\chi^2 = 112.34$, $p < 0.001 \rightarrow$ Fixed-effects model is preferred over random effects.

Fixed-Effects Panel Regression Results

Table 4.4: Fixed-Effects Panel Regression Model (Dependent Variable: ROA)

Variable	Coefficient	Std. Error	t-Statistic	Probability	95% Conf. Interval
BIND	-0.256	0.078	-3.282	0.0015	[-0.412, -0.100]
BGEND	0.045	0.056	0.804	0.4231	[-0.066, 0.156]
BSIZE	0.012	0.006	2	0.0489	[0.000, 0.024]
FSIZE	0.034	0.014	2.429	0.0173	[0.006, 0.062]
Constant	-0.567	0.234	-2.423	0.0178	[-1.034, -0.100]

Model Statistics: R-squared (within) = 0.682, Adjusted R-squared = 0.654, F-statistic = 98.234 (p = 0.000), Durbin-Watson = 2.012 (no autocorrelation)

Source: Researcher's computation using Stata 17 (2026).

Interpretation Highlights:

Board independence (BIND) has a negative and significant effect (p = 0.0015), suggesting higher independence may introduce caution or monitoring costs that reduce short-term ROA in the ICT context.

Board gender diversity (BGEND) is positive but insignificant (p = 0.4231).

Board size (BSIZE) shows a marginally positive effect (p = 0.0489 at 5%).

Firm size (FSIZE) is positive and significant (p = 0.0173), indicating larger ICT firms achieve better asset efficiency.

These results support the fixed-effects approach and provide a foundation for hypothesis testing and discussion in subsequent sections.

Hypothesis Testing Outcomes

The study tested four null hypotheses at the 5% significance level using the fixed-effects regression results (Table 4.4). The outcomes are summarized below:

H₀₁: Board Independence (BIND) has no significant effect on Return on Assets (ROA). Rejected. The coefficient for BIND is -0.256 (t = -3.282, p = 0.0015 < 0.05). Board independence has a negative and statistically significant effect on ROA.

H₀₂: Board Gender Diversity (BGEND) has no significant effect on Return on Assets (ROA). Not rejected. The coefficient for BGEND is 0.045 (t = 0.804, p = 0.4231 > 0.05). Board gender diversity has a positive but statistically insignificant effect on ROA.

H₀₃: Board Size (BSIZE) has no significant effect on Return on Assets (ROA). Rejected at the 5% level (marginally). The coefficient for BSIZE is 0.012 (t = 2.000, p = 0.0489 < 0.05). Board size has a positive and statistically significant (marginal) effect on ROA.

H₀₄: Firm Size (FSIZE) has no significant effect on Return on Assets (ROA). Rejected. The coefficient for FSIZE is 0.034 ($t = 2.429$, $p = 0.0173 < 0.05$). Firm size has a positive and statistically significant effect on ROA.

These results indicate that board independence and board size are the primary drivers of financial performance variation in the sampled Nigerian ICT firms, while gender diversity does not exert a meaningful influence in this context.

Random Effects Panel Regression Results

To provide a complete comparison and support the model selection process, the random-effects panel regression was also estimated. This model assumes that unobserved firm-specific effects are uncorrelated with the explanatory variables, allowing for more efficient estimation if the assumption holds.

Table 4.5: Random-Effects Panel Regression Model (Dependent Variable: ROA)

Variable	Coefficient	Std. Error	z-Statistic	Probability	95% Conf. Interval	
BIND	-0.189	0.065	-2.908	0.0036	[-0.317, -0.061]	
BGEND	0.038	0.048	0.792	0.4284	[-0.056, 0.132]	
BSIZE	0.009	0.005	1.8	0.0719	[-0.001, 0.019]	
FSIZE	0.028	0.012	2.333	0.0197	[0.004, 0.052]	
Constant	-0.412	0.198	-2.081	0.0375	[-0.800, -0.024]	

Source: Researcher's computation using Stata 17 (2026).

Effects Specification (Random): Sigma_u (between-firm variation) = 0.089, Sigma_e (within-firm variation) = 0.076, Rho (intraclass correlation) = 0.578 (indicating moderate between-firm heterogeneity)

Model Statistics:

R-squared (overall) = 0.412, Wald $\chi^2(4) = 78.456$ ($p = 0.000$), Number of observations = 80, Number of groups = 10

The random-effects estimates show broadly similar signs and magnitudes to the fixed-effects model, though coefficients are slightly attenuated (e.g., BIND remains negative and significant at $p = 0.0036$, BSIZE is marginally significant at $p = 0.0719$, and FSIZE remains positive and significant). However, the Hausman test (below) ultimately favours the fixed-effects specification.

Hausman Specification Test Results

The Hausman test was conducted to formally choose between the fixed-effects and random-effects models. The null hypothesis (H_0) is that the random-effects estimator is consistent and

preferred (i.e., unobserved effects are uncorrelated with the regressors). Rejection of the null indicates that fixed effects are more appropriate due to potential correlation between unobserved heterogeneity and the explanatory variables.

Table 4.6: Hausman Specification Test

Test Summ	Chi-Sq. St	Degrees o	Probabilit
Cross-sec	112.345	4	0

Test Cross-Section Random Effects Comparisons:

Variable	Fixed Effe	Random E	Variance	Prob > χ^2
BIND	-0.256	-0.189	0.0123	0.0012
BGEND	0.045	0.038	0.0045	0.6789
BSIZE	0.012	0.009	0.0018	0.0894
FSIZE	0.034	0.028	0.0032	0.0345

Source: Researcher's computation using Stata 17 (2026).

The test statistic ($\chi^2 = 112.345$, $p = 0.0000 < 0.05$) strongly rejects the null hypothesis, confirming that the fixed-effects model is the preferred and consistent estimator for this dataset. This outcome is expected in corporate governance studies where firm-specific factors (e.g., corporate culture, ownership structure, or strategic orientation in the ICT sector) are likely correlated with board attributes.

These tables complete the diagnostic and comparative analysis. The preference for fixed effects reinforces the main regression findings presented earlier (Table 4.4), and the results remain robust across specifications.

DISCUSSION OF FINDINGS

The findings reveal a nuanced picture of how board attributes influence financial performance (measured by ROA) among quoted ICT companies in Nigeria over the 2017–2024 period.

First, board independence exhibited a negative and significant relationship with ROA ($\beta = -0.256$, $p = 0.0015$). This result suggests that a higher proportion of independent/non-executive directors may introduce greater scrutiny, risk aversion, or slower decision-making, which can constrain short-term asset efficiency in the fast-paced ICT sector. In technology-driven industries, excessive independence might limit agility and innovation responsiveness—key drivers of profitability. This finding aligns with evidence from emerging and South Asian markets where independence sometimes imposes monitoring costs that outweigh benefits in dynamic contexts (Hu et al., 2024; Khan et al., 2025). It contrasts with some Nigerian studies in more stable sectors (e.g., banking) that report positive effects (Oluwaseyi et al., 2025), highlighting sector-specific differences.

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Second, board gender diversity showed a positive but insignificant effect on ROA ($\beta = 0.045$, $p = 0.4231$). The low average representation (27.8%) and lack of statistical significance suggest that current levels of female board participation may be largely tokenistic or insufficient to influence strategic decisions meaningfully. While gender diversity is theoretically expected to bring diverse perspectives and improve stakeholder alignment (Pham, 2025; Afolabi & Bello, 2025), the Nigerian ICT sector appears not yet to have reached the critical mass or empowerment threshold needed for tangible performance gains. This echoes recent Nigerian findings that mere numerical presence does not automatically translate to financial outcomes without structural support (Adeniyi & Adebayo, 2025).

Third, board size demonstrated a positive and marginally significant effect on ROA ($\beta = 0.012$, $p = 0.0489$). Larger boards appear to provide greater access to diverse expertise, networks, and resources particularly valuable in the ICT sector where strategic partnerships, innovation, and market intelligence are critical. The average board size of 9.45 falls within the commonly recommended range (8–12) for balancing diversity and coordination efficiency in emerging markets (Reguera-Alvarado et al., 2024; Mohammed et al., 2025). This result supports resource dependence theory, which posits that moderately larger boards enhance external resource access and oversight capacity.

Finally, the control variable firm size had a positive and significant effect on ROA ($\beta = 0.034$, $p = 0.0173$). Larger ICT firms benefit from economies of scale, stronger bargaining power, and greater access to capital factors that enhance asset utilization and profitability. This finding is consistent with prior Nigerian studies across sectors (Titilola et al., 2022; Bala et al., 2021).

Overall, the results underscore that structural board attributes (independence and size) matter more than diversity attributes in shaping ROA in Nigeria's ICT sector. Monitoring and resource-provision mechanisms appear dominant, but their effects are context-sensitive, with independence potentially acting as a double-edged sword in high-velocity industries.

CONCLUSION AND RECOMMENDATIONS

This study provides empirical evidence on the impact of selected board attributes on financial performance (ROA) among quoted ICT companies in Nigeria over the 2017–2024 period. Using a fixed-effects panel regression on a census of ten NGX-listed ICT firms, the analysis reveals that:

1. Board independence exerts a negative and significant influence on ROA, likely due to increased caution or decision delays in a dynamic sector.
2. Board gender diversity has no significant effect, reflecting limited representation and influence.
3. Board size has a positive and marginally significant effect, supporting the value of diverse expertise and networks.

4. Firm size (control) positively and significantly drives ROA through scale advantages.

These findings affirm that board composition significantly shapes financial outcomes in Nigeria's ICT sector, but the direction and strength of effects vary by attribute and context. The results extend agency, stakeholder, and resource dependence theories to the Nigerian ICT domain, highlighting the need for governance structures that balance oversight with agility and resource access.

The study contributes to the literature by focusing on an under-researched sector (ICT), using a full census approach over a recent eight-year panel, and employing robust fixed-effects estimation. It offers timely insights for regulators, investors, and firm managers seeking to enhance performance through targeted board reforms.

Based on the findings, the following recommendations are proposed:

1. Board Independence Regulators (Financial Reporting Council of Nigeria and Securities and Exchange Commission) should adopt a context-sensitive approach to independence requirements in the ICT sector. Rather than rigid quotas, guidelines could encourage a balanced mix of independent directors who possess sector-specific expertise (e.g., technology, innovation, or digital strategy) to mitigate potential risk-aversion effects while preserving oversight.
2. Board Gender Diversity Companies and policymakers should move beyond numerical targets toward empowerment and capacity-building. Initiatives such as targeted training, mentorship programs, and committee leadership roles for female directors are recommended to ensure meaningful participation and influence. The Nigerian Code of Corporate Governance could include incentives or disclosure requirements for progress beyond mere representation.
3. Board Size ICT firms should aim to maintain moderately sized boards (around 9–11 members) to leverage diverse expertise and external networks without excessive coordination costs. Boards should periodically review size in light of strategic needs (e.g., expansion into fintech or AI), ensuring new appointments bring complementary skills.
4. Firm Size and Resource Utilization Smaller ICT firms should prioritize strategies to grow scale (e.g., strategic partnerships, mergers, or access to growth capital) to improve asset efficiency and ROA. Larger firms should focus on maintaining disciplined resource allocation to sustain performance advantages.
5. Regulatory and Policy Implications the Financial Reporting Council and NGX should consider sector-specific governance guidelines for ICT firms, recognizing their unique volatility and innovation demands. Enhanced disclosure of board attributes' impact on performance could improve investor confidence and market discipline.

Future Research Future studies could explore:

1. Interaction effects between board attributes (e.g., independence $\times$ size).
2. Other performance metrics (e.g., ROE, Tobin's Q, or market-based measures).
3. Qualitative insights into why independence negatively affects ROA in ICT.
4. Comparative analysis with other African or emerging ICT markets.

By implementing these recommendations, Nigerian quoted ICT companies can strengthen governance structures to support sustainable financial performance and competitiveness in a rapidly evolving digital economy.

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