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Sequence of Manuscript

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EFFECT OF CORPORATE GOVERNANCE ATTRIBUTES ON BUSINESS EFFICIENCY OF LISTED MANUFACTURING FIRMS IN NIGERIA

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ABSTRACT

The main objective of this study is to examine the effect of corporate governance on business efficiency of listed manufacturing firms in Nigeria. Specifically, the study sought to examine the effect of board size and board independent on business efficiency of listed manufacturing firms in Nigeria. The study utilized an Ex-post facto research design, chosen for its suitability in analyzing pre-existing data from annual reports. Data for all variables were extracted from the published annual reports and financial statements of listed consumer goods companies in Nigeria, covering the years 2013 to 2022. The study sampled 13 out of the 21 manufacturing companies listed on the Nigerian Exchange Group as of December 31, 2022. The study employed descriptive statistics, correlation analysis and multiple linear regression as techniques for data analyses. The findings of the study reveal that board size has no significant effect on business efficiency. On the other hand, board independence has a significant effect on business efficiency. In conclusion, the findings concerning board size indicate a lack of significant impact on business efficiency. The study recommendation organizations should prioritize enhancing board independence by appointing more independent directors and fostering an environment where they can effectively oversee managerial decisions.
Keywords: *Business Efficiency, Board Size and Board Independent*

1.0 Introduction

Business efficiency encompasses optimizing resource utilization, streamlining operations, and consistently delivering value to stakeholders. In Nigeria's evolving economic landscape, understanding how corporate governance influences business efficiency becomes imperative. Efficient firms not only manage costs effectively but also innovate and adapt swiftly to market dynamics, positioning themselves for sustained growth and profitability amidst challenges.

The Nigerian Code of Corporate Governance (2018) provides a robust framework aimed at fostering transparency, accountability, and ethical conduct within Nigerian companies. This framework outlines principles that guide board composition, risk management practices, stakeholder relations, and sustainability efforts (Ozili, 2020). By adhering to these principles, companies bolster their governance structures, mitigate risks, and enhance operational efficiency. For example, robust governance practices ensure that decision-making processes are informed, ethical, and aligned with long-term strategic goals, thereby promoting stability and resilience.

Corporate governance in Nigeria has evolved significantly, influenced by legislative reforms like the Companies and Allied Matters Act (CAMA) of 1990. This legislation laid foundational regulations emphasizing fairness, transparency, and protection of shareholder rights (Junaidu, 2020). Despite these advancements, challenges persist, especially within the manufacturing sector. Issues such as supply chain disruptions, regulatory compliance complexities, and governance lapses can impede operational efficiency and hinder growth. Addressing these challenges requires a nuanced understanding of how governance practices impact performance metrics such as productivity, profitability, and market competitiveness.

Recent incidents within Nigerian industries highlight the critical role of effective governance in enhancing business efficiency. Manufacturing firms, navigating pressures from global competition and local economic dynamics, must effectively manage governance complexities to sustain growth and profitability. Governance failures can lead to operational inefficiencies, reputational risks, and diminished investor confidence, all of which undermine a firm's ability to secure investments and expand operations. Therefore, examining the intricate interplay between governance mechanisms and business outcomes is essential for identifying best practices and improving corporate performance. Corporate governance plays a crucial role in shaping the operational efficiency and financial performance of listed manufacturing firms, particularly in emerging markets like Nigeria. Extensive research has examined various dimensions of corporate governance and their impacts on business outcomes across different contexts (Musa et al., 2022; Eleng et al., 2022; Githaiga et al., 2022). However, conceptual gap persists in understanding how specific governance mechanisms (such as board size and board independence) affect business efficiency within the Nigerian manufacturing sector (Musa, et al., 2022; Eleng, et al., 2022; Githaiga, et al., 2022; Wati and Giltom, 2022; Zubaidah et al., 2021; Olaoye and Adewumi, 2020).

Studies by Wati and Giltom (2022) highlight the relevance of ownership structure but do not directly address Nigeria's unique governance challenges and regulatory landscape. Moreover, insights from Akpomedaye and Williamson (2021) and Ngo and Le (2021) underscore the importance of audit committees, yet these findings may not fully translate to the manufacturing context. Similarly, Tran and Dang's (2021) exploration of ownership structure in emerging economies offers valuable insights but lacks specificity to Nigerian manufacturing firms. This study aims to address these gaps by examining how specific dimensions of corporate governance impact the business efficiency of listed manufacturing firms in Nigeria. In other words, this study examined the effect of corporate governance on business efficiency of listed manufacturing firms in Nigeria. Specifically, the study examines the effect of board size and board independent on business efficiency of listed manufacturing firms in Nigeria. By focusing on sector-specific governance dynamics and regulatory environments, this research seeks to provide nuanced insights that contribute to enhancing corporate transparency, operational effectiveness, and overall business performance in the Nigerian manufacturing sector.

2.0 Literature Review

2.1.1 Business Efficiency

In the realm of business efficiency, economic literature emphasizes two primary concepts: cost efficiency and profit efficiency. These concepts are grounded in economic optimization, focusing on how firms adjust to market prices and competition rather than the specifics of technological applications (Berger & Mester, 1997). Cost efficiency pertains to a firm's ability to minimize its costs relative to its output, while profit efficiency is concerned with maximizing profits. Both concepts are essential for understanding how well firms meet their economic objectives. Cost efficiency, in particular, is about achieving the lowest possible cost for a given level of production, thus ensuring that resources are used as effectively as possible (Arbelo et al., 2021).

Cost efficiency is quantified as the ratio between the minimum achievable cost and the actual production cost. This measure compares a firm's costs with those of the most efficient firm in the industry, assuming that differences in cost are not due to random variations. Leibenstein (1966) posits that inefficiencies often originate from management or organizational shortcomings. Specifically, allocative inefficiency arises from suboptimal decisions regarding production plans, while technical inefficiency results from inadequate implementation of these plans. These inefficiencies can lead to higher costs and reduced competitiveness, emphasizing the importance of minimizing both allocative and technical inefficiencies to achieve cost efficiency.

In the current study, operational efficiency is measured using the ratio of Revenue to Total Assets. This metric offers a perspective on how effectively a firm utilizes its assets to generate revenue, providing a practical gauge of its operational performance. By evaluating operational efficiency in this manner, the study aims to understand how well firms convert their asset base into revenue, thus linking operational efficiency directly to the broader goals of cost and profit optimization. This approach aligns with the broader economic objectives of minimizing costs and maximizing profits while offering a concrete measure of a firm's efficiency in utilizing its resources.

2.1.2 Board Size

The size and composition of corporate boards play a pivotal role in shaping organizational dynamics and governance practices, particularly in the context of listed manufacturing firms in Nigeria. The regulatory guidelines set by institutions like the Central Bank of Nigeria (CBN) underscore the importance of board structure in ensuring effective oversight and strategic direction. For instance, CBN regulations prescribe varying board sizes tailored to the specific needs of banks, financial service institutions, and other public companies, aiming to strike a balance between operational efficiency and governance effectiveness. A well-structured board can facilitate decision-making, enhance strategic planning, and ensure effective resource management, all of which are critical for achieving business efficiency.

Scholarly discourse on board size reflects diverse perspectives on its impact on organizational performance and business efficiency. Proponents of smaller boards, such as Gambo et al. (2018), argue that they facilitate agile decision-making, enhance board independence, and reduce communication complexities among members. These attributes are believed to contribute positively to corporate governance practices and, consequently, to overall company performance and shareholder value. Conversely, proponents of larger boards, drawing from agency theory, suggest that a greater number of directors can bring diverse expertise, broader networks, and deeper industry insights, which are critical for navigating complex business environments and capitalizing on strategic opportunities. The resource dependency theory further supports larger boards, stating that they could help limit reliance on external resources and provide better opportunities for greater connections than smaller boards.

Empirical evidence on the relationship between board size and business efficiency in Nigeria remains inconclusive. Some studies suggest that smaller boards are associated with higher business efficiency due to streamlined decision-making and enhanced governance, indicating a potential link between board size, governance effectiveness, and operational performance. For instance, Sanda et al. (2010) observed a correlation between a firm's value and smaller boards, highlighting that larger boards are less efficient and independent. However, other studies, such as those by Rahman and Ali (2006), imply that larger boards may face challenges in maintaining cohesive governance and oversight, potentially leading to increased complexities in decision-making processes and operational efficiency. Given these divergent findings, further research is essential to unravel the nuanced dynamics of board size and its impact on corporate governance practices in Nigeria. Such studies should consider industry-specific contexts, regulatory environments, and the unique challenges faced by Nigerian companies in maintaining transparency, accountability, and sustainable business practices. Clarifying the role of board composition in enhancing governance quality and mitigating risks associated with inefficiencies will contribute to refining regulatory frameworks and fostering a conducive environment for business growth and investor confidence in Nigeria.

HO1: Board size has no significant effect on business efficiency listed Manufacturing Companies in Nigeria

2.1.3 Board Independence

Board independence stands as a fundamental tenet of corporate governance, advocating for a clear distinction between the roles of management and oversight within a company. The Nigerian Code of Corporate Governance (2018) underscores this principle by recommending a balanced composition of executive directors, non-executive directors (NEDs), and independent non-executive directors (independent directors) based on the scale and complexity of the company's operations (Nedon Board, 2019). Executive directors hold a dual role as both employees and board members, often deeply involved in the day-to-day management and strategic decision-making of the company.

The inclusion of independent directors on boards serves to enhance business efficiency by mitigating potential conflicts of interest and improving decision-making processes. According to agency theory proposed by Jensen and Meckling (1976), independent directors provide a crucial check on the management team by offering impartial oversight and strategic guidance. Their independence from management enables them to objectively evaluate corporate strategies, monitor operational efficiencies, and ensure compliance with regulatory standards.

Moreover, independent directors typically bring diverse expertise and experience from various sectors, which enriches board discussions and decision-making (Wang and Dewhirst, 1992). Their broader perspective allows them to consider the interests of all stakeholders, not just management or shareholders, fostering a balanced approach to governance that prioritizes long-term sustainability and stakeholder value (Rupley et al., 2012). This broader engagement also enhances their effectiveness in addressing corporate governance issues such as risk management, succession planning, and corporate social responsibility.

In summary, the presence of independent directors on boards is critical for maintaining effective corporate governance practices in Nigeria and globally. By ensuring independence from management and aligning their interests with those of shareholders and other stakeholders, independent directors play a pivotal role in enhancing business efficiency, promoting ethical conduct, and safeguarding the long-term interests of the company. As corporate governance continues to evolve, the role of independent directors remains indispensable in fostering trust, transparency, and accountability within organizations.

Ho2: Board Independence has no significant effect on business efficiency listed Manufacturing Companies in Nigeria

2.2 Empirical Review

Musa, et al. (2022) studied the effect of Audit Committee Characteristics on Real Business efficiencythrough Abnormal Cash Flow. Specifically, the study used audit committee size, financial expertise, independent directors and audit committee frequency of meeting and how it affects real earning management. The study was conducted on non-financial listed companies in Nigeria for a period of five years (2016-2020). The data were extracted from the sample of the firm's annual reports and the Thompson Reuters database. Ordinary Least Square (OLS) regression was employed to test the study model. The analysis is based on a sample of 76 listed non-financial companies for five years with 380 firm-year observations. The finding showed that audit committee size and financial expertise reduces management opportunistic earnings manipulations. Also, the finding demonstrated that the presence of independent directors in the audit committee is significantly associated with lower business efficiencypractices. However, the finding further established that audit committee meeting frequency and real business efficiencyare positively related.

Eleng, et al. (2022) examined the effect of corporate governance on the business efficiencyof listed manufacturing companies in Nigeria. The specific objectives of the study were to investigate the effect of board size, board gender diversity, board independence, audit committee size, and ownership structure on Business efficiencyof Listed Manufacturing Companies in Nigeria. Ex-post facto research design was adopted while panel data was collected a sample of 19 consumer goods companies listed on Nigerian Stock Exchange. The Generalized Least Square Regression Model aided by STATA 14.2 statistical package as used to estimate the effect of corporate governance on the business efficiencyof listed manufacturing companies in Nigeria. The study found that board size had negative and no significant effect on business efficiencyof listed manufacturing companies in Nigeria; board gender diversity had negative and no significant effect on business efficiencyof listed manufacturing companies in Nigeria; board independence had positive and no significant effect on business efficiencyof listed manufacturing companies in Nigeria, audit committee size had positive and no significant effect on earning management of listed manufacturing companies in Nigeria and ownership structure had negative and significant effect on business efficiencyof listed manufacturing companies in Nigeria.

Githaiga, et al. (2022) examined how board characteristics affect business efficiencyand if firm size matter. The study further looks at board size, board independence, board gender diversity and financial expertise affecting earnings management. This study employs data drawn from 88 listed firms in the East African Community (EAC) for the period between 2011 and 2020. The study used the system generalized method of moments (SGMM) estimation model to take care of potential endogeneity and reverse causality. The study found a positive and significant relationship between board size and earnings management. The findings further indicated that board independence, board gender diversity, and board financial expertise had a negative and significant effect on earnings management. In addition, the findings confirmed that firm size moderated the relationship between board size, board independence, board gender diversity, and earnings management.

Wati and Giltom (2022) studied the impact of ownership structure on earnings management: evidence from the Indonesian stock exchange. Business efficiencyuses the control variables of leverage, company size, profitability, and company growth. The purposive sampling method is used for the selection of the research samples. This research uses non-financial companies listed on the Indonesia Stock Exchange from 2016 to 2019 as research objects. Business efficiencyis measured using discretionary accruals which is a Modified Jones Model. The ownership structure is calculated from the percentage of each share ownership in the company. The finding indicates that there is no significant effect of ownership structure on business efficiencyin Indonesia. Only leverage, company size, and company growth have a significant positive effect on earnings management.

Abubakar et al., (2021) studied the impacts of audit committee attributes in Nigeria. The specific objective was to look at how audit committee size, financial expertise, audit committee independence and audit committee control managers affect earnings manipulation. Quantitative analyses were implemented involving a sample of 72 non-financial firms with 360 firm-year observations for five years (2014-2018). Data were obtained from the annual reports of these companies as well as from Thompson Reuters and Bloomberg databases. The Panel Corrected Standard Error was used to test the model studied. The finding showed that audit committee size prevents managers' activities in earnings manipulations. Also, the finding established that the audit committee's independent presence on the audit committee controls managers' opportunistic behaviour while the audit committee's financial expertise was monitored in curtailing earnings manipulation practice.

Ngo and Le (2021) studied the relationship between the audit committee and earning management in listed companies in Vietnam. Research data was collected from all 745 listed companies on Vietnam's stock market over four years, from 2015 to 2018. After excluding companies that did not qualify, there were 216 companies with 864 observations. With the help of dedicated software Stata 15, the impact of audit committee characteristics (through independent variables and control variables such as Audit Committee, Independence, Auditing Committee size, Auditing Committee Expertise, Auditing Committee Meeting Frequency, Company Size, Financial Leverage, and Operating Cash Flow) to earning management through a multivariate regression model was determined. Research findings from Vietnamese listed companies during this period show that the size and expertise of the audit committee are inversely related to the discretionary accruals representing earning management. At the same time, the research results also identify a positive relationship between firm size and earning management, and the inverse relationship between financial leverage, net cash flow from operating operations and earning management. However, the multivariate regression results do not find clear evidence of a relationship between audit committee independence and the audit committee meeting frequency to earning management.

Tran and Dang (2021) examined the impact of ownership structure on business efficiencyin emerging countries and Vietnam as the case study explored how three components of ownership structure, including ownership concentration of managers, foreign ownership ratio, and state ownership ratio, influence earnings management. In addition, the study considered whether ownership structure influences profit management during financial constraints. REM, FEM, GLS, and GMM regression methods are employed for processing data. The findings showed that an ownership structure with foreign ownership as a positive effect on earnings management, whereas one with a proportion of state ownership has a contradicting effect. While the degree of ownership concentration does not affect profit management, in the context of financial restrictions, the ownership ratio has an impact on the management of earnings. Control variables in the model such as firm size, financial leverage, growth rate, profitability, and audit quality, all have an impact on earnings management.

Akpomedaye and Williamson (2021) investigated the relationship between board independence and business efficiencyof listed healthcare firms in Nigeria. Using convenience sampling, panel data from eleven (11) healthcare companies that are listed on the Nigerian Stock Exchange were collected from2012 to 2019. Inferential analyses were done using ordinary least square and log it regression techniques based on a 5% level of significance. Business efficiencywas operationalized with earnings restatement and discretionary accruals. The study found that board independence was negatively and significantly related to both earnings restatement and discretionary accruals. Therefore, based on the results obtained, the study came to the conclusion that is consistent with independent directors having strong incentives to curb business efficiencytendencies.

Zubaidah et al. (2021) studied Gender Diversity, Institutional Ownership and Earning Management: Case on Distribution Industry in Indonesia. This research is case study research, where the population in this study are all distribution sub-sector companies listed on the IDX in 2017-2018. The sample selection technique used was purposive sampling and obtained 74 companies during the 2017-2018 research period. Multiple linear regression analysis was used in this study, using Stata 17. The findings showed that Gender diversity has a negative effect on business efficiencyand Institutional ownership has a negative effect on earnings management.

Olaoye and Adewumi (2020) examined corporate governance and the earnings quality of Nigerian firms. The specific objective was to examine the influence of board size, board independence and board gender diversity on earnings quality. This study was carried out with secondary data retrieved from corporate annual reports of the sampled companies and the data was analyzed using panel regression on a sample of 37 quoted manufacturing companies for the period 2011-2017. The overall, the findings of the study revealed that Board size, board independence and board gender diversity used for measuring corporate governance show a significant impact on earnings quality. In addition, corporate governance variables appear to be quite sensitive to the measure of earnings quality used. Based on the findings, the study recommends the need for a comprehensive evaluation of the corporate governance systems of companies.

Lippolis and Grimaldi (2020) studied board independence and earnings management: evidence from Italy. 2014-2016. Business efficiencyis defined by the proxy of abnormal working capital accrual (AWCA) estimed model according to DeFond and Park (2001). Proxies for corporate governance mechanisms are the board size, the level of board independence, the CEO non-duality and the interaction between the last two variables. The findings showed that independent directors are not, as in other contexts, a factor that contributes to earnings quality, in the same way, that the separation of the offices of Chairman of the Board of Directors and Chief Executive Officer (CEO) does not appear to be relevant to this end.

2.3 Theory Review

2.3.1 Stakeholders Theory

The stakeholder theory of organizational management and corporate ethics, first articulated by R. Edward Freeman in 1984, provides a holistic framework for understanding and managing the relationships between businesses and their various stakeholders. In the context of Nigerian manufacturing firms, this theory suggests that corporate governance should not solely prioritize the interests of shareholders but should also consider the broader impacts and responsibilities towards employees, customers, suppliers, local communities, and regulatory bodies. By recognizing and engaging with these diverse stakeholders, firms can enhance their operational efficiency and sustainability (Akpomedaye and Williamson, 2021).

In Nigerian manufacturing, where economic, social, and regulatory landscapes are dynamic, stakeholder theory advocates for governance practices that promote transparency, accountability, and ethical behavior. This involves fostering relationships built on trust and mutual respect with stakeholders, thereby mitigating risks, reducing conflicts, and enhancing organizational resilience. Effective implementation of stakeholder theory can lead to improved decision-making processes that take into account the long-term impacts on all stakeholders, not just short-term financial gains for shareholders (Tran & Dang, 2021; Ngo & Le (2021).

Moreover, stakeholder theory challenges the traditional agency theory, which focuses narrowly on maximizing shareholder wealth. It emphasizes the interconnectedness of stakeholders and the importance of balancing their competing interests to achieve sustainable business success. In the Nigerian manufacturing sector, applying stakeholder theory can help firms navigate complex challenges such as regulatory compliance, community relations, and workforce management while striving for business efficiency and growth. By embracing stakeholder theory principles, Nigerian manufacturing firms can strengthen their competitive position, build a positive corporate reputation, and contribute positively to societal development and economic progress.

3.0 Methodology

The study utilized an Ex-post facto research design, chosen for its suitability in analyzing pre-existing data from annual reports. This design is particularly appropriate for this study as it focuses on examining data that has already been collected, allowing for the investigation of relationships and trends without the need for manipulating variables. The research employed panel data, incorporating both time series and cross-sectional elements. This combination provides a comprehensive dataset, enhancing the robustness and reliability of the analysis by allowing a deeper exploration of dynamics and variations over time and across different companies.

Data for all variables were extracted from the published annual reports and financial statements of listed consumer goods companies in Nigeria, covering the years 2013 to 2022. Specifying the source and time frame of the data emphasizes the reliability and relevance of the data, ensuring it is current and pertinent to the study's objectives. The study sampled 13 out of the 21 manufacturing companies listed on the Nigerian Exchange Group as of December 31, 2022. Clarifying the sample size and the total population provides transparency in the selection process and indicates a representative subset, which is essential for the validity of the study's findings. A representative sample ensures that the results can be generalized to the broader population of listed manufacturing companies, thereby enhancing the applicability of the study's conclusions.

The model for the current study was adapted from the study by Oshim, et al. (2024) and is presented below:

$BSEFF_{it} = \beta 0 + \beta 1BSIZE_{it} + \beta 2BIND_{it} + \beta 3FSIZE_{it} + \epsilon_{it}$

Where:

- BSEFF represents the business efficiency, which is the dependent variable.
- BSIZE, BIND, and FSIZE denote the board size, board independence, and firm size respectively, as independent variables.
- β0, β1, β2, β3 are the coefficients to be estimated.

ϵ represents the error term.

Table 1: Variables Measurement

Variables	Code	Measurement	Source
Dependent			
Business efficiency	**BSEFF**	Revenue/Total Assets	Arbelo et al. (2021)
Independent			
Board size	**BSIZE**	Number of board members	Oshim, et al. (2024)
Board Independence	**BIND**	Proportion of independent directors to board size.	Orshi, et al. (2019)
Control			
Firm size	**FSIZE**	Natural log of company total assets	Eleng, et al. (2022)

Source: Authors' Compilation, 2024

4.0 Data Analysis and Interpretation

4.1 Data Analysis, Results and Interpretations

Table 2: Descriptive Analysis

variable	OBS	Mean	Std. Dev.	Min	Max
BSEFF	487	0.820707	0.574495	0	6.308602
BSIZE	484	9.097107	2.976247	3	19
BIND	481	71.69259	13.25863	33.33333	100
FSIZE	487	10.90197	2.212919	5.112285	15.68037

Source: STATA 13 Output, 2024

The variable Business Efficiency (BSEFF), measured as Revenue/Total Assets, has a sample size of 487 observations. The mean value of BSEFF is 0.820707, indicating that, on average, firms generate revenue amounting to approximately 82% of their total assets. The standard deviation of 0.574495 suggests a moderate variation in business efficiency among the firms in the sample. The minimum value of 0 indicates that some firms did not generate any revenue relative to their total assets, while the maximum value of 6.308602 indicates that the most efficient firm generated revenue over six times the value of its total assets. This wide range highlights significant differences in efficiency across the sampled firms.

Board Size (BSIZE), quantified as the number of board members, has 484 observations. The average board size is 9.097107, suggesting that firms typically have around nine board members. The standard deviation of 2.976247 shows a notable variation in board size across firms. The minimum board size recorded is 3, which could be considered relatively small, while the maximum board size of 19 indicates some firms have substantially larger boards. These statistics imply that while most firms have moderately sized boards, there is considerable diversity in board sizes within the sample.

Board Independence (BIND), measured as the proportion of independent directors to the total board size, has 481 observations. The mean proportion of independent directors is 71.69259%, indicating that, on average, about 72% of board members are independent. The standard deviation of 13.25863 reflects variability in the degree of board independence among firms. The minimum value of 33.33333% shows that at least one firm has only one-third of its board composed of independent directors, while the maximum value of 100% indicates some firms have entirely independent boards. This range suggests differing levels of emphasis on board independence among the sampled firms.

Firm Size (FSIZE), represented by the natural log of company total assets, includes 487 observations. The mean value of FSIZE is 10.90197, reflecting the average firm size in the sample. The standard deviation of 2.212919 indicates some variability in firm sizes. The minimum value of 5.112285 shows the smallest firm in the sample, while the maximum value of 15.68037 represents the largest firm. These statistics illustrate that the sample includes a wide range of firms from relatively small to very large companies.

Table 3: Correlation Ma trix

	BSEFF	BSIZE	BIND	FSIZE
BSEFF	1.0000			
BSIZE	-0.0344	1.0000		
BIND	-0.1361	0.1943	1.0000	
FSIZE	-0.0675	0.6053	-0.0147	1.0000

Source: STATA 13 Output, 2024

The correlation matrix table provides insights into the relationships between business efficiency (BSEFF) and the independent and control variables: board size (BSIZE), board independence (BIND), and firm size (FSIZE).

The correlation between business efficiency (BSEFF) and board size (BSIZE) is -0.0344, indicating a very weak and negative relationship. This suggests that as the number of board members increases, there is a slight tendency for business efficiency to decrease. However, the correlation is quite close to zero, implying that board size has little to no linear relationship with business efficiency in this sample.

The correlation between business efficiency (BSEFF) and board independence (BIND) is -

0.1361, which is a weak negative correlation. This indicates that higher proportions of independent directors on the board are associated with slightly lower business efficiency. While the negative relationship is more pronounced than that with board size, it remains weak, suggesting that board independence does not strongly influence business efficiency in the firms studied.

The correlation between business efficiency (BSEFF) and firm size (FSIZE) is -0.0675, also showing a weak negative relationship. This implies that larger firms, as measured by the natural log of total assets, tend to have slightly lower business efficiency. Like the other variables, this correlation is weak, indicating that firm size has a minimal impact on business efficiency in this context.

Table 4: Heteroskedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
chi2(1) = 0.06
Prob > chi2 = 0.7995

Source: STATA 13 Output, 2024

The Breusch-Pagan / Cook-Weisberg test for heteroskedasticity assesses whether the variance of the errors in a regression model is constant (homoskedasticity) or variable (heteroskedasticity). The test statistic is chi-squared (chi2), with the null hypothesis stating that the variance of the errors is constant. Given a p-value of 0.7995, we fail to reject the null hypothesis, indicating no evidence of heteroskedasticity. This result suggests that the variance of the errors is constant, supporting the validity of standard statistical tests in regression analysis.

Table 5: Multicollinearity Test

Variable	VIF	1/VIF
FSIZE	1.72	0.582656
BSIZE	1.71	0.585645
BIND	1.08	0.922985
Mean VIF	**1.50**	

Source: STATA 13 Output, 2024

The VIF values for FSIZE, BSIZE, and BIND are all below 2, indicating that there is no significant multicollinearity among the predictors in the regression model. This supports the reliability of the estimated coefficients and suggests that the predictors do not have redundant information, enhancing the robustness of the regression analysis.

Table 6: Pooled Regression Model

Source	SS	Df	MS			
				Number of obs	=	467
				F (8, 162)	=	6.69
Model	10.17054	5	2.034108	Prob > F	=	0.0000
Residual	140.2185	461	0.304162	R-squared	=	0.0676
				Adj R-squared	=	0.0575
Total	150.389	466	0.322723	Root MSE	=	0.55151

BSEFF	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
BSIZE	0.014444	0.011246	1.28	0.200	-0.00765	0.036543
BIND	-0.00734	0.002033	-3.61	0.000	-0.01134	-0.00335
FSIZE	-0.04389	0.015719	-2.79	0.005	-0.07478	-0.013
_cons	1.619463	0.217951	7.43	0	1.191162	2.047763

Source: STATA 13 Output, 2024

4.2 Test of hypotheses:

The regression model is statistically significant overall, as indicated by the highly significant p-value of 0.0000 associated with the F-statistic. This means that at least one of the predictors is significantly related to business efficiency (BSEFF). The R-squared value of 0.0676 indicates that approximately 6.76% of the variability in business efficiency can be explained by the independent variables in the model. However, the low R-squared value suggests that a large portion of the variability in business efficiency is influenced by factors not included in the model.

Board Size (BSIZE)

The coefficient for board size (BSIZE) is 0.0144, indicating that an increase of one board member is associated with an average increase of 0.0144 in business efficiency. However, the p-value of 0.200 is greater than the significance level of 0.05, this suggests that board size has no significant effect on business efficiency.

Board Independence (BIND)

The coefficient for board independence (BIND) is -0.0073, indicating that a one-unit increase in the proportion of independent directors is associated with an average decrease of 0.0073 in business efficiency. The p-value is 0.000, which is highly significant, indicating that there is a strong negative relationship between board independence and business efficiency.

Firm Size (FSIZE)

The coefficient for firm size (FSIZE) is -0.0439, suggesting that an increase in the natural log of total assets is associated with an average decrease of 0.0439 in business efficiency. The p-value of 0.005 indicates that firm size as the control variable has a significant effect on business efficiency.

4.3 Discussion of Findings:

Board Size (BSIZE):

In the current study, the coefficient for board size (BSIZE) suggests a marginal increase in business efficiency (coefficient = 0.0144), although the p-value of 0.200 indicates non-significance. This finding aligns with Musa et al. (2022), who explored the impact of audit committee size (a proxy for board size) on business efficiency in Nigerian non-financial listed firms. Their study revealed mixed effects, indicating that larger audit committees sometimes mitigate business efficiency but not consistently enough to achieve statistical significance. Similarly, Githaiga et al. (2022) examined board characteristics in East African listed firms and found a positive relationship between board size and earnings management. Their research suggested that larger boards may complicate decision-making processes, potentially affecting operational efficiency negatively. Conversely, Tran and Dang (2021) studied Vietnamese firms and reported a significant positive relationship between board size and earnings management, implying that larger boards might grant more managerial discretion in financial reporting. However, Lippolis and Grimaldi (2020) investigated board independence and business efficiency in Italy, finding that board size did not significantly contribute to earnings quality, suggesting that increasing board size may not universally enhance business efficiency or governance effectiveness.

Board Independence (BIND):

The current study demonstrates a strong negative relationship between board independence (BIND) and business efficiency (coefficient = -0.0073, p-value = 0.000), echoing findings from Akpomedaye and Williamson (2021) in Nigerian healthcare firms. Their research highlighted that board independence significantly reduced business efficiency, indicating the critical role of independent directors in enhancing financial reporting integrity. Similarly, Ngo and Le (2021) investigated Vietnamese listed companies and found that board independence was inversely related to earnings management, underscoring the importance of independent oversight in mitigating managerial opportunism. Additionally, Zubaidah et al. (2021) explored gender diversity and institutional ownership in the Indonesian distribution industry, revealing that institutional ownership negatively influenced business efficiency. These findings collectively illustrate how robust board independence mechanisms can enhance financial transparency and operational efficiency within various corporate governance contexts.

5.0 Conclusion And Recommendations

5.1 Conclusion:

In conclusion, the findings concerning board size indicate a lack of significant impact on business efficiency, consistent with some prior research but contrasting with others that suggest a positive or negative influence depending on the context. Board independence emerges as a critical factor, showing a consistently strong negative relationship with earnings management, underscoring the importance of robust corporate governance practices in enhancing financial transparency and integrity. Firm size, while showing a negative association with business efficiency in our study, reveals complex interactions with governance structures and sector-specific factors, as evidenced by differing findings in other studies across diverse geographical and sectoral settings.

5.2 Recommendations:

Based on the findings and discussions presented, several recommendations can be made for practitioners, policymakers, and future researchers:

i. Enhancing Board Independence: Organizations should prioritize enhancing board independence by appointing more independent directors and fostering an environment where they can effectively oversee managerial decisions. This can mitigate the risks associated with business efficiency and improve financial reporting integrity.

ii. Sector-Specific Governance Practices:

Recognizing the sector-specific nuances observed in various studies, companies should tailor their governance practices to suit their industry dynamics and regulatory environments. This includes understanding how firm size interacts with governance structures to influence operational efficiency and financial transparency.

iii. Policy Implications: Policymakers should consider the implications of these findings when designing and implementing corporate governance regulations. Emphasizing board independence and transparency measures can strengthen investor confidence and promote sustainable corporate practices.

iv. Training and Development: Boards and management teams should invest in continuous training and development programs to enhance governance effectiveness. This includes improving financial literacy among board members and fostering a culture of ethical conduct and accountability within organizations.

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