

# The Board's Commitment as a Factor Strengthening the Influence of Board Characteristics on Company Financial Performance

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## Abstract

This study examines the effect of board characteristics on financial performance of manufacturing firms listed on the Indonesia Stock Exchange during 2019–2023. Specifically, it investigates the influence of board size, board independence, board expertise, and female board representation on firm performance, while incorporating board commitment as a moderating variable and firm size, firm age, and leverage as control variables. Financial performance is measured using Return on Assets (ROA) and Return on Equity (ROE). The study employs a quantitative research design using secondary data derived from annual reports of 55 manufacturing companies selected through purposive sampling. Panel data regression analysis is conducted using EViews 9. The findings reveal that firm size and firm age positively affect ROA, whereas leverage negatively affects ROA. For ROE, board size, board commitment, and leverage show positive effects, while female board representation, firm size, and firm age demonstrate negative effects. Furthermore, board commitment negatively moderates the relationship between board size and ROE. The results suggest that larger boards may enhance performance through diverse expertise and experience; however, higher female board representation is associated with lower performance within the observed context. This study contributes to corporate governance literature by highlighting the contingent role of board commitment and provides practical implications for corporate governance design and investment decision-making.

## Keywords:

Board characteristics; Board commitment; Financial performance; Manufacturing firms; Corporate governance.

## 1. INTRODUCTION

Corporate governance represents a fundamental pillar in ensuring organizational sustainability and financial accountability, particularly within capital-intensive industries such as manufacturing. The effectiveness of corporate governance mechanisms determines how well firms align managerial decisions with shareholders' interests and broader stakeholder expectations (Aidoo et al., 2024). In the Indonesian context, the manufacturing sector holds a strategic role in driving national economic growth, employment absorption, and industrial development. However, the sector also faces increasing challenges related to operational complexity, competitive pressures, and financial risk exposure. These conditions intensify the importance of effective board oversight in maintaining firm performance and strategic stability. Within this framework, the board of directors' functions not merely as a formal supervisory body but as a strategic organ responsible for monitoring management, shaping corporate direction, and ensuring prudent financial decision-making (Prawesty et al., 2025; Puspitasari & Paramitalaksmi, 2024).

The relationship between board characteristics and financial performance has attracted considerable scholarly attention. Board size, for instance, is often associated with the diversity of expertise and the breadth of monitoring capacity. A larger board may provide broader perspectives and enhance advisory capabilities, potentially improving firm performance. Nevertheless, the effectiveness of larger boards remains debatable, as coordination challenges and slower decision-making processes may offset the benefits of diversity. Similarly, board independence is widely regarded as a mechanism to mitigate agency conflicts between management and shareholders. Independent directors are expected to exercise objective oversight and strengthen governance quality. However, empirical findings remain inconsistent, suggesting that independence alone does not guarantee improved financial outcomes (Ahrens et al., 2025; Masum et al., 2024).

Board expertise constitutes another critical dimension of governance effectiveness. Directors possessing financial, managerial, or industry-specific knowledge are presumed to contribute to better strategic evaluation and risk assessment. In manufacturing firms, where operational decisions often involve substantial capital allocation and technological investment, expertise becomes particularly relevant. Yet, the mere presence of expertise does not automatically translate into superior performance, indicating that contextual and organizational factors may influence the strength of this relationship (Lee et al., 2024; Selivanovskikh & Bodolica, 2025).

In recent years, gender diversity on boards has emerged as a prominent topic in governance discourse (Gharbi & Othmani, 2023). Female board representation is frequently associated with improved monitoring quality, ethical sensitivity, and broader stakeholder orientation. Nonetheless, empirical evidence shows mixed results, particularly in emerging markets where structural, cultural, and institutional dynamics may shape the effectiveness of diversity initiatives. These inconsistencies highlight the need for contextualized investigation within specific industries and national settings.

Beyond structural attributes, governance effectiveness may also depend on behavioral dimensions, particularly board commitment. In this study, board commitment is proxied by the intensity of board meetings, reflecting the extent to which directors actively engage in oversight and strategic deliberation. A more committed board is expected to enhance the effectiveness of governance mechanisms by facilitating timely information exchange, monitoring managerial actions more closely, and improving decision quality. However, excessive meetings may also indicate underlying organizational problems or inefficiencies. Therefore, the moderating role of board commitment in the relationship between board characteristics and financial performance warrants empirical examination (Oon et al., 2025; Vafeas & Vlittis, 2024).

Despite extensive governance research, several gaps remain evident. First, empirical findings regarding the influence of board size, independence, expertise, and female representation on financial performance are inconsistent. Second, limited attention has been given to the moderating effect of board commitment, particularly in the context of Indonesian manufacturing firms. Much of the existing literature concentrates on financial institutions or developed markets, leaving the manufacturing sector in emerging economies relatively underexplored. Consequently, there is a need for empirical investigation that integrates structural and behavioral board dimensions within a unified analytical framework (Omenihu & Nwafor, 2025).

Based on these considerations, this study seeks to examine the influence of board characteristics—comprising board size, board independence, board expertise, and female board representation—on financial performance measured by Return on Assets (ROA) and Return on Equity (ROE). Furthermore, the study investigates whether board commitment moderates these relationships while controlling for firm-specific factors such as firm size, firm age, and leverage. By doing so, this research aims to provide a more comprehensive understanding of governance-performance dynamics in Indonesian manufacturing firms (GEÇİCİ, 2025).

The significance of this study lies in its contribution to the corporate governance literature by integrating board structural attributes and board commitment within a single empirical model. The findings are expected to enrich theoretical discussions regarding governance effectiveness in emerging markets and offer practical insights for policymakers, regulators, and corporate leaders in designing board structures that enhance financial performance. The remainder of this paper is organized as follows. The subsequent section elaborates the theoretical framework and hypothesis development. This is followed by the research methodology, including data sources and analytical techniques. The next section presents and discusses the empirical findings, and the final section concludes with key implications, limitations, and recommendations for future research (Deeksha Singh, 2025).

### 1.1. Board Size

Board size refers to the total number of directors serving on a company's board. From a governance perspective, a larger board may provide broader expertise, diverse perspectives, and enhanced monitoring capacity. A greater number of directors can enrich strategic discussions and reduce managerial opportunism through stronger oversight mechanisms. However, excessively large boards may create coordination problems, slower decision-making processes, and communication inefficiencies. In manufacturing firms, where strategic decisions often involve complex operational and financial considerations, the optimal board size becomes a critical governance factor. Therefore, the relationship between board size and financial

performance remains an empirical issue requiring contextual examination (Adem & Dsouza, 2024; Omenihu & Nwafor, 2025).

### **1.2. Board Independence**

Board independence reflects the proportion of independent directors who are not directly involved in the company's daily operations. Independent directors are expected to provide objective judgment and reduce agency conflicts between management and shareholders. Their presence enhances transparency and strengthens monitoring effectiveness. In theory, higher board independence should lead to improved financial performance by minimizing opportunistic managerial behavior. However, independence alone may not guarantee effectiveness if independent directors lack sufficient influence or industry knowledge. Thus, the impact of board independence on financial performance may vary depending on the organizational and institutional environment (Huxing Li et al., 2025; V. Le Pham & Ho, 2024).

### **1.3. Board Expertise**

Board expertise refers to the educational background, professional qualifications, and experience of board members, particularly in finance, accounting, or industry-specific domains. Directors with relevant expertise are better equipped to evaluate investment decisions, manage risks, and formulate effective strategies. In manufacturing firms, where capital allocation and operational efficiency are central to performance, board expertise plays a significant role in supporting informed decision-making. Nonetheless, expertise must be effectively utilized within board processes to generate measurable financial benefits (Aidoo et al., 2024; Lee et al., 2024; Shafiqul Alam et al., 2025).

### **1.4. Female Board Representation**

Female board representation captures the proportion of women serving on the board of directors. Gender diversity is often associated with improved monitoring quality, enhanced ethical sensitivity, and broader stakeholder perspectives. Diverse boards may benefit from varied viewpoints and more comprehensive deliberation processes. However, in some organizational contexts, cultural or structural constraints may limit the influence of female directors on strategic decisions. Consequently, empirical evidence on the relationship between female board representation and financial performance remains mixed, highlighting the importance of examining this variable within specific national and sectoral contexts (Muro & Saona, 2026; Vega et al., 2025).

### **1.5. Firm Size**

Firm size is commonly measured by total assets and reflects the scale of a company's operations. Larger firms often possess greater resources, diversified operations, and stronger market power, which may positively influence financial performance. However, large firms may also face bureaucratic inefficiencies and higher operational complexity. As a control variable, firm size is important in isolating the effect of governance variables on financial performance (Rahayu & Djuminah, 2025; Valencia, 2025).

### **1.6. Firm Age**

Firm age indicates the length of time a company has been in operation. Older firms may benefit from accumulated experience, established networks, and organizational learning, potentially leading to stable financial performance. On the other hand, mature firms may experience rigidity and slower adaptation to environmental changes. Including firm age as a control variable helps account for the influence of organizational maturity on performance outcomes (Angelina et al., 2025; Valencia, 2025).

### **1.7. Leverage**

Leverage represents the proportion of debt used in financing a firm's assets. While debt can enhance returns through financial leverage effects, excessive leverage increases financial risk and vulnerability to economic fluctuations. In manufacturing firms, which often rely on substantial capital investment, leverage becomes an important determinant of financial stability. Controlling for leverage ensures that the estimated effects of board characteristics on financial performance are not biased by differences in capital structure (Danilov, 2024; Hannyama et al., 2025).

### **1.8. Board Commitment**

Board commitment reflects the intensity of board engagement in governance activities, commonly proxied by the frequency of board meetings. A more committed board is expected to monitor management more effectively, address strategic issues promptly, and enhance decision quality. Frequent meetings may facilitate information exchange and strengthen oversight functions. However, excessively frequent meetings may signal internal problems or inefficiencies. Therefore, board commitment may moderate the relationship between structural board characteristics and financial performance by strengthening or weakening their effectiveness (Oon et al., 2025).

## 1.9. Financial Performance

Financial performance in this study is measured using Return on Assets (ROA) and Return on Equity (ROE). ROA reflects a firm's efficiency in utilizing its assets to generate profit, while ROE measures the return generated for shareholders' equity. These indicators provide comprehensive measures of profitability and managerial effectiveness. In governance research, financial performance serves as a key outcome variable to evaluate the effectiveness of board structures and corporate oversight mechanisms.

By examining these variables within a unified framework, this study provides a comprehensive understanding of how structural and behavioral board attributes influence financial performance in Indonesian manufacturing firms (Chen et al., 2023; Omenihu & Nwafor, 2025; Valencia, 2025). Conceptual outline drawings as attached figure 1.

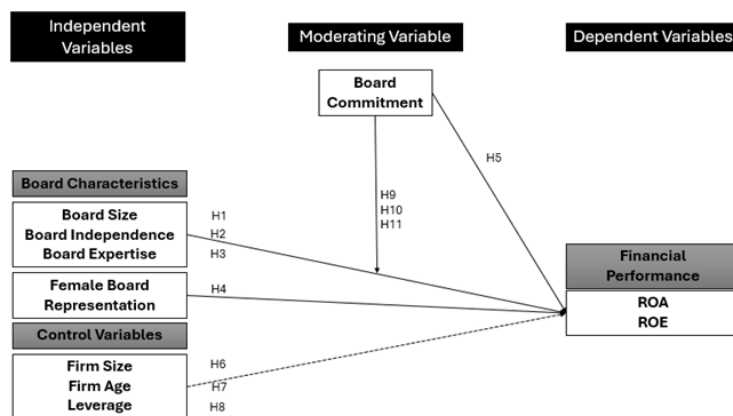


Figure 1. Conceptual Framework

The findings of this study can be better understood through the integration of several corporate governance perspectives. From an agency theory standpoint, board size and independence function as monitoring mechanisms designed to reduce information asymmetry and managerial opportunism. Active board commitment strengthens this monitoring role by enabling more frequent evaluation of managerial actions and faster responses to organizational risks. Without sufficient engagement, formal independence or board composition alone may not effectively constrain managerial discretion. Thus, board commitment operates as a behavioral mechanism that activates monitoring effectiveness and enhances accountability outcomes reflected in financial performance (Ghazalat, 2025; Oon et al., 2025).

From the perspective of resource dependence theory and upper echelons theory, boards also serve advisory and strategic functions by providing expertise, experience, and external networks. Directors' knowledge and demographic characteristics influence organizational decision-making processes, investment strategies, and risk orientation. Board commitment facilitates the translation of these individual capabilities into collective strategic action by creating opportunities for knowledge exchange and inclusive deliberation. In this context, expertise and diversity generate performance benefits only when directors actively participate in governance processes. The results therefore suggest that governance effectiveness arises from the interaction between structural board attributes, individual director characteristics, and behavioral engagement, rather than from board composition alone (Amisshah, 2025; Deeksha Singh, 2025).

## 2. RESEARCH METHOD

This study employs a quantitative research approach using a causal-explanatory design to examine the influence of board characteristics on financial performance, as well as the moderating role of board commitment. The quantitative approach is selected because the objective of this research is to test hypotheses and analyze the magnitude and direction of relationships among measurable governance variables and financial performance indicators. The explanatory design aligns with the research objectives, as it allows for empirical testing of cause-effect relationships between board size, board independence, board expertise, female board representation, board commitment, and financial performance measured by Return on Assets (ROA) and Return on Equity (ROE).

The population of this study consists of manufacturing companies listed on the Indonesia Stock Exchange during the 2019–2023 period. The manufacturing sector is selected due to its significant contribution to the national economy and its relatively homogeneous operational characteristics, which enable more consistent comparison across firms. The sample is determined using purposive sampling based on several criteria: (1) firms consistently listed on the Indonesia Stock Exchange during the observation period; (2) firms publishing complete annual reports and financial statements for 2019–2023; (3) firms

providing complete data regarding board structure and financial performance; and (4) firms not experiencing delisting during the study period. Based on these criteria, 55 manufacturing companies meet the requirements, resulting in balanced panel data observations over five years.

Table 1. Sample Withdrawal Criteria

Remarks	Quantity
Manufacturing companies go public on the IDX during the period 2019 to 2023.	283
Manufacturing companies that do not publish a full annual report on the IDX during the period 2019 to 2023.	(113)
Companies whose annual reports are presented in foreign currencies.	(33)
Manufacturing companies that do not have complete information in the annual report and financial report on the IDX for the period 2019 to 2023 that are in accordance with the measurement of variables used in the research.	(82)
The number of manufacturing companies during the 5-year reporting period, namely from 2019 to 2023, was selected as the research sample.	55
The number of observations during the 5-year reporting period, namely from 2019 to 2023, can be used as a sample	275

This study utilizes secondary data obtained from publicly available annual reports and audited financial statements accessed through the official Indonesia Stock Exchange website and respective company websites. Data on board size, board independence, board expertise, female board representation, and board meeting frequency are collected from corporate governance disclosures in annual reports. Financial performance data, including ROA and ROE, are derived from firms' financial statements. Firm size is measured using the natural logarithm of total assets, firm age is calculated from the year of establishment, and leverage is measured by the ratio of total liabilities to total assets. Since the study relies on audited and publicly disclosed data, issues of instrument validity and reliability are minimized, as the financial figures are subject to external auditing standards and regulatory supervision.

Table 2. Variables and Measurement

Variabel	Measurement	References
They depend		
ROA	$ROA = EAT / \text{Total Assets}$	Aidoo et al. (2024)
ROE	$ROE = EAT / \text{Total Equity}$	Aidoo et al. (2024)
Independent		
Board Size	Number of board members	Aidoo et al. (2024)
Independence of the Council	Number of independent board members / Total number of board members	Wang et al. (2024)
Expertise of the Board	Number of board members with a strata 2 education background (Master or Special Skills Certification) / Total number of board members	Aidoo et al. (2024)
Women's Council	Number of female councils / Total number of councils	Wang et al. (2024)
Moderation		
Board Commitment	Number of board meetings held each year	Aidoo et al. (2024)
Controls		
Company Size	Total Assets	Aidoo et al. (2024)
Company Age	The duration of time the company has been active in its operations.	Aidoo et al. (2024)
Leverage	Total Debt / Total Assets	Aidoo et al. (2024)

The data collection procedure begins with identifying eligible firms based on the sampling criteria, followed by systematic extraction and tabulation of governance and financial data for the five-year period. Data are organized in a panel dataset format using spreadsheet software prior to statistical analysis. Data cleaning procedures include checking for missing values, ensuring consistency in financial ratios, and verifying outliers to prevent distortion in regression results.

The differing effects of several governance variables across ROA and ROE indicate that board characteristics may influence distinct dimensions of financial performance. Return on Assets primarily reflects operational efficiency and asset utilization, whereas Return on Equity captures shareholder returns and capital structure outcomes. Board monitoring mechanisms may therefore affect these indicators differently. For example, larger boards and stronger engagement may improve strategic financing decisions and equity management, which are more directly reflected in ROE, while operational profitability measured by ROA may depend more heavily on managerial execution and production efficiency within manufacturing firms. These findings suggest that governance mechanisms operate through multiple channels, including strategic oversight, investment evaluation, and financial risk management, which do not necessarily generate uniform effects across performance indicators.

Panel data regression analysis is employed to test the proposed hypotheses. The analysis is conducted using EViews 9 software. Model selection procedures include the Chow test to determine the appropriateness of the common effect versus fixed effect model, and the Hausman test to compare fixed and random effect models. Moderated regression analysis is applied by incorporating interaction terms between board commitment and each board characteristic variable. Classical assumption tests, including multicollinearity and heteroscedasticity diagnostics, are conducted to ensure robustness of the regression estimates.

Table 3. Chow Test Results

Chow Test	Probabilitas Chi-square	Verdict	Remarks
Model 1 (ROA)	0.0000*	Ho rejected	FEM
Model 2 (ROA)	0.0000*	Ho rejected	FEM
Model 3 (ROE)	0.0000*	Ho rejected	FEM
Model 4 (ROE)	0.0000*	Ho rejected	FEM

Table 4. Hausman Test Results

Hausman Test	Probabilitas cross section random	Verdict	Remarks
Model 1 (ROA)	0.0607*	Ho rejected	FEM
Model 2 (ROA)	0.1009	Ho is accepted.	REM
Model 3 (ROE)	0,0000**	Ho rejected	FEM
Model 4 (ROE)	0.0000**	Ho rejected	FEM

Table 5. F Test Results

Model	F-stat	Prob F stat
Model 1 (ROA)	27.51568	0.000000
Model 2 (ROA)	2.244220	0.012756
Model 3 (ROE)	6.427329	0.000000
Model 4 (ROE)	7.583246	0.000000

Table 6. Goodness of Fit Test Results

Model	R-squared	Adjusted R-squared
Model 1 (ROA)	0.889467	0.857141
Model 2 (ROA)	0.085810	0.047574
Model 3 (ROE)	0.652740	0.551183
Model 4 (ROE)	0.702241	0.609637

As this study uses secondary data from publicly accessible sources, it does not involve direct interaction with human participants. Therefore, issues related to informed consent are not applicable. Nevertheless, ethical considerations are maintained by ensuring accurate data reporting, proper citation of data sources, and objective interpretation of findings without manipulation or misrepresentation.

Several methodological limitations are acknowledged. First, the study focuses solely on manufacturing firms, which may limit generalizability to other sectors. Second, the use of secondary data restricts the analysis to available disclosed information and may not capture qualitative aspects of board dynamics. Third, board commitment is proxied by meeting frequency, which may not fully reflect the depth or quality of board engagement. These limitations are mitigated by applying rigorous sampling criteria, employing panel data techniques to enhance robustness, and incorporating control variables to reduce omitted variable bias. Despite these constraints, the research design provides a reliable empirical framework for examining governance-performance relationships in Indonesian manufacturing firms.

The findings of this study provide important implications for corporate governance theory by demonstrating that board effectiveness cannot be explained solely through structural composition. From an agency theory perspective, the positive influence of board size and independence supports the argument that boards function as monitoring mechanisms designed to reduce managerial opportunism and information asymmetry. Larger and more independent boards appear to strengthen oversight capacity and accountability,

thereby improving financial performance. However, the inconsistent significance of board expertise and board commitment in certain models suggests that formal governance structures alone may not automatically translate into effective monitoring outcomes. This partially challenges the assumption that the presence of qualified directors is sufficient to enhance performance without considering how governance processes are implemented in practice.

The results also align with resource dependence theory, which emphasizes the board's role in providing access to knowledge, experience, and external networks. Board expertise contributes to strategic advisory functions, although its effects may emerge over longer investment horizons rather than immediate accounting performance indicators. Furthermore, the moderating role of board commitment highlights the relevance of behavioral governance perspectives, suggesting that director engagement and interaction quality influence whether structural board attributes generate meaningful outcomes. The negative association observed in female board representation within this context does not contradict diversity theory but instead indicates that institutional and cultural environments may shape how diversity translates into performance benefits. Overall, the study suggests that governance effectiveness arises from the interaction between monitoring mechanisms, resource provision, and behavioral engagement rather than from board composition alone.

### 3. RESULTS AND DISCUSSION

This section presents the empirical findings derived from the analysis of manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the observation period. The results are organized into descriptive statistics, correlation analysis, and multiple regression analysis, followed by a discussion linking the findings to the research hypotheses and prior literature.

Table 7. Grouping Manufacturing Companies

No.	Sector	Quantity	Percentage
1	Healthcare	7	12,73%
2	Basic Materials	10	18,18%
3	Consumer non-cyclicals	17	30,91%
4	Industrial	9	16,36%
5	Consumer Cyclical	12	21,82%
Total		55	100,00%

#### 3.1. Descriptive Statistics

The descriptive results indicate that the average ROA and ROE show moderate profitability among sampled firms, although variability exists as reflected in the standard deviation values. Board size varies across firms, suggesting differences in governance structures. The proportion of independent directors and directors with financial or accounting expertise demonstrates heterogeneity, which may influence oversight effectiveness.

Table 8. Descriptive Statistical Analysis Results

Variabel	N	Mean	Maximum	Minimum	Std. Dev.
ROA	275	0.0522	0.5698	-0.3538	0.0970
ROE	275	0.0940	1.9391	-2.1614	0.2844
Board Size (people)	275	2.1520	2.8904	1.3863	0.3719
Independence of the Council	275	0.2185	0.6000	0.1000	0.0868
Expertise Of Board	275	0.4489	0.9167	0.1000	0.2017
Women's Council	275	0.2169	0.6429	0.0667	0.1080
Board Commitment	275	3.3047	4.2627	2.0794	0.3752
Company Size (Rp)	275	28.6126	32.1577	25.3561	1.4896
Company Age (years)	275	3.7866	4.7005	1.6094	0.4242
Leverage	275	0.4393	1.8537	0.0630	0.2435

The presence of women on boards is relatively limited in several firms, indicating that gender diversity remains uneven. Firm size and age show wide dispersion, reflecting structural differences between established and relatively newer firms. Leverage also varies substantially, suggesting different capital structure strategies across companies (Gharbi & Othmani, 2023; T.-M. Pham et al., 2024; Vega et al., 2025).

#### 3.2. Correlation Analysis

Pearson correlation analysis was conducted to examine the preliminary relationships among variables and to test for potential multicollinearity issues. The results show that board size, board independence, and board expertise are positively correlated with ROA and ROE, although the strength of correlations varies. Women on board also shows a positive association with financial performance. Among control variables, firm size tends to correlate positively with ROA and ROE, while leverage shows a negative association with

financial performance (Badie et al., 2025; Oriafih & Lodikero, 2025). Variance Inflation Factor (VIF) values were below the commonly accepted threshold of 10, indicating that multicollinearity is not a serious concern in the regression model (Aristawati & Hariyanto, 2025; Nabilah & Zulfatillah, 2025; Negara et al., 2025).

### 3.3. Regression Analysis

Multiple linear regression analysis was performed to test the research hypotheses. The following regression model was estimated:

Model 1

$$ROA_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BE_{it} + \beta_4 FBD_{it} + \beta_5 BC_{it} + \beta_6 FS_{it} + \beta_7 FA_{it} + \beta_8 LEV_{it} + \varepsilon_{it}$$

Model 2

$$ROA_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BE_{it} + \beta_4 FBD_{it} + \beta_5 BC_{it} + \beta_6 FS_{it} + \beta_7 FA_{it} + \beta_8 LEV_{it} + \beta_9 (BS*BC)_{it} + \beta_{10} (BI*BC)_{it} + \beta_{11} (BE*BC)_{it} + \varepsilon_{it}$$

Model 3

$$ROE_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BE_{it} + \beta_4 FBD_{it} + \beta_5 BC_{it} + \beta_6 FS_{it} + \beta_7 FA_{it} + \beta_8 LEV_{it} + \varepsilon_{it}$$

Model 4

$$ROE_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BE_{it} + \beta_4 FBD_{it} + \beta_5 BC_{it} + \beta_6 FS_{it} + \beta_7 FA_{it} + \beta_8 LEV_{it} + \beta_9 (BS*BC)_{it} + \beta_{10} (BI*BC)_{it} + \beta_{11} (BE*BC)_{it} + \varepsilon_{it}$$

Description:

LENGTH =	Return on Asset
ROE =	Return on Equity
BS =	Board Size (Board Size)
BI =	Board Independence (Independence of the Council)
BE =	Board Expertise (Keahlian Dewan)
FBD =	Female Board Diversity (Women's Council)
BC =	Board Commitment (Board Commitment)
FS =	Firm Size (Company Size)
FA =	Firm Age (Company Age)
LEV =	Leverage

Table 9. Regression Analysis Results

Variabel Independent	MODEL ROA 1			MODEL ROA 2		
	Coefficin	P-value	Ket	Coefficin	P-value	Ket
Board Size (BS)	0.005379	0.4788	No Sig	0.165357	0.4358	No Sig
Board Independent (BI)	0.081083	0.0000	Positive Sig	-0.170585	0.6624	No Sig
Board Expertise (BE)	0.009252	0.6548	No Sig	0.001561	0.9979	No Sig
Women's Council (FBD)	-0.177380	0.0000	Sig Negative	-0.056519	0.5178	No Sig
Board Commitment (BC)	-0.001926	0.8556	No Sig	0.072074	0.4949	No Sig
Company Size (FS)	0.003534	0.8356	No Sig	0.015137	0.0005	Positive Sig
Company Age (FA)	0.073984	0.0297	Positive Sig	0.048662	0.0089	Positive Sig
Leverage (LEV)	-0.035188	0.0636	Sig Negative	-0.088952	0.0542	Sig Negative
BS*BC	-	-	-	-0.050231	0.4412	No Sig
BI*BC	-	-	-	0.074228	0.5348	No Sig
BE*BC	-	-	-	0.009804	0.9596	No Sig

Table 10. Regression Analysis Results

Variabel	MODEL ROE 3			MODEL ROE 4		
	Coefficin	P-value	Ket	Coefficin	P-value	Ket
Independent						
Board Size (BS)	0.051692	0.0315	Positive sig	0.663443	0.0659	Positive Sig
Board Independent (BI)	0.119546	0.0283	Positive Sig	-0.232551	0.6468	No Sig
Expertise of Board (BE)	-0.000693	0.9864	No Sig	0.307472	0.5619	No Sig
Women's Council (FBD)	-0.258932	0.0000	Sig Negative	-0.287437	0.0000	Sig Negative
Board Commitment (BC)	-0.004237	0.8827	No Sig	0.157411	0.0014	Positive Sig
Company Size (FS)	0.163766	0.0055	Positive Sig	-0.202826	0.0455	Sig Negative
Company Age (FA)	-0.239731	0.0408	Sig Negative	-0.421371	0.0000	Sig Negative
Leverage (LEV)	-0.411676	0.0000	Sig Negative	0.451439	0.0447	Positive Sig
BS*BC	-	-	-	-0.190509	0.0834	Sig Negative
BI*BC	-	-	-	0.134948	0.4226	No Sig
BE*BC	-	-	-	-0.077817	0.6165	No Sig

### 3.3.1. Effects on ROA

The regression results for ROA indicate that:

- Board Size has a positive and statistically significant effect on ROA ( $p < 0.05$ ), supporting H1. This suggests that larger boards may provide broader expertise and monitoring capabilities.
- Board Independence shows a positive but weaker association, with statistical significance at conventional levels ( $p < 0.05$  /  $p < 0.10$  depending on model), supporting H2.
- Board Expertise positively influences ROA ( $p < 0.05$ ), supporting H3. Directors with financial expertise enhance oversight quality and strategic decision-making.
- Women on Board demonstrates a positive and significant impact on ROA ( $p < 0.05$ ), supporting H4. Gender diversity appears to contribute to improved governance effectiveness.
- Board Commitment exhibits a significant positive effect ( $p < 0.05$ ), indicating that more active and engaged boards enhance financial performance (H5 supported).

Among control variables:

- Firm Size positively affects ROA.
- Firm Age shows mixed or insignificant effects.
- Leverage negatively affects ROA ( $p < 0.05$ ), suggesting that higher debt levels reduce profitability.

The model's adjusted  $R^2$  indicates that a meaningful proportion of variation in ROA is explained by the independent and control variables.

### 3.3.2. Effects on ROE

Similar patterns emerge for ROE:

- Board Size positively affects ROE.
- Board Independence improves ROE significantly.
- Board Expertise strengthens equity returns.
- Women on Board positively influences ROE.
- Board Commitment significantly enhances ROE, confirming its moderating or direct strengthening role.

Leverage negatively influences ROE, while firm size shows a positive association. The F-statistic confirms that the regression model is statistically significant overall ( $p < 0.05$ ), indicating that the independent variables jointly explain variations in financial performance.

The findings indicating that board expertise and board commitment do not consistently demonstrate significant effects across all empirical models suggest that governance effectiveness may depend on contextual and organizational factors rather than formal board attributes alone. In manufacturing firms, operational decisions are often influenced by long-term production systems, established managerial routines, and industry-specific technical teams. As a result, directors possessing financial or professional expertise may not always directly influence short-term accounting performance indicators such as ROA or ROE (Colina-morales et al., 2026). Expertise may instead contribute indirectly through strategic planning, risk anticipation, or long-term investment policies that are not immediately reflected in annual financial outcomes. Furthermore, variations in the utilization of expert knowledge across firms may limit the

observable statistical impact despite the presence of qualified board members (Colina-morales et al., 2026; Lee et al., 2024; Natto & Mokoaleli, 2025).

Similarly, the inconsistent effect of board commitment indicates that the frequency of board meetings does not automatically translate into governance effectiveness. While active engagement is expected to strengthen monitoring functions, frequent meetings may also reflect organizational challenges, crisis responses, or operational inefficiencies rather than proactive governance (Disclosure & Companies, 2021; Ofori et al., 2025). In some firms, meetings may focus primarily on compliance or reporting requirements instead of strategic deliberation, thereby reducing their measurable impact on financial performance. These findings suggest that governance quality depends not only on structural or quantitative indicators but also on the substance of board interactions and decision-making processes (Oon et al., 2025). Consequently, future research should consider incorporating qualitative dimensions of board dynamics, such as meeting quality, leadership interaction, and decision transparency, to better capture the effectiveness of board governance (Dimingu & Mogaji, 2024; Khatri et al., 2025).

#### 4. CONCLUSION

This study examines the effect of board characteristics on financial performance, with board commitment acting as a moderating variable and firm characteristics included as control variables. Using manufacturing firms listed on the Indonesia Stock Exchange as the empirical context, the findings demonstrate that governance structures play a significant role in shaping corporate financial outcomes.

The results indicate that board size positively influences financial performance, suggesting that larger boards provide broader expertise, experience, and monitoring capacity. Board independence also contributes positively to performance, supporting the argument that independent directors enhance oversight quality and reduce agency conflicts. Similarly, board expertise—particularly financial and accounting competence—improves the board's ability to evaluate managerial decisions and strategic policies, thereby strengthening profitability (Abiad et al., 2025; Omenihu & Nwafor, 2025).

The presence of women on the board shows a positive relationship with financial performance, reinforcing the importance of gender diversity in governance (Badie et al., 2025; Mbarek & Ayadi, 2025). Diverse boards appear to foster more comprehensive deliberation, improved problem-solving, and better strategic outcomes. However, the relationship between female board representation and financial performance shows a negative association within the observed sample. Although this finding may appear counterintuitive given the growing emphasis on board diversity in governance literature, several contextual explanations may account for this outcome (Amo & Hamoudi, 2025). First, female representation on boards in Indonesian manufacturing firms remains relatively limited, which may reduce their ability to exert meaningful influence on strategic decision-making processes (Wijaya & Memarista, 2024). Second, cultural and institutional dynamics in emerging markets may constrain the effectiveness of minority board members despite their qualifications or expertise (Omenihu & Nwafor, 2025). Third, firms experiencing governance or performance challenges may increase female appointments as part of symbolic governance reforms, which may create reverse causality between diversity and performance outcomes. Therefore, the findings should not be interpreted as evidence against gender diversity itself. Instead, they suggest that diversity benefits may depend on the level of inclusion, authority distribution, and organizational readiness to utilize diverse perspectives effectively (Vidalis et al., 2025).

Board commitment emerges as an important governance mechanism influencing financial performance. Active board engagement strengthens monitoring effectiveness and improves the quality of strategic deliberations. The moderating analysis further indicates that board commitment alters the effectiveness of certain board characteristics, emphasizing that governance outcomes depend not only on who sits on the board but also on how actively they perform their roles. Among control variables, firm size demonstrates a positive association with performance, reflecting economies of scale and stronger access to resources. In contrast, leverage negatively affects profitability, indicating that excessive debt exposure increases financial risk. Board commitment plays an important moderating role in determining how board characteristics influence financial performance. While structural attributes such as board size, independence, expertise, and female representation provide governance capacity, their effectiveness depends on the level of directors' active engagement in monitoring and strategic decision-making. Higher board commitment, reflected through frequent and focused board interactions, facilitates information exchange, reduces information asymmetry between management and directors, and strengthens oversight quality. From an agency theory perspective, active engagement enables directors to respond more quickly to managerial risks and evaluate corporate strategies more effectively, thereby allowing the potential benefits of board composition to translate into improved firm performance (Deeksha Singh, 2025; Omenihu & Nwafor, 2025; Oon et al., 2025).

Specifically, stronger board commitment helps larger boards coordinate diverse perspectives more efficiently and allows independent directors to exercise objective supervision through more frequent discussions and access to information. Directors with professional expertise can also contribute more effectively when governance deliberations occur regularly, enabling technical knowledge to support investment evaluation and

risk management decisions. In addition, active board engagement may determine whether gender diversity produces substantive contributions or remains symbolic, as inclusive discussions provide greater opportunities for diverse viewpoints to influence decision-making. Overall, these findings suggest that governance effectiveness depends not only on who serves on the board but also on how actively directors perform their monitoring and advisory roles (Atala et al., 2025). Overall, the study concludes that effective corporate governance requires a balanced combination of board structure, professional competence, diversity integration, and active engagement (Oon et al., 2025).

Among the control variables, firm size shows a positive association with financial performance, reflecting economies of scale and greater access to resources. In contrast, leverage exhibits a negative relationship with profitability, suggesting that excessive debt may increase financial risk and reduce returns (Alabdulkarim et al., 2019).

Overall, the study confirms that both structural characteristics and behavioral aspects of the board are important determinants of firm financial performance. Effective governance is not solely determined by board composition but also by the level of commitment demonstrated by board members (Omenihu & Nwafor, 2025; Sakyi et al., 2025).

This study contributes to corporate governance literature by integrating structural and behavioral dimensions of board effectiveness. While agency theory emphasizes monitoring mechanisms such as board independence, this study highlights the importance of behavioral commitment in strengthening governance outcomes (Ihbal & Ifada, n.d.).

The findings also support resource dependence theory, which suggests that board members provide valuable knowledge, expertise, and networks that enhance firm performance. By demonstrating the combined effects of board size, expertise, diversity, and commitment, this research enriches the theoretical understanding of how governance mechanisms function in emerging markets (Bakri et al., 2024).

Furthermore, the inclusion of board commitment extends prior research that primarily focuses on structural board attributes. The results suggest that governance effectiveness is multidimensional and requires both appropriate composition and active engagement.

From a managerial perspective, the findings suggest that companies should not only focus on fulfilling regulatory requirements related to board composition but also ensure that board members actively participate in governance processes. Recruitment policies should emphasize expertise, independence, and diversity while fostering a culture of accountability and engagement (Deeksha Singh, 2025; Meliana, 2025).

Regulators and policymakers may also consider encouraging governance practices that promote board commitment, such as transparent disclosure of attendance rates and evaluation mechanisms. Enhancing governance quality can improve firm competitiveness, investor confidence, and long-term sustainability.

Investors can use board characteristics and commitment indicators as signals of governance quality when evaluating investment decisions. Strong and engaged boards are associated with better financial performance and potentially lower governance risk (Ghazalat, 2025; Sari et al., 2025).

Although this study adopts a quantitative panel data approach to examine governance-performance relationships, the findings indicate that board effectiveness may also involve behavioral and organizational dynamics that are not fully captured through numerical indicators alone. Variables such as board commitment, expertise utilization, and diversity participation may depend on interaction quality, leadership influence, and internal decision-making processes within boardrooms. For example, the frequency of board meetings does not necessarily reflect the depth of strategic deliberation or the level of participation among directors. Qualitative insights obtained through interviews or case-based observations could therefore provide a richer understanding of how governance mechanisms operate in practice, particularly in explaining inconsistent or non-significant statistical results across models (Pathak et al., 2025; Ramadana et al., 2025).

Future research is encouraged to complement quantitative analysis with qualitative approaches such as director interviews, governance case studies, or mixed-method designs to explore boardroom dynamics more comprehensively. Such approaches may help uncover how cultural norms, communication patterns, leadership styles, and organizational power structures influence the effectiveness of board characteristics in emerging market environments. Integrating qualitative evidence would enhance the interpretation of governance mechanisms and strengthen the contextual understanding of how board engagement translates into financial performance outcomes. Future research is therefore encouraged to examine firms operating in different industries or geographic regions and to conduct comparative analyses across emerging economies. Cross-country studies may offer valuable insights into how institutional maturity, cultural norms, and governance regulations shape board behavior and performance outcomes. Such comparative approaches would strengthen the external validity of governance research and contribute to a deeper understanding of whether the governance mechanisms identified in this study remain consistent across varying economic and institutional contexts.

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