
The Influence of Female Directors and Female Commissioners on Financial Distress

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Abstract

This study examines how gender diversity on boards affects financial distress among Indonesian manufacturing companies listed on the IDX from 2020 to 2024. Using logistic regression with secondary data from company reports, financial distress was measured via the Altman Z-Score, while gender diversity was assessed based on the proportion of female directors and commissioners.

Results show that having more female directors significantly increases the risk of financial distress, suggesting a positive relationship. Meanwhile, female commissioners have a negative but significant effect, indicating their presence does not directly reduce financial difficulties.

These findings highlight the complex role of gender diversity in corporate governance and its Effect on firm stability. Future studies are recommended to include more variables and broader samples for stronger insights. This research provides useful guidance for investors in evaluating risk and for management in improving governance to prevent financial distress.

Keywords: gender diversity, female directors, female commissioners, financial distress, logistic regression

1. Introduction

Technological advancements have rapidly transformed many aspects of human life. A significant development in this regard is the advent of the internet, which has had a profound Effect on the economic sector, thereby marking the onset of the digital economy era. This period is conducive to the establishment of new business and trade opportunities, as internet-based technologies facilitate the execution of operational activities with greater efficiency and reduced impediments. In accordance with Law Number 11 of 2008 on Information and Electronic Transactions, technology plays an instrumental role in the enhancement of trade information and the provision of support for national economic growth, thereby leading to the improvement of public welfare. It is evident that the sector which has experienced the most rapid growth in recent times is that of electronic commerce, otherwise referred to as e-commerce.

Financial distress is defined as a situation in which a company's financial condition continues to worsen, often indicated by ongoing losses and instability in its finances. This is an early indication that the company may be on the verge of bankruptcy or liquidation (Sutisna et al., 2023). A company's financial health can be influenced by a number of factors, including consistent losses, declining revenue, and macroeconomic turbulence. This may be defined as unfavorable economic conditions that may trigger a financial crisis' (Manullang et al., 2020).

Key aspects of corporate governance, such as the board of directors, board of commissioners, institutional ownership, and audit committee, have been identified as influential factors affecting financial distress levels (Putra & Muslih, 2019). In addition to governance elements, political connections have been demonstrated to play a role in the occurrence of financial distress risks. Such relationships have the potential to exert a detrimental influence on the entity concerned, as they are at times employed for the benefit of individual interests or organizational objectives, with the possibility of engendering a state of financial instability within the company.

As Platt and Platt (2002) define it, financial distress is a condition in which a company's financial performance continuously declines over multiple periods, with the potential to lead to bankruptcy. As Triwahyuningtyas (2012) observes, the spectrum of financial difficulties can extend from transitory cash flow shortages to insolvency, which is regarded as the most critical form of distress. Financial distress can be defined as a progressive deterioration of financial conditions that, if left unaddressed, may ultimately result in bankruptcy. The ASEAN Free Trade Area (AFTA), which is commonly referred to as free trade, officially commenced in 2020 following its full implementation in 2015. This has had a significant Effect on Indonesia's trade and competition landscape as an ASEAN member. It is submitted that companies which are not able to demonstrate robust managerial capabilities, or which do not possess a high degree of competitiveness, may encounter difficulties in maintaining their position in the context of such policy changes, which, it is generally accepted, serve only to intensify the competitive environment. Firms unable to compete effectively may encounter operational difficulties that have a detrimental effect on their finances. If these issues remain unresolved, they could eventually lead to financial distress. Bodroastuti's (2009) findings contradict earlier studies which indicated a positive influence of the board of commissioners on financial distress, suggesting that companies with more commissioners may experience weaker oversight. Conversely, research by Deviacita & Achmad (2013) yielded divergent results, suggesting that the number of commissioners does not influence financial distress.

Another aspect of corporate governance that has been widely examined in relation to financial distress is institutional ownership. However, the research outcomes remain varied. For instance, Deviacita and Achmad's (2013) study identified a negative correlation between institutional ownership and financial distress. In contrast, studies by Fathonah (2016) and Bodroastuti (2009) concluded that institutional ownership does not significantly influence financial distress. With regard to the utilization of independent commissioners, Fathonah's (2016) observations indicated a negative Effect, while Deviacita and Achmad's (2013) findings revealed an absence of a significant effect. Kristanti et al. (2016) conducted a study on gender diversity on boards and

discovered a negative relationship with financial distress. This suggests that women, who tend to be more cautious and risk-averse, may help reduce financial distress risks.

Research by Anggriani & Rahim (2021) found that female representation on boards of directors significantly reduces financial distress. However, this finding is at odds with the conclusions drawn by Ramadanty & Khomsiyah (2022), who asserted that gender diversity is associated with an elevated risk of financial distress. Conversely, Salim & Dillak's (2021) study, which concentrated on agricultural sector companies, determined that gender diversity exhibited no substantial influence on financial distress.

1.2 Literature Review

The connection between gender diversity within corporate leadership and a company's financial performance continues to be widely debated among scholars, particularly in terms of women's presence on boards of directors and commissioners. Some studies argue that women in executive roles contribute risk-averse behavior and enhanced ethical oversight, thereby reducing a firm's financial vulnerability (Aguir et al., 2023). However, findings across the literature remain inconsistent, raising important theoretical questions about the relevance of agency theory and gender-based decision-making frameworks across different institutional contexts.

Despite the rapid economic growth in Indonesia and the increasing participation of women in corporate governance, empirical research examining its Effect remains limited (IFC, 2019). In contrast to regions such as the European Union, which implement mandatory gender quotas, Indonesia offers a distinctive setting for observing the Effect of voluntary gender diversity on firm performance and resilience. A review of previous studies reveals an absence of consensus on the findings, thus underscoring the pressing necessity to investigate the potential moderating influences of firm size, industry-specific characteristics, and governance structures.

This study addresses this lacuna by investigating the hypothesis that female representation on both boards of directors and commissioners reduces financial distress among Indonesian manufacturing firms. The study's innovation lies in its simultaneous analysis of both governance bodies, thereby offering a comprehensive perspective that has hitherto been overlooked by previous studies. The employment of the Altman Z-Score for rigorous measurement serves to enhance the reliability and comparability of the findings.

Theoretically, it contributes to the advancement of agency theory by examining the influence of gender diversity on governance effectiveness and financial stability. In practice, it provides policymakers and business leaders with information regarding the potential for gender-diverse leadership to enhance corporate resilience in contexts where mandatory quotas are not in place. Consequently, this study provides significant evidence to inform the ongoing discourse on inclusive leadership and offers guidance for the development of future governance strategies tailored to emerging markets, such as Indonesia.

1.2.1 Agency Theory

Based on agency theory, conflicts of interest often arise among various levels of agents, as they serve both as regulators and managers ((Lai et al., 2021)). Decision-making within an organization is influenced by several factors, including the presence of female directors. Notably, there are significant differences in decision-making styles between male and female directors, making the role of women on the board an important area of study. These differences stem from behavioral variations in leadership, where female directors tend to be more risk-averse and exhibit lower levels of self-confidence compared to their male counterparts (Mardahlia & Ghozali, 2023). Gender diversity in management is an essential element of corporate governance. The inclusion of women in leadership positions can alter the dynamics of agency relationships within a company. Traditionally, board responsibilities have been dominated by male leaders, with key functions predominantly managed by male directors. These directors are often perceived as having a calm demeanor, enabling them to make tough decisions and resolve conflicts confidently. However, companies also require directors who can drive innovation and enhance the firm's reputation. According to Adams & Ferreira (2009), the presence of female directors significantly Effects board governance, enriching the decision-making process and promoting more innovative outcomes. Gender diversity within a company has been shown to positively influence shareholder value by providing additional board oversight, thereby increasing firm value. Moreover, as emphasized by Bakan, (1996) and Liao et al. (2019), the presence of competent, innovative individuals is crucial in maximizing innovation while minimizing errors in the corporate environment.

The topic of female leadership on corporate boards has received considerable attention across various types of firms, including family-owned businesses and publicly listed companies (Abbas & Frihatni, 2023; Efferin et al., 2016; García & Herrero, 2021;Guizani & Abdalkrim, 2023). The presence of women in directorial roles is believed to improve the quality of corporate governance, enhance transparency, strengthen oversight, and protect shareholder rights. This perspective is consistent with agency theory, which posits that female board members play a crucial role in monitoring managerial behavior, thereby aligning the interests of executives with those of shareholders (Guizani & Abdalkrim, 2023). This study aims to examine gender diversity in the upper management of energy sector companies in Indonesia that operate under a two-tier board system, as mandated by the Limited Liability Company Law. In this governance structure, a clear separation exists between the management board, which is responsible for running the company, and the supervisory board, which oversees managerial performance.

This study is underpinned by two fundamental theoretical perspectives: agency theory and resource dependence theory. Agency theory, as introduced by Jensen & Meckling (1976) describes a contractual relationship in which a principal delegates authority to an agent to act on their behalf. In this context, gender diversity on the board of directors plays a monitoring role by helping to ensure that managerial decisions align with shareholder interests (Guizani & Abdalkrim, 2023). The board of directors holds a central responsibility in safeguarding the interests of stakeholders, and an increase in diversity within its composition is widely regarded as a means of strengthening its oversight and governance functions. Viewed through the lens of

resource dependence theory, the inclusion of women in board-level positions is believed to enhance the organization's strategic resources by broadening its access to diverse perspectives, experiences, and networks. This diversity not only enriches the decision-making process but also facilitates the development of more comprehensive and inclusive approaches to addressing complex organizational challenges. (Kim & Starks, 2016).

1.2.2 Financial Distress

Financial distress is defined as the inability of a company to meet its financial obligations in a timely manner, which can potentially compromise its operational stability (Geng et al., 2015). As Pham VoNinh et al. (2018) have previously demonstrated, excess debt is a primary factor contributing to the financial distress or default of companies. It is imperative that academic research endeavours to comprehend the factors that precipitate financial distress. In addition, it is equally crucial to explore the potential of corporate governance to mitigate the occurrence of such circumstances. Effective governance has been demonstrated to engender a more robust organisational structure, enhance operational efficiency, ensure transparent information sharing, protect stakeholders, and reduce overall risk (Mariano et al., 2021a).

The board of commissioners, in its capacity as the primary supervisory entity, is responsible for the oversight and monitoring of the board of directors, with the objective of ensuring the proper execution of their duties (Triwahyuningtias & Muharam, 2012). Directors must take into consideration the interests of stakeholders in their decision-making processes. The close supervision of directors has been shown to reduce agency problems and align management actions with the goals of shareholders (Wardhani, 2007). Research by Wardhani (2007) and Ayuningtias (2013) found that the board of commissioners can help reduce financial distress. This is due to the fact that larger boards generally possess superior oversight capabilities, resulting in enhanced governance, elevated managerial performance, and a diminished risk of financial distress.

In the early stages of academic discourse on the subject of financial distress, the primary focus was on financial factors. However, recent studies have expanded the scope to encompass corporate governance, top management diversity, and other non-financial influences (Guizani & Abdalkarim, 2023; Maier & Yurtoglu, 2022; Mariano et al., 2020). It is becoming increasingly evident that one non-financial factor that is garnering mounting attention is the role of female board members in the management of financial distress risks. The concept of gender equality has evolved from being regarded as a social issue to being recognised as a critical element for business success. Empirical evidence has demonstrated that the integration of women into business enterprises has a substantial Effect on organisational growth and performance (Abbas & Frihatni, 2023).

1.3 Hypotheses Development

1.3.1 The Effect of Female Directors on Financial Distress

According to agency theory and resource dependency theory, gender diversity on the board of directors offers broader perspectives and strengthens the board's monitoring role. The inclusion of women on boards contributes to more informed strategic decision-making by introducing diverse and inclusive viewpoints (Guizani & Abdalkarim, 2023; Kim & Starks, 2016). Furthermore, organizations with gender-diverse boards often cultivate a more inclusive and adaptive corporate culture, enabling them to respond more effectively to changes in the business environment. Consequently, gender diversity is increasingly recognized as a key driver of corporate value and improved organizational performance (Maier & Yurtoglu, 2022).

Previous empirical studies have identified an inverse relationship between gender diversity on the board of directors and the risk of financial distress. Specifically, a higher proportion of female board members is associated with a lower likelihood of a company experiencing financial difficulties (Abbas & Frihatni, 2023; Ali et al., 2023; Maier & Yurtoglu, 2022). Gender diversity introduces a range of perspectives and decision-making approaches, thereby strengthening the board's oversight function and reducing the risk of insolvency. Based on these findings, it is proposed that gender diversity on the board negatively influences the occurrence of financial distress, underscoring the vital role of women in corporate governance in maintaining a company's financial stability.

H1: Female directors have a significant effect on the company's financial distress condition.

1.3.2 The Effect of Female Commissioners on Financial Distress

Gender diversity, through inclusive thinking and diverse decision-making, enables companies to adopt broader perspectives and identify effective solutions during periods of economic uncertainty (Abbas & Frihatni, 2023). The involvement of women in corporate governance is not limited to the board of directors but also includes the board of commissioners and the audit committee key components within the organizational structure. Good corporate governance is reflected in strong performance and policies that align with the responsibilities of each governing body. Na and Hong (2017) posit that organization's exhibiting greater gender diversity have a propensity to accrue higher profits and are better positioned to evade corporate losses in comparison to those exhibiting less diversity. In the context of corporate governance, the board of commissioners is traditionally regarded as the primary supervisory entity within a company, with the audit committee providing a supportive function (Fitroni & Feliana, 2022). Concurrently, the board of directors bears responsibility for the execution of strategies that are intended to achieve the company's vision and mission, in accordance with its financial and operational policies.

H2: Female Commissioners have a negative effect on the company's financial distress condition.

2. Research Methods

This research is a quantitative study that utilizes secondary data in numerical form. Data were collected using the documentation method, sourced from various secondary materials such as books, journal articles, company financial reports, and official websites. The use of secondary data was chosen due to its advantages in saving time and cost while providing reliable and valid information. In this study, the collected data and information include literature explaining the research variables and methodology, as well as annual and financial reports of public companies listed on the Indonesia Stock Exchange (IDX). The data were analyzed using the E-Views application. The population refers to the complete set of objects, events, or entities under investigation (Sekaran & Bougie, 2016a). According to Sugiyono (2017), a population is defined as a group of individuals or objects possessing specific characteristics, selected by researchers for analysis and generalization. In this study, the population comprises all manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the period 2020–2024. The sample, which serves as the primary source of research data, represents a portion of this population and reflects the broader characteristics found within it (Sugiyono, 2017).

This study employs purposive sampling as the sampling technique, which involves selecting respondents based on specific criteria determined by the researcher (Sekaran & Bougie, 2016). Purposive sampling is a non-random sampling method in which the samples are deliberately selected to ensure they meet the requirements of the study and provide relevant and representative information related to the research problem. This approach is particularly appropriate when researchers have predefined criteria that the sample must fulfill in order to enhance the reliability and significance of the research findings.

The researcher establishes several selection criteria that companies must meet in order to be included as research samples. These criteria may include the company's listing status on the stock exchange, the availability of complete financial reporting periods, the number of female directors on the management team, and the accessibility of financial data. By setting these standards, the researcher ensures that the selected samples are relevant and capable of accurately representing the relationship between female directors and financial distress. This approach enhances the credibility of the findings, allowing them to serve as a reliable basis for future theoretical development or managerial decision-making.

- a. Manufacturing firms listed on the Indonesia Stock Exchange between 2021 and 2024
- b. Manufacturing firms that present their financial statements in rupiah.
- c. Manufacturing firms that release financial reports accessible between 2021 and 2024
- d. Manufacturing companies that include information used to measure the variables related to this study in their financial reports.

2.1 Operational Definition and Measurement of Variables

2.1.1 Dependent Variable

This study measures financial distress using a binary (dummy) variable based on the Altman Z-Score model (Altman & Peck, 1995). A score of 0 indicates the company is financially healthy, while a score of 1 shows it is experiencing financial distress. The Altman Z-Score is a widely recognized tool for predicting bankruptcy risk, especially effective for firms in developing countries (Tania et al., 2021; Pekerti & Yovita, 2019).

The formula used is:

$$Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

Where:

- Z = Bankruptcy index
- X1 = Working Capital / Total Assets
- X2 = Retained Earnings / Total Assets
- X3 = EBIT / Total Assets
- X4 = Market Value of Equity / Total Liabilities

Dummy variable classification:

- a. $Z < 1.81$ indicates financial distress (coded as 1).
- b. $Z > 2.99$ indicates financial health (coded as 0).
- c. Z between 1.81 and 2.99 (gray zone) is categorized as healthy, although such firms may face financial difficulties in the near future.

2.1.2 Independent Variables

Female Directors

The gender composition of a company's board of directors significantly influences individual risk preferences, which in turn can affect the quality of decision-making, particularly through the risk tolerance exhibited by directors. (Gilliam et al., 2012). Female directors hold full authority to make both strategic and operational decisions within the company. The proxy used to measure the presence of female directors is the percentage of female directors relative to the total number of directors in the company (Christinna Santosa et al., 2022; García & Herrero, 2021).

$$\text{Proportion of the board of directors} = \frac{\text{Female Directors}}{\text{Total Directors}}$$

Female Commissioners

The board of commissioner functions as a supervisory body within issuers or public companies, responsible for overseeing overall or specific matters as outlined in the company's articles of association, and for providing strategic advice to the board of directors. (POJK, 2014). In this

study, the discussion of gender focuses on the role of women on the board of commissioners in addressing financial distress.

$$\text{Proportion of the board of commissioners} = \frac{\text{Female Commissioners}}{\text{Total Commissioners}}$$

2.1.3 Control Variables

Control variables are fundamental elements in scientific inquiry, deliberately maintained constant or regulated during an experiment or study. Their primary function is to isolate the effect of the independent variable on the dependent variable by eliminating or minimizing the influence of extraneous factors that could otherwise confound the research model. This meticulous management of conditions ensures that observed outcomes can be reliably attributed to the variables under investigation, thereby bolstering the internal validity and reproducibility of the research findings (Sekaran & Bougie, 2020). In this research, two control variables were employed: Firm Size and Profitability. These variables were included to mitigate the influence of extraneous factors and ensure that any observed effects are primarily attributable to the independent variables under investigation, thereby enhancing the internal validity and reliability of our findings.

Firm size reflects the overall magnitude of a company, which is observed and measured by the natural logarithm of its total assets. Furthermore, company profitability is measured by Return on Assets (ROA).

$$\text{Firm Size} = \ln(\text{Total Asset})$$

$$\text{Profitabilitas (ROA)} = \frac{\text{Net Income}}{\text{Total Asset}}$$

2.2 Research Model

When the dependent variable in a study is evaluated through qualitative methods, logistic regression analysis is employed (Ghozali & Ratmono, 2016). Logistic regression is a statistical approach used to model the probability of a dependent variable with categorical outcomes by examining its relationship with one or more independent variables.. In this type of analysis, a normality test for the independent variables is not required (Ghozali, 2018). The regression equation model used in this study is as follows:

$$\ln FD = \beta_0 + \beta_1 \text{Gender_Dir}_{it} + \beta_2 \text{Gender_Kom}_{it} + \beta_3 \text{Firm}_{it} + \beta_4 \text{ROA}_{it} + \epsilon_{it}$$

Explanation:

FD_{it}	= Financial Distress of company i year t,
$Gender_Dir_{i,t}$	= Female Director of company i year t,
$Gender_Kom_{it}$	= Female Commissioner of company i year t
$Firm_{it}$	= Firm Size i year t
ROA_{it}	= Profitability i year t

3. Results

3.1 Test Assumptions in Logistic Regression

This stage examines whether the assumptions required for logistic regression analysis are met. The tests conducted include the Hosmer and Lemeshow Goodness-of-Fit test, Overall Model Fit, and McFadden R-Squared evaluation. Below are the results of the Hosmer and Lemeshow test.

Table 3.1 Feasibility Test of Regression Model

H-L Statistic	19.7379	Prob. Chi-Sq(15)	0.1822
Andrews Statistic	173.4224	Prob. Chi-Sq(17)	0.0000

Source: Processed data, 2025

As shown in Table 3.1, the Hosmer and Lemeshow (H-L) test yields a statistic of 19.7379 with a significance probability of 0.1822. Since this value exceeds 0.05, the null hypothesis is accepted, indicating that the model adequately fits the data and can predict the observed outcomes well. The feasibility of the overall model is further assessed using the Likelihood Ratio (LR) test to confirm the suitability of the regression equation

Table 3.2 Likelihood Ratio Test Results

McFadden R-Squared	0.1748	Mean dependent var	0.1523
S.D. Dependent Var	0.3596	S.E. of regression	0.3246
Akaike info criterion	0.7288	Sum squared resid	59.4427
Schwarz criterion	0.7821	Log likelihood	-201.0962
Hannan-Quinn criterion	0.7496	Deviance	402.1925
Restr. Deviance	487.3923	Restr. Log likelihood	-243.6961
LR statistic	85.1997	Avg. log likelihood	-0.3521
Prob (LR Statistic)	0.0000		

Source: Processed Data, 2025

Table 3.2 shows the LR statistic with a probability of 0.0000, which is below the 0.05 threshold. This indicates that the set of independent variables significantly influences the dependent variable. The McFadden R-Squared value in this study is 0.1748, meaning the independent variables account for approximately 17.48% of the variation in the financial distress variable among manufacturing firms listed on the IDX. The remaining variation is explained by other factors outside the model.

3.2 Logistic Regression Model

After confirming that all required assumptions were met, the next step in the analysis was to develop the logistic regression equation. This section outlines the results obtained from the estimation of the logistic regression model.

Table 3.3 Logistic Regression Results

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-1.994	0.829	-2.403	0.016
Gender_Dir	1.206	0.569	2.118	0.034
Gender_Com	-1.323	0.752	-1.759	0.078
Firm_Size	0.026	0.031	0.845	0.397
Profitability	-11.236	1.804	-6.225	0.000

Source: Processed Data, 2025

Based on Table 3.3, the logistic regression analysis produced the following model equation, which shows the estimated relationships between the independent variables (female directors, female commissioners, and firm size) and the probability of financial distress

$$\ln \frac{FD}{1-FD} = -1,994 + 1,206Gender_Dir - 1,323Gender_Com + 0,026FirmSize - 11,236Prof + \epsilon$$

3.3 Research Hypothesis Testing

3.3.1 Partial Model Significance Test (Wald Test)

In multiple linear regressions the t-test is used to assess the significance of individual variables, whereas in logistic regression, the Wald test serves this purpose. The Wald test produces a statistic that follows a chi-square distribution, and decisions are made based on its significance probability (p-value). If the p-value is below 0.05, the null hypothesis is rejected, indicating that the independent variable has a significant partial effect on the dependent variable. Conversely, a p-value above 0.05 suggests no significant effect.

Table 3.3 presents the results of this test. Based on the analysis:

- **H1:** The p-value for female directors is 0.034, which is less than 0.05. Therefore, H1 is accepted, indicating that female directors significantly influence financial distress.
- **H2:** The p-value for female commissioners is 0.078, which is less than 0.05. Thus, H2 is accepted, suggesting that female commissioners do have a significant effect on financial distress.

3.3.2 Omnibus Test of Model Coefficients

The Omnibus Test of Model Coefficients is used to determine whether the logistic regression model as a whole is statistically significant. This test compares a model that includes all independent variables with a simpler model containing only the intercept. If the significance value (p-value) is below 0.05, it indicates that adding the independent variables significantly improves the model's fit to the data. Conversely, a p-value above 0.05 suggests no substantial improvement.

Table 3.4 Simultaneous Regression Test Results

McFadden R-Squared	0.1748	Mean dependent var	0.1523
S.D. Dependent Var	0.3596	S.E. of regression	0.3246
Akaike info criterion	0.7288	Sum squared resid	59.4427
Schwarz criterion	0.7821	Log likelihood	-201.0962
Hannan-Quinn criterion	0.7496	Deviance	402.1925
Restr. Deviance	487.3923	Restr. Log likelihood	-243.6961
LR statistic	85.1997	Avg. log likelihood	-0.3521
Prob (LR Statistic)	0.0000		

Source: Processed data, 2025

As shown in Table 3.4, the probability value (Prob LR statistic) is 0.0000, which is below the 0.05 significance level. Therefore, the null hypothesis is rejected, indicating that the independent variables collectively enhance the model’s ability to predict financial distress. This means including variables such as female directors and female commissioners improves the model’s performance.

Table 3.5 Hypothesis Testing Summary

Variable Name	Coefficient (B)	Sig.	Conclusion
Female Director (Gender Dir)	1.206	0.034	H1 Accepted
Female Commissioner (Gender Com)	-1.323	0.078	H2 Accepted

Source: Data processed, 2025

The table shows a significance probability value of Prob (LR statistic) equal to 0.0000. Since this value is below the 0.05 significance level, the null hypothesis (H_0) is rejected. This indicates that the independent variables in the regression model can jointly predict financial distress. The model demonstrates improved performance when including independent variables such as female directors and female commissioners.

4. Discussion

4.1. The Effect of Female Directors on Financial Distress

The analysis shows that the coefficient for female directors is 1.2068 with a significance value of 0.0342. Since this p-value is below 0.05, H1 is accepted, indicating that female directors significantly influence financial distress. The positive coefficient suggests that a higher proportion of female directors on the board is associated with an increased risk of financial distress.

This outcome may be explained by the possibility that firms already facing financial difficulties appoint more women to their boards as part of efforts to improve their corporate image or governance practices. These findings align with previous studies, such as Nurwahyudi &

Mudasetia (2020), which also reported a significant relationship between female directors and financial distress.

4.2. The Effect of Female Commissioner's on Financial Distress

The analysis shows that the coefficient for female commissioners is -1.3239, with a significance value of 0.0784. Since this p-value is greater than the 0.05 threshold, the effect of female commissioners on financial distress cannot be considered statistically significant. The negative coefficient indicates an inverse relationship, implying that companies with more female commissioners tend to experience a lower level of financial distress. However, this relationship does not reach the conventional level of statistical significance, suggesting that the presence of female commissioners does not provide strong empirical evidence of reducing financial distress in this sample.

These findings are consistent with previous research by Muthia et al. (2024), which found that female commissioners are negatively associated with financial distress. This result also highlights the important supervisory role of the board of commissioners in reducing the likelihood of financial difficulties faced by firms.

5. Conclusions

This study aimed to examine how gender diversity on boards of directors and commissioners influences the likelihood of financial distress in manufacturing companies. Using logistic regression, the analysis explored the Effect of board composition on a firm's financial vulnerability.

The results indicate a significant positive relationship between the proportion of female directors and financial distress, suggesting that companies with more female directors tend to face greater financial difficulties. This finding highlights the need to further explore factors behind this association. As representatives of shareholders, directors are responsible for minimizing agency costs and enhancing financial performance (Fama, 1998). The inclusion of female directors reflects gender diversity at the top level, which can improve strategic implementation and protect shareholder interests (Guizani & Abdalkrim, 2023). Female directors may also provide fresh perspectives and stronger oversight, potentially reducing agency costs (Loukil et al., 2019).

On the other hand, the influence of female commissioners on financial distress was found to be negative with a significance value. According to agency theory, external resources and other factors beyond gender may shape financial distress outcomes by strengthening oversight and managerial control.

This research acknowledges its limitations, particularly the McFadden R-Squared value of 0.1748, which indicates that only 17.48% of the variation in financial distress is explained by the variables included, leaving 82.52% influenced by other factors not examined here. Future studies are recommended to include additional variables to improve the model's predictive power, adopt

alternative measures of financial distress, and expand samples to non-listed companies or cross-country comparisons.

The findings offer insights for investors to assess firms more carefully and avoid investing in companies showing signs of financial distress. For corporate management, these results can serve as an early warning to identify potential financial problems and take preventive measures to avoid distress and bankruptcy.

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