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Original Article

The Influence of Board of Directors Characteristics on Financial Distress (Case Study of Automotive and Components Companies Listed on the IDX for 2017-2023)

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Abstract

This research is motivated by the delisting of automotive and component companies on the Indonesia Stock Exchange (IDX) in 2024. This issue can be explained by a variety of variables, such as the board of directors' approach to strategic decision-making. As a result, the purpose of this study is to analyze and investigate the impact of board of directors characteristics, such as board gender diversity, board size, and board educational background, on financial distress in automotive and components companies listed on the IDX between 2017 and 2023. The methodology used was a quantitative methodology with secondary data gathered from 11 companies' annual reports and financial statements over a seven-year observation period, yielding 77 samples obtained through a purposive sampling method. The financial distress variable is measured using the Altman Z-Score method. Data analysis is conducted using multiple linear regression with SPSS 31 software. The results of the partial analysis indicate that board gender diversity had a significant positive effect on financial distress, while board size had a significant negative effect. In contrast, board educational background was not found to have a significant effect. However, the simultaneous analysis revealed that the three board characteristics together had a significant impact on financial distress. These findings underscore the complexity of the board of directors' role in mitigating a company's financial risk, where the combination of these characteristics has a stronger effect than their individual influences.

Keywords: Board size, Educational Background, Financial distress, Gender Diversity.

1. Introduction

The automotive industry sector is a strategic pillar of the Indonesian economy, essential for national growth. Financial performance in this sector is reflected in financial reports, which often show significant profit fluctuations, including both gains and losses. According to data from the Association of Indonesian Automotive Industries (GAIKINDO), car sales in 2023 reached 1,005,802 units. This figure represents a decline of approximately 4% from the 1,048,040 units sold in 2022, indicating a slowdown in growth. This situation is further exacerbated in 2024, as two companies in the automotive sector, PT Prima Alloy Steel Universal (PRAS) and PT Nippress (NIPS), were delisted. Delisting is a strong indicator of severe financial distress, where a company fails to meet exchange listing requirements and cannot continue to operate as a public entity. This highlights significant challenges faced by some entities in the automotive sector, extending beyond mere sales fluctuations and pointing to deeper structural or operational issues.

Financial distress refers to a company's difficulty in meeting its financial obligations and serves as a key indicator that can affect business continuity.However, financial distress does not always lead to bankruptcy, as conditions can still be improved through quick and appropriate interventions (Widiastuti & Ikhsan, 2022). This condition can be caused by various factors, both external and internal. That one of the internal factors is poor decision-making by company leaders, such as the board of directors, which can trigger a decline in revenue and lead to financial difficulties. Through sound decision-making, the leadership quality of the board of directors becomes a determining factor in a company's success in overcoming financial distress and achieving sustainable growth. This leadership quality is closely related to managerial characteristics.

Hambrick (1984) identifies several examples of managerial characteristics, such as age, tenure, functional background, education, socioeconomic background, and financial position. This study focuses on identifying three primary characteristics: board gender diversity, board size, and educational background. In the context of gender diversity, the general public perception often considered men to be more suitable for leadership roles than women (Nugroho, 2025). According Deng et al. (2024), gender diversity is crucial for preventing financial distress due to its ability to enhance supervision quality, improve decision-making, and boost a company's reputation.

In addition to gender diversity, board size is another crucial factor that influences the effectiveness of leaders in decision-making. Board size refers to the total number of members on a company's board of directors. A smaller board size can affect financial distress through its impact on decision-making effectiveness, supervision quality, coordination efficiency, and communication complexity (Pirson & Turnbull, 2011). Conversely, an excessively large board could lead to inefficiencies, conflicts of interest, and high operational costs, thus hindering corporate performance (Nugroho, 2025).

Furthermore, an educational background provides directors with essential knowledge to enhance the quality of strategic decision-making in navigating business dynamics (Thao, 2024). In this context, Zalata et al. (2018) states that the competency of directors stemming from their educational background is an effective tool for reducing earnings management in a company. Aligned with Bertrand et al. (2007) view on CEO characteristics, Ali et al. (2022) find that CEOs with an MBA degree tend to make more aggressive decisions, such as a higher debt-to-equity ratio and capital expenditures, as well as lower dividend payouts, and are able to outperform CEOs without an MBA degree.

However, despite the growing body of literature on board characteristics and financial performance, studies specifically examining the combined effect of gender diversity, board size, and educational background on financial distress within the Indonesian automotive sector remain limited. Most previous research has either focused on other industries or analyzed these characteristics individually, leaving a gap in understanding how these factors interact to influence financial stability in the automotive context.

This study seeks to fill this gap by simultaneously investigating the influence of board gender diversity, board size, and educational background on financial distress in automotive and components companies listed on the Indonesia Stock Exchange during the 2017–2023 period. By focusing on this sector and period, the research provides novel insights into the role of board characteristics in mitigating financial distress under the unique market conditions of Indonesia.

Based on the diverse characteristics of the board of directors, this study focuses on three crucial variables: gender diversity, board size, and educational economic background. These three characteristics are considered important as they influence strategic decision-making

that can prevent financial distress. Therefore, this research aims to examine the effect of these three board of directors' characteristics on financial distress in automotive and components companies listed on the Indonesia Stock Exchange for the 2017-2023 period.

2. Literature Review

2.1. Upper Echelon Theory

Hambrick and Mason proposed the Upper Echelon Theory in 1984. This theory posits that managerial characteristics, such as the experience of board members, influence the strategic decisions made by a company. Adityatama and Hermi (2023) further explain that the Upper Echelon Theory focuses on how individual characteristics, including gender diversity, board size, and educational background, affect decision-making. Thus, the theory highlights that various forms of diversity shape managerial values, which in turn influence their perceptions of situations and the strategic choices they make.

2.2. Board of Directors

The board of directors is the leader of a corporate institution, responsible for the organization's operations and management (Adityatama & Hermi, 2023). The board's failure to perform its duties can lead to financial distress (Maydah & Serly, 2021). Therefore, the effectiveness of the board of directors is not solely focused on the competence of each individual. This success also depends on various characteristics that influence the dynamics of collective decision-making (Sari & Maharani, 2024).

Brahma et al. (2021) argue that the indicators of the board of directors vary widely, including board size, board independence, board diversity, meeting frequency, leadership structure, educational background, experience, tenure, compensation, and member expertise. These indicators are considered vital in influencing the board's performance and effectiveness, particularly in understanding financial reports to prevent potential financial distress.

2.3. Board Gender Diversity

Board gender diversity refers to the differences between men and women that are shaped by dynamic national and cultural norms (Dapingga & Romli, 2024). A balanced gender proportion on the board of directors is expected to create a synergy that drives better corporate decision-making (Samudra, 2021), as gender diversity influences opinions and decision-making processes (Aprilia & Kustinah, 2024). Theoretically, this diversity can enrich the board's cognitive base by promoting better discussions, in line with the principles of the Upper Echelon Theory. Thus, board gender diversity is considered essential for improving the quality of corporate governance and strategic decision-making.

2.4. Board Size

Board size can be determined by the overall amount of board members in a company (Permana & Serly, 2021), which are frequently dominated by non-executive and independent directors (Waheed & Malik, 2021). Rosadi and Dillak (2023) state that a large number of board members can potentially affect the duration required for decision-making. In the context of Upper Echelon Theory, board size influences the composition of individual characteristics, which in turn impacts the perceptions and strategic choices made. Thus, board size is a crucial aspect that affects the internal dynamics and operational efficiency of the board of directors.

2.5. Board Educational Economic Background

Board educational economic educational particularly in the field of economics, has a significant influence on the perspectives and decision-making processes of directors, which ultimately affects company performance (Nugroho, 2025). Bhagat et al. (2010) state that directors with an educational background in economics, business, or finance enhance their ability to make decisions related to financial risk management, thereby reducing the potential for financial distress. This aligns with the Upper Echelon Theory which posits that strategic decisions and company performance reflect the values, cognition, and experience of top management. In this context, the educational background of the board of directors, especially in economics, becomes a key element that shapes their cognitive profile.

2.6. Financial Distress

Financial distress is defined as a situation in which a business entity fails to repay its debts. This condition can lead to bankruptcy or the liquidation process (Nugroho, 2025). Furthermore, if a company experiences financial difficulty, it cannot fulfill its obligations, and if it does not take immediate action, it will face bankruptcy (Aeniah & Hartikayanti, 2025). However, financial distress does not always result in bankruptcy; a company's condition can be improved with swift and appropriate interventions (Widiastuti & Ikhsan, 2022).

Financial distress can be measured through the analysis of financial statements (Aplugi et al., 2022). Altman Z-Score, a multivariate analysis model designed to predict corporate bankruptcy with a high degree of accuracy (Rosadi & Dillak, 2023). Winarso and Edison (2020) explain that this model works by combining various financial ratios to differentiate between companies with a high risk of bankruptcy and those that are financially stable.

2.7. The Effect of Board Gender Diversity on Financial Distress

Board gender diversity, or the presence of diverse genders on the board of directors, is highly important for a company's survival (Sari & Maharani, 2024). Gender diversity provides varied perspectives, enriches organizational experience, and expands networks, which can potentially improve the quality of strategic decision-making (Nugroho, 2025). The presence of women on the board reflects management's commitment to equal opportunity and non-discrimination (Dapingga & Romli, 2024). Additionally, women tend to actively seek information, ask in-depth questions, comprehensively understand organizational operations, and be honest about the organization's weaknesses (Dapingga & Romli, 2024).

Theoretically, the diversity of perspectives and approaches aligns with the principles of Upper Echelon Theory. The presence of women on boards of directors can introduce new perspectives and approaches, enriching managerial discussions and decision-making. Thus, including women on the board is not only a step toward gender equality, but it can also benefit the organization as a whole in achieving its common goals and vision. The study found that the presence of women on boards of directors has a significant impact on financial distress. Their inclusion is expected to encourage more cautious financial decision-making and more effective risk management strategies, thereby potentially reducing the risk of financial difficulties for the company.

This observation is consistent with previous research by Adityatama and Hermi (2023) and Nugroho (2025), which found that having female directors can lower the risk of financial distress. However, the difference in regression coefficient sign (positive in this study and negative in previous studies) is due to the dependent variable's measurement model being different. This study employs the Altman Z-Score, where a positive coefficient indicates an increase in the Z-Score, which in turn implies an increase in the risk of financial distress.

H1: Board gender diversity has a positive effect on financial distress.

2.8. The Effect of Board Size on Financial Distress

According to the Upper Echelon Theory (Hambrick, 1984), the composition and characteristics of the board of directors, including its size, influence a company's strategic decisions and performance. A board that is either too large or too small can have different consequences for firm performance (Ohandi & Puspitasari, 2024). A small board can render a company's performance less effective (Rosadi & Dillak, 2023). In contrast, a larger board allows for the exploration of diverse perspectives and a more comprehensive analysis of opportunities and risks, which ultimately can reduce financial distress (Ohandi & Puspitasari, 2024).

Therefore, a larger board of directors ideally brings a broader range of perspectives, expertise, and experience. This diversity enables the exploration of various viewpoints and encourages a more comprehensive analysis of corporate opportunities and risks. The presence of a larger board with more varied expertise can serve as a stronger control mechanism over management, thereby potentially improving the quality of financial decisions and reducing risky management practices. This process can eventually reduce the risk of financial distress.

In line with Ohandi and Puspitasari's (2024), which states that board size can reduce the risk of financial distress, the following research hypothesis is proposed. The hypothesis proposes that board size has a positive effect on financial distress by using the Altman Z-Score as a proxy, with a higher value indicating better financial health.

H2: Board size has a positive effect on financial distress.

2.9. The Effect of Board Educational Economic Background on Financial Distress

Upper Echelon Theory emphasizes that the characteristics of individuals at the top management level, including their educational background, can significantly influence a company's performance. High-quality education relevant to the business field provides company leaders with extensive knowledge, skills, and networks (Thao, 2024). Nugroho (2025) argues that financial education equips directors with the knowledge to avoid earnings management practices and promote positive financial performance, thereby enabling them to prepare financial reports more efficiently.

Therefore, with better analytical and decision-making capabilities, company leaders become more effective in managing financial risks. This leads to a reduction in the risk of financial distress, as managerial ability to detect potential financial problems at an early stage and apply appropriate mitigation strategies improves. Based on previous studies by Widiastuti and Ikhsan (2022) and Nugroho (2025), the educational qualifications of the board of directors, particularly in the fields of economics and finance, are positively and significantly correlated with a decrease in the risk of financial distress. Thus, based on the theory proposed in this study, an economics education background can reduce financial distress.

H3: Board educational economic background has a positive effect on financial distress.

The relationships between variables in this study are described in more detail through the conceptual framework presented in figure 1.

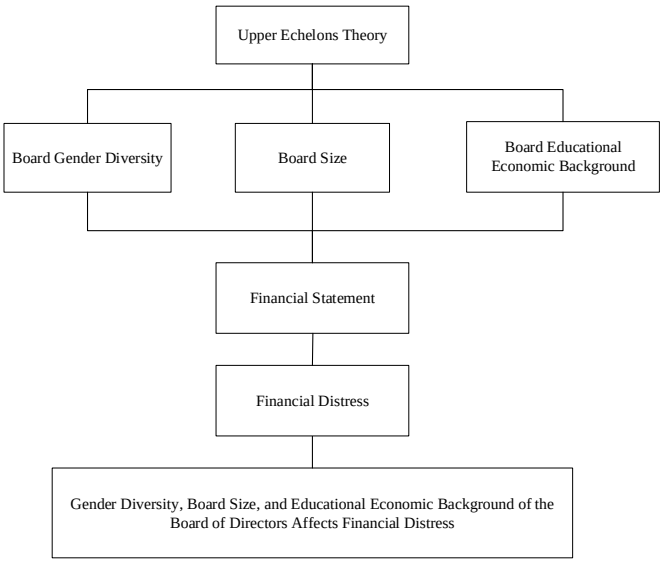

Figure 1. Conceptual Framework

3. Research Method

3.1. Type of Research

This study employed a quantitative method with an associative approach. The associative quantitative approach was chosen because the research objective was to examine and analyze the relationships of the existing variables with financial distress.

3.2. Population and Sample

This study's population includes all automotive and component companies that were listed on the Indonesia Stock Exchange (IDX) between 2017 and 2023. We combine a non-probability sampling method with a purposive sampling technique. Samples are selected using the following specific criteria:

Table 1. Sample Selection Criteria

No.	Criteria	Number
1	Companies listed on the Indonesia Stock Exchange (IDX) from 2017-2023	15
2	Automotive companies that did not publish complete annual reports on the Indonesia Stock Exchange between 2017 to 2023	(4)
Number of Samples		11
Number of Years		7
Total Sample		77

Source: Processed by the Researcher, 2025

3.3. Research Instrument

Table 2. Research Instrument

No.	Variables	Citation	Indicators	Scale
1	Gender Diversity	"The distribution between men and women who hold positions as members of the board of directors." (Sari & Maharani, 2024)	"Number of female directors / Total of directors" (Olivia et al., 2023)	Ratio

No.	Variables	Citation	Indicators	Scale
2	Board size	"Board size refers to the number of board members who sit in the corporate governance structure." (Kalbuana et al., 2022) "Larger boards were better able to perform agent and resource dependency roles than smaller boards." (Kiel & Nicholson, 2003 in Waheed & Malik, 2021)	"∑ Board of Directors" (Kalbuana et al., 2022)	Ratio
3	Board Educational Economic Background	"Board members with an economic and business education were better at making business decisions." (Putra, 2019 in Nugroho, 2025)	"Number of economic background / Total of directors" (Nugroho, 2025)	Ratio
4	Financial distress	"A state where a company's finances were in an unhealthy or crisis condition." (Meirien Olivia et al., 2023)	"Altman Z Score = 0,717 x1+0,847 x2+3,107 x3+0,420 x4+0,998 x5 Notes: x1 = Working Capital / Total Assets x2 = Retained Earnings / Total Assets x3 = EBIT/Total Assets x4 = Equity / Total Liabilities x5 = Sales/Total Assets" (Ohandi & Puspitasari, 2024)	Ratio

Source: Output SPSS 31, 2025

3.4. Data Collection Techniques and Instruments

This study used secondary data from the annual reports of automotive and component companies listed on the Indonesia Stock Exchange (IDX) between 2017 and 2023. The data were obtained from the respective companies' official websites and the IDX website (www.idx.co.id). The data were then analyzed statistically using Microsoft Excel 2019 and IBM SPSS version 31 software.

3.5. Data Analysis Technique

To test the influence of the three independent variables (IV) on the dependent variable (DV), this study applied the multiple linear regression analysis method. As explained by Sugiyono (2023), the formula for multiple regression with two or more IV was as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + €$$

Notes:

Y = The value of the dependent variable

a = The constant, which represents the value of Y when the values of the X variables were zero

X_1 = Board Gender

X_2 = Board size

X_3 = Board Educational Economic Background

b_1, b_2, b_3 =The multiple regression coefficients for each IV against the DV

4. Results and Discussion

4.1. Research Results

4.1.1. Descriptive Statistics

The descriptive statistics analysis showed significant variation in each variable. For the financial distress (FD) variable, which indicates the companies' financial condition, the lowest value was recorded at 0.36, and the highest value reached 7.29. The mean of 2.7390 suggested that, on average, the companies in the sample were in a moderate zone; this means they were not fully financially healthy, but also not in a condition that would lead to bankruptcy. Meanwhile, a standard deviation of 1.57364 indicated significant fluctuation among the samples.

Table 3. Results of Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation
GDR	77	0.00	0.67	0.1249	0.16216
SZ	77	2.00	12.00	5.5584	2.35357
EEB	77	0.00	1.00	0.5769	0.22171
FD	77	0.36	7.29	2.7390	1.57364
Valid N (listwise)	77				

Source: Output SPSS 31, 2025

The descriptive statistical analysis revealed significant variations in each variable. For the financial distress (FD) variable, which indicates a company's financial condition, the lowest value was recorded at 0.36 and the highest value reached 7.29. The mean value of 2.7390 indicated that, on average, the companies in the sample were in a moderate zone, meaning they were not completely financially healthy but also not in a condition leading to bankruptcy. Meanwhile, a standard deviation of 1.57364 demonstrated a significant fluctuation among the samples.

4.1.2. Classic Assumption Test

A. Normality Test

Table 4. Data Normality Test Results

Total N		77
Most Extreme Differences	Absolute	0.090
	Positive	0.56
	Negative	-0.090
Test Statistic		0.090
Asymptotic Sig. (2-sided test)[a]		0.199

a. Lilliefors Corrected

Source: Output SPSS 31, 2025

Table 4 shows the results of the Kolmogorov-Smirnov normality test. The Asymp. Sig. value was 0.199, indicating that the regression model's residuals were normally distributed because the significance level exceeded 0.05.

B. Multicollinearity Test

Table 5. Multicollinearity Test Result

	Unstandardized B	Coefficient Std. Error	Standardized Coefficient Beta	t	Sig.	Collinearity Tolerance	Statistic VIF
Constant	7.474	4.052		1.845	0.069		
GDR	-3.918	6.354	-0.74	-0.617	0.539	0.936	1.069
SZ	-0.456	0.435	-0.125	-1.050	0.297	0.949	1.053
EEB	0.250	4.673	0.006	0.54	0.957	0.925	1.081

a. Dependent Variable : FD

Source: Output SPSS 31, 2025

According to the analysis in Table 5, the tolerance values for the independent variables GDR, SZ, and EEB were all greater than 0.10. Furthermore, the Variance Inflation Factor (VIF) for all three variables was less than 10. Thus, it was concluded that the regression model in this study did not exhibit multicollinearity, which means there was no excessively strong correlation among the independent variables that could disrupt the model's stability.

C. Heteroscedasticity Test

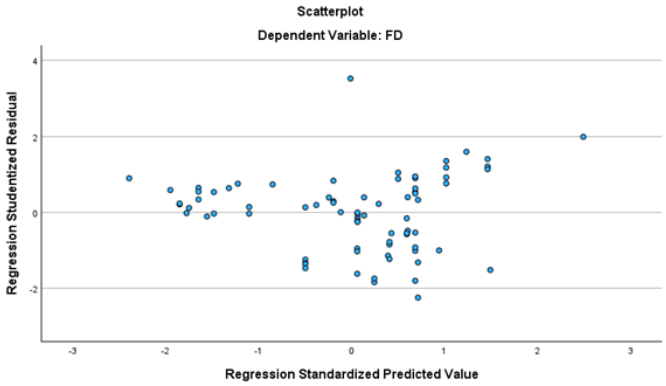

Figure 2. Heteroscedasticity Test Results

Figure 2 depicts the results of the heteroscedasticity test using the scatterplot method, which revealed that the residual points scattered randomly above and below the zero line (X-axis). This residual distribution pattern did not take on a specific shape, such as a broadening funnel, a narrowing pattern, or a wave pattern. Thus, the assumption of homoskedasticity was met. This regression model did not exhibit any heteroscedasticity issues.

D. Autocorrelation Test

Table 6. Autocorrelation Test Outcomes

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.536[a]	0.287	0.258	1.35556	0.500

a. Predictors: (Constant), EEB, SZ, GDR
b. Dependent Variable: FD

Source: Output SPSS 31, 2025

Based on the results of the autocorrelation test, a durbin-watson (dW) value of 0.500 was found. This value was then compared to the critical values from the dW table at a 5% significance level. With 77 data points (n) and 3 independent variables (k), the lower bound (dL) was 1.5502 and the upper bound (dU) was 1.7117. Since the dW value was less than dL (0.500<1.5502), it was concluded that a positive autocorrelation occurred. This finding violated the assumption of residual independence, thus requiring a remedy to address the autocorrelation issue. This study used the Cochrane-Orcutt method, which aimed to improve the Durbin-Watson value. Table 7 below shows the results of the autocorrelation test using the Cochrane-Orcutt method.

Table 7. Cochrane-Orcutt Procedure

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.418[a]	0.175	0.141	0.82319	1.871

a. "Predictors: (Constant), LAG_X3, LAG_X1, LAG_X2
b. Dependent Variable: LAG_Y"

Source: Output SPSS 31, 2025

Table 7 showed the results of the autocorrelation treatment using the Cochrane-Orcutt method. After the treatment, the dW value increased to 1.871. As a result, the condition dU<dW<4−dU, or 1.7117<1.871<2.2288, was met. This condition satisfied the decision-making criteria, leading to the conclusion that the symptoms of autocorrelation were resolved, and the regression model was free from autocorrelation issues.

E. Multiple Linear Regression Test

Table 8. Multiple Linear Regression Test

Model	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.922	0.183		5.031	<0.001
LAG_X1	2.557	0.969	0.286	2.638	0.010
LAG_X2	-0.214	0.087	-0.270	-2.472	0.016
LAG_X3	-0.084	0.574	-0.016	-0.146	0.884

a. Dependent Variable: LAG_Y

Source: Output SPSS 31, 2025

Based on table 8, the equation formed by the multiple regression test was as follows:

$$Y = 0.922 + 2.557\,X_1 - 0.214\,X_2 - 0.84\,X_3 + €$$

In this regression model, the constant number of 0.922 stated that when the variables board gender diversity, board size, and board educational economic background were zero, the financial distress variable was 0.922. Furthermore, the positive coefficient value for board gender diversity was 2.557, indicating a positive relationship and suggesting that having more women on the board of directors could reduce financial distress.

The coefficient value for board size was negative (-0.214), which indicated a negative relationship. This suggested that a larger board size could increase the occurrence of financial distress. Similarly, the coefficient value for board educational economic background was

negative (-0.84), which showed a negative relationship, indicating that a higher proportion of board members with an economic educational background could increase financial distress.

4.1.3. Analysis of the Coefficient of Determination

Table 9. Coefficient of Determination Test

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.418[a]	0.175	0.141	0.82319	1.871

a. Predictors: (Constant), LAG_X3, LAG_X1, LAG_X2
b. Dependent Variable: LAG_Y

Source: Output SPSS 31, 2025

According to Table 9, the adjusted R-squared value was 0.141. This meant that 14.1% of the financial distress variable was influenced by board gender diversity, board size, and board educational and financial background. A percentage of 85.9% was shaped by independent variables not addressed in this research.

4.1.4. Hypothesis Testing

A. T-Test

Table 10. T-Test Results

Model	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.922	0.183		5.031	<0.001
LAG_X1	2.557	0.969	0.286	2.638	0.010
LAG_X2	-0.214	0.087	-0.270	-2.472	0.016
LAG_X3	-0.084	0.574	-0.016	-0.146	0.884

a. Dependent Variable: LAG_Y

Source: Output SPSS 31, 2025

Based on table 10, the t-statistic value was obtained for each variable. To determine the t-table value, with a significance level of 0.025 and degrees of freedom df=n–k=72, the t table value was 1.993. The significance value of the board size variable will be 0.016, which will be less than 0.05, indicating a significant influence. Additionally, the t-statistic value will be -2.472, which will be greater than the t-table value of 1.993. Consequently, the null hypothesis (H0) will be accepted and the alternative hypothesis (H1) will be rejected. Thus, it will be concluded that the Board size variable will have a significant negative effect on financial distress.

The Board gender diversity variable had a significant influence (p-value = 0.010 < 0.05). Furthermore, with a t-statistic value of 2.638 exceeding the t-table of 1.993, the null assumption (H0) was dismissed while the alternative assumption (H1) was accepted. It was thus determined that the board gender variable had a significant positive effect on financial distress. The significance value for the Board size variable was 0.016 < 0.05, which also indicated a significant influence. With a t-statistic value of-2.472 > t-table of 1.993, the null hypothesis (H0) was accepted and the alternative hypothesis (H1) was rejected. It was therefore concluded that the board size variable had a significant negative effect on financial distress.

The significance value for the board educational economic background variable was 0.884 > 0.05, while the t-statistic value was -0.146 < t-table of 1.993. This led to the acceptance of the null hypothesis (H0) and the rejection of the alternative hypothesis (H1). It was therefore concluded that the board educational economic background variable had no effect on financial distress.

B. F-Test

Table 11. F-Test Results

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	10.353	3	3.451	5.093	0.003[b]
Residual	48.790	72	0.678		
Total	59.144	75			

a. Dependent Variable: LAG_Y
b. Predictors: (Constant), LAG_X3, LAG_X1, LAG_X2

Source: Output SPSS 31, 2025

Table 11 shows a sig. value of 0.003 (<0.05), meaning that the independent variables had a significant simultaneous (joint) effect on the dependent variable.

4.2. Discussions

4.2.1. The Effect of Board Gender Diversity on Financial Distress

Based on the results of the hypothesis testing, it was found that the board gender coefficient had a positive (+) value of 2.557, which means that board gender diversity can reduce the occurrence of financial distress. The significance value for board gender diversity was 0.010, which is smaller than 0.05 (0.010 < 0.05), indicating that board gender and financial distress have a statistically significant relationship.

Therefore, it can be concluded that partially, board gender diversity, proxied by the presence of female directors, has a significant positive effect on financial distress. According to the Altman Z-Score method, the higher the Z-Score, the healthier a company's financial condition. Thus, the positive coefficient found by the researcher indicates that the more female directors there are, the more the financial distress condition in a company can be reduced.

This finding is consistent with the Upper Echelon Theory (Hambrick, 1984), which states that the characteristics of top management (including gender on the board) influence the strategic decisions made by the company. The presence of female directors is not just about representation but about intellectual enrichment and diverse perspectives. These characteristics directly affect how the board makes strategic decisions because women are known to be more cautious and tend to avoid risk. This trait can help companies make safer and more measured decisions, thereby reducing the threat of potential financial distress.

This study's findings support the proposed hypothesis that board gender diversity, proxied by the presence of female directors, has a positive effect on financial distress. This finding is consistent with the study by Kalbuana et al. (2022). However, this result differed from the research by Nugroho (2025) and Samudra (2021), which found a negative effect.

4.2.2. The Board size on Financial distress

Therefore, it can be statistically concluded that, partially, a larger board size has a significant negative effect on financial distress. According to the Altman Z-Score method, a lower Z-Score value indicates an unhealthy financial condition for the company. Thus, the

negative coefficient implies that the larger the board size, the greater the potential for a company to experience financial distress.

This finding does not align with the assumption of the Upper Echelon Theory (Hambrick, 1984) regarding board size. This theory posited that a larger board of directors should allow for the exploration of diverse perspectives and encourage a more comprehensive analysis of opportunities and risks, thereby potentially reducing financial distress.

However, in reality, a large board size carries the risk of facing complex coordination issues, more difficult communication, and a slower decision-making process. An overly large board can lead to conflicts of interest or difficulties in achieving common goals, which ultimately lowers the effectiveness of strategic decision-making. This condition can cause important decisions to be delayed, which may eventually increase a company's financial distress.

This finding supports the hypothesis that a larger board size has a positive influence on financial distress. This result is consistent with the research of Ohandi and Puspitasari (2024) but contradicts the findings of Rosadi and Dillak (2023) and Olivia et al. (2023), who found a negative influence.

4.2.3. The Effect of Board Educational Economic Background on Financial Distress

Based on the hypothesis testing results, it was found that the coefficient value of board educational economic background was negative (-), at -0.84. The significance value of 0.884 was greater than 0.05 (0.884>0.05), meaning that the effect of board educational economic background on financial distress is not statistically significant.

Therefore, the variable board educational economic background partially has no effect on financial distress in automotive and components companies. This result indicates that an economic educational background is not a primary determinant in mitigating financial distress in automotive and components companies. The non-significant effect is likely due to the unique characteristics of companies in the automotive and components sub-sector, where most of the board members have engineering backgrounds, such as industrial engineering, mechanical engineering, electrical engineering, and so on. Consequently, expertise in the field of engineering is likely more crucial than an economic educational background in these companies.

The findings of this study show that the board's educational and economic background has no impact on financial distress. This finding contradicts Nugroho's (2025) research, which found a significant positive effect, and Afif et al. (2024) study, which found a negative effect.

5. Conclusion

The results of this study show that, partially, board gender diversity has a positive effect on financial distress, while board size has a negative effect. Conversely, the board educational economic background does not show a significant influence. Nevertheless, simultaneously, these three board of directors' characteristics (board gender diversity, board size, and board educational economic background) have a significant influence on financial distress in automotive and components companies listed on the Indonesia Stock Exchange for the 2017–2023 period.

For future research, it is suggested to conduct a qualitative study to identify the factors contributing to the low participation of women on boards of directors. Additionally, it is important to further analyze how the effectiveness of smaller boards impacts supervision, communication efficiency, and the risk of financial distress, as well as to examine the effects

of the absence of an economic educational background on this risk. Subsequent researchers can also expand the scope of independent variables, such as board independence, tenure, age, and meeting frequency. It is also recommended to use other methods for measuring financial distress, such as Ohlson, Springate, or Zmijewski, and to update the research period and expand the sample to obtain more comprehensive findings.

6. References

Adityatama, G. B., & Hermi. (2023). Pengaruh Board of Director, Audit Committee Size, Arus Kas Operasi, Dan Inventory Turnover Terhadap Financial Distress. *Jurnal Ekonomi Trisakti*, *3*(2), 3331–3340. https://doi.org/10.25105/jet.v3i2.18169

Aeniah, A., & Hartikayanti, H. N. (2025). The Effect of Financial Distress, Profit Management and Financial Stability on Financial Report Cheating (Case Study on Banking Companies Listed on the Indonesia Stock Exchange for the 2019-2023 Period). *International Journal of Accounting, Business, and Economic Policy*, *1*(3), 124–133.

Afif, A. A. Bin, Ishak, Z., & Sawandi, N. (2024). The moderating role of organizational sub-sectors on the relationship between CEO duality and nonprofit performance. *International Review on Public and Nonprofit Marketing*, *21*(4), 943–962. https://doi.org/10.1007/s12208-024-00410-z

Ali, S., Ali, S., Jiang, J., Hedvicakova, M., & Murtaza, G. (2022). Does board diversity reduce the probability of financial distress? Evidence from Chinese firms. *Frontiers in Psychology*, *13*(September), 1–12. https://doi.org/10.3389/fpsyg.2022.976345

Aplugi, G. E., Ndoen, W. M., Amtiran, P. Y., & Reyner, F. (2022). Analisis Altman Z-Score Untuk Memprediksi Financial Distress Industri Manufaktur Yang Terdaftar Di Bursa Efek Indonesia Altman Z-Score Analysis to Predict Financial Distress in Manufacturing Industries Listed on the Indonesian Stock Exchange. *GLORY Jurnal Ekonomi Dan Ilmu Sosial*, *5*(3), 605–622. https://doi.org/10.35508/glory.v5i3.13805

Aprilia, F., & Kustinah, S. (2024). Detection Determinants of Bank Sustainability Report. *Jurnal Akuntansi*, *16*(1), 1–13. https://doi.org/10.28932/jam.v16i1.7881

Bertrand, M., Schoar, A., & Thesmar, D. (2007). Banking deregulation and industry structure: Evidence from the French banking reforms of 1985. *The Journal of Finance*, *62*(2), 597–628. https://doi.org/10.1111/j.1540-6261.2007.01218.x

Bhagat, S., Bolton, B. J., & Subramanian, A. (2010). CEO education, CEO turnover, and firm performance. *Available at SSRN 1670219*.

Brahma, S., Nwafor, C., & Boateng, A. (2021). Board gender diversity and firm performance: The UK evidence. *International Journal of Finance and Economics*, *26*(4), 5704–5719. https://doi.org/10.1002/ijfe.2089

Dapingga, S. P., & Romli. (2024). Pengaruh Keberagaman Gender Dewan Direksi dan Ukuran Perusahaan terhadap Kinerja Keuangan. *Portofolio: Jurnal Ekonomi, Bisnis, Manajemen, Dan Akuntansi*, *21*(1), 1–17. https://doi.org/10.26874/portofolio.v21i1.449

Deng, C., Peng, W., Dou, Z., & Zhang, Q. (2024). Environmental Background Directors and ESG Performance: A Perspective on Green Governance. *Sustainability (Switzerland)*, *16*(23), 1–22. https://doi.org/10.3390/su162310559

Hambrick, M. (1984). Upper Echelons Theory. *The Palgrave Encyclopedia of Strategic Management*. https://doi.org/10.1057/9781137294678.0713

Kalbuana, N., Taqi, M., Uzliawati, L., & Ramdhani, D. (2022). The Effect of Profitability, Board Size, Woman on Boards, and Political Connection on Financial Distress Conditions. *Cogent Business & Management, Taylor & Francis Journals*, *9*(1), 2142997. https://doi.org/10.1080/23311975.2022.2142997

Maydah, A., & Serly, V. (2021). Pengaruh Karakteristik Dewan Direksi Terhadap Financial Distress Perusahaan BUMN di Indonesia Tahun 2015 – 2019. *Jurnal Eksplorasi*

Akuntansi, *3*(3), 567–582. https://doi.org/10.24036/jea.v3i3.427

Nugroho, W. C. (2025). Financial Distress : Studi Intellectual Capital dan Karakteristik Direksi pada Perusahaan Ritel di Indonesia. *Riset & Jurnal Akuntansi*, *9*(1), 421–435. https://doi.org/10.33395/owner.v9i1.2487

Ohandi, J. F., & Puspitasari, W. (2024). Pengaruh Women on Board of Commisioner, Women on Board of Director, Sales Growth dan Board Size, terhadap Financial Distress. *BUDGETING : Journal of Business, Management and Accounting*, *5*(2), 1095–1105. https://doi.org/10.31539/budgeting.v5i2.9259

Olivia, L. M., Wangsih, I. C., & Kalbuana, N. (2023). The Effect Of Profitability And Board Size On Financial Distress In LQ 45 Companies Pengaruh Profitabilitas Dan Board Size Terhadap Financial Distress Pada Perusahaan LQ 45. *Management Studies and Entrepreneurship Journal*, *4*(4), 3748–3754.

Permana, F. D., & Serly, V. (2021). Pengaruh Karakteristik Dewan Komisaris Terhadap Kemampuan Memprediksi Financial Distress: Studi pada Perusahaan BUMN. *Jurnal Eksplorasi Akuntansi*, *3*(4), 908–921.

Pirson, M., & Turnbull, S. (2011). Corporate governance, risk management, and the financial crisis: An information processing view. *Corporate Governance: An International Review*, *19*(5), 459–470. https://doi.org/10.1111/j.1467-8683.2011.00860.x

Rosadi, R. R. D. C., & Dillak, V. J. (2023). Pengaruh Gender Diversity, Expertise Diversity, CEO Duality dan Board Size terhadap Prediksi Financial Distress. *Jurnal Ilmiah Universitas Batanghari Jambi*, *23*(3), 3328. https://doi.org/10.33087/jiubj.v23i3.3972

Samudra, G. D. (2021). Gender Diversity Dan Good Corporate Governance Terhadap Financial Distress. *Eqien: Jurnal Ekonomi Dan Bisnis*, *8*(2), 52–60. https://doi.org/10.34308/eqien.v8i2.226

Sari, F. K., & Maharani, R. (2024). Profitabilitas, Keragaman Gender, Managerial Agency Cots, Dan Kapasitas Operasi Terhadap Financial Distress. *Sustainable*, *4*(1), 131–156. https://doi.org/10.30651/stb.v4i1.22803

Thao, N. T. P. (2024). The Importance of Economic Education: Preparing Future Generations for Global Economic Challenges. *Journal of Asian Multicultural Research for Economy and Management Study*, *4*(4), 31–35. https://doi.org/10.47616/jamrems.v4i4.464

Waheed, A., & Malik, Q. A. (2021). Institutional ownership board characteristics and firm performance: A contingent theoretical approach. *International Journal of Asian Business and Information Management*, *12*(2), 1–15. https://doi.org/10.4018/IJABIM.20210401.oa1

Widiastuti, W., & Ikhsan, A. N. (2022). Pengaruh Rasio Likuiditas, Profitabilitas, Dan Leverage Terhadap Financial Distress. *Eqien - Jurnal Ekonomi Dan Bisnis*, *11*(04). https://doi.org/10.34308/eqien.v11i04.1287

Winarso, E., & Edison, T. C. J. A. (2020). Perbandingan Analisis Model Z"-Score Altman Modifikasi, Model X-Score Zmijewski, Model G-Score Grover, Dan Model S-Score Springate Untuk Menganalisis Ketepatan Prediksi Kebangkrutan. *Journal of Accounting, Finance, Taxation, and Auditing (JAFTA)*, *1*(2), 1–13. https://doi.org/10.28932/jafta.v1i2.2451

Zalata, A. M., Tauringana, V., & Tingbani, I. (2018). Audit committee financial expertise, gender, and earnings management: does gender of the financial expert matter? *International Review of Financial Analysis*, *55*, 170–183. https://doi.org/10.1016/j.irfa.2017.11.002