OPEN ACCESS

ISSN 3048-1783 P-ISSN: 3062-763X
Advances in Accounting Innovation, Vol. 2, No. 1, August 2025, pp. 37-47
https://doi.org/10.69725/aai.v2i1.375

INOVASI ANALISIS DATA

Contents lists available at Inovasi Analisis Data
Advances in Accounting Innovation
journal homepage: https://analysisdata.co.id/index.php/AAI

Analyzing the Impact of Financial Ratios and Good Corporate Governance on Financial Distress Prediction Models

Ramadhan Wahyu Sukamto[1,*], Yuniatin Trisnawati D.K.W[2]

[1]Department of Accounting, Faculty of Business and Economy, Dharma AUB University, Surakarta, Indonesia
[2]Department of Accounting, Faculty of Business and Economy, Dharma AUB University, Surakarta, Indonesia

ARTICLEINFO

Article history:
Received: 21 June 2025
Revised: 17 July 2025
Accepted: 23 July 2025
Published Online: 10 August 2025

Correspondence:
Yuniatin

Keywords:
Financial Distress; Return On Assets (ROA); Debt to Equity Ratio (DER); Independent Board of Commissioners; Gender Diversity

JEL Classification:
M41, G32, G34

ABSTRACT

Purpose - This study examines the influence of financial ratios, represented by Return on Assets (ROA) and Debt to Equity Ratio (DER), and good corporate governance, represented by the Independent Board of Commissioners and Gender Diversity, on financial distress.
Design/methodology/approach - A quantitative approach was employed using secondary data from textile and garment manufacturing companies listed on the Indonesia Stock Exchange for the 2021–2023 period. Using purposive sampling, 20 companies were selected. Multiple linear regression analysis was used to test the hypotheses.
Findings - The results show that ROA, DER, the Independent Board of Commissioners, and Gender Diversity each have no significant effect on financial distress. These findings indicate that, within the observed context, the selected financial ratio and governance variables do not significantly predict financial distress.
Originality/value - This study contributes to the financial distress and corporate governance literature by providing empirical evidence from the textile and garment sector during the post-pandemic recovery period, an emerging-market setting that remains relatively underexplored.
Research implications - The findings offer practical insights for managers, investors, and regulators in strengthening financial and governance practices. Future research may extend the observation period, include multiple industry sectors, and incorporate other variables such as Current Ratio, Debt to Assets Ratio, Return on Equity, managerial ownership, and board size.

1. Introduction

Financial distress can be defined as a deterioration in a firm's financial condition that occurs prior to formal default or bankruptcy and signals an increasing inability to sustain contractual obligations from internally generated resources. Consequently, it is more aptly conceptualised as a process rather than a discrete occurrence: diminishing earnings, constrained liquidity, mounting debt-service pressures, and curtailed financing flexibility can, over time, progressively erode a firm's capacity to continue operations on standard terms. Recent evidence from ASEAN firms confirms that accounting information remains highly informative for detecting distress before default (Powell et al., 2024; Tron et al., 2023). Moreover, research on financially troubled firms shows that governance characteristics can add explanatory and predictive value beyond conventional financial indicators. The economic consequences of such actions are substantial, as financial distress can result in increased financing costs, restricted investment, intensified creditor monitoring, forced asset sales or operational contraction, and ultimately the transfer of losses to shareholders, creditors, employees, suppliers, and other stakeholders. It has been demonstrated that the consequences of external disruption are especially evident during periods of economic downturn, when firms with limited financial reserves are less able to withstand sudden fluctuations in revenue or financing (Christie et al., 2024).

The textile and apparel industry of Indonesia offers a particularly pertinent context for the examination of these mechanisms. The sector is characterised by its international integration and strategic importance within the manufacturing industry. However, the operating environment has become increasingly challenging in the aftermath of the pandemic. Recent reviews of Indonesia's textile and apparel supply chain have highlighted ongoing structural challenges pertaining to supply-chain sustainability, competitiveness and firms' capacity to adapt to evolving market conditions (Kazancoglu et al., 2024; Sarasi et al., 2024). Recent studies in this field have identified declining production, bankruptcies, and layoffs as significant concerns. These studies also highlight the impact of competition from low-priced textile imports, particularly from China (Rifa'i, 2025; Zhou et al., 2024). It has been demonstrated that such pressures may interact with post-pandemic demand uncertainty, input-cost pressures, and financing constraints. This interaction may result in conditions in which relatively modest changes in operating performance can rapidly affect profitability, leverage, and debt-servicing capacity. The post-pandemic period thus offers a strategically advantageous setting for conducting analytical investigations, focusing on whether intrinsic financial robustness and governance efficacy contribute to variations in

exposure to financial distress. This is particularly salient for publicly listed textile and garment enterprises.

The initial explanatory perspective places significant emphasis on financial ratios, with a particular focus on profitability and leverage. Return on Assets (ROA) is a measure of the efficiency with which a firm converts its asset base into earnings. In distressed analysis, it is an indicator of whether productive resources generate sufficient returns to support continuing operations and financial obligations. Conversely, the Debt to Equity Ratio (DER) is indicative of the relative dependence on debt financing and, consequently, the extent to which fixed contractual claims may amplify vulnerability during periods of declining earnings. Evidence from six ASEAN economies shows that ratios of profitability are among the strongest accounting-based early-warning indicators of financial distress. The study also shows that leverage contributes materially to the prediction of distress across crisis and non-crisis periods (Powell et al., 2024). In accordance with this line of reasoning, Cathcart et al. (2024) demonstrate that increases in bankruptcy risk associated with shifts in credit market conditions are predominantly concentrated amongst firms with significant levels of debt, thereby illustrating how elevated debt exposure can serve to magnify corporate vulnerability. Nevertheless, the predictive influence of leverage is not uniformly stable across economic settings. Christie et al. (2024) conducted an examination of firms exposed to extreme revenue shocks, thereby demonstrating that liquidity can be more decisive for shock absorption, whereas the role of leverage is less robust. It is generally accepted that higher profitability is associated with a reduction in distress risk, while higher leverage is associated with an increase in risk. However, the observed effects of these variables may be contingent on the prevailing crisis conditions, the liquidity positions of the parties involved, the financing structures in place, the characteristics of the industry in question, and the empirical definition of financial distress.

The second explanatory perspective is focused on the notion of corporate governance as an instrument for the mitigation of financial distress. Theory suggests that the presence of independent directors or commissioners can enhance board oversight, limit managerial opportunism, and optimise financing, investment, and risk-management decisions. The presence of a diverse gender composition on the board has the potential to reinforce these functions by broadening the expertise, perspectives, and risk assessment capabilities of the board. This, in turn, may lead to a reduction in excessive conformity in strategic decision-making processes. However, empirical evidence suggests that these governance mechanisms are context-dependent rather than universally effective. Gerged et al. (2023) report that board independence and gender diversity are associated with a lower likelihood of financial distress among UK FTSE 350 firms. Lagasio et al. (2023) demonstrate, however, that greater representation of non-executive directors on key board committees can enhance financial stability, although the effects of this vary across governance structures. In a similar vein, Ali et al. (2023) have found that board diversity has a mitigating effect on the risk of financial distress in Chinese firms, but that this relationship is contingent on CEO power. Research conducted across a range of geographical regions lends further support to the hypothesis that the presence of women on corporate boards is associated with a reduced risk of financial distress, although the magnitude of this effect is observed to vary between different institutional settings and during periods of economic downturn (Lee and Thong, 2022; Wang et al., 2024; Suprapto and Ng, 2025). Recent findings indicate that the correlation between board gender diversity and financial stability may be non-linear and contingent on the pre- and post-pandemic environment (Boshnak et al., 2023; Rachman et al., 2024; Khanchel et al., 2025; Singh and Rastogi, 2026). Collectively, these findings indicate that the effectiveness of board independence and gender diversity is contingent on institutional settings, board functionality, managerial power, and external economic conditions.

Notwithstanding the advances that have been made, explanations of corporate distress in the context of financial management and corporate governance have largely evolved as discrete research streams. This has engendered a significant gap in the research landscape in relation to the specific circumstances of a given sector. Accounting-based studies demonstrate that profitability and leverage provide relevant signals of deteriorating financial conditions. Conversely, governance research emphasises the role of board structure in strengthening monitoring and reducing distress risk. Nevertheless, research conducted on Indonesia's textile and garment industry has placed a greater emphasis on aspects such as supply-chain sustainability, industrial competitiveness, and trade-policy pressures, as opposed to the provision of an integrated explanation of firm-level financial distress (Rifa'i, 2025; Sarasi et al., 2024). Furthermore, evidence from developed and other emerging economies cannot be directly generalized to Indonesian firms listed on the stock exchange because governance effectiveness is shaped by ownership structures specific to each country, the regulatory environment, the characteristics of the capital markets, and the way in which boards actually function (Tron et al., 2023). The integration of ROA and DER with the Independent Board of Commissioners and Gender Diversity facilitates a more comprehensive evaluation of financial resilience. This integration combines firms' financial capacity with their governance capacity to monitor and respond to emerging risks. This integrated approach is of particular relevance to textile and garment firms facing competitive pressure, financing constraints, and post-pandemic structural adjustment.

Against this background, the study addresses four research questions:

(a) Does Return on Assets significantly affect financial distress?

(b) Does the Debt to Equity Ratio significantly affect financial distress?

(c) Does the Independent Board of Commissioners significantly affect financial distress?

(d) Does Gender Diversity significantly affect financial distress?

The present study makes three principal contributions to the existing body of knowledge. In theory, the model combines an accounting-based financial distress prediction methodology with an agency-based corporate governance perspective. This results in the positioning of financial distress as an outcome which is shaped jointly by operating performance, capital structure and governance mechanisms. Empirically, it provides evidence from Indonesian textile and garment companies during the post-pandemic adjustment period. This setting was characterised by heightened competitive pressure and financial vulnerability. In essence, the findings have the potential to provide a practical framework for managers, investors, creditors, and regulators to differentiate between financial warning signals associated with weak asset productivity and excessive leverage, and governance characteristics that influence firms' ability to monitor and respond to emerging risks. The integration of financial and governance determinants within a unified framework provides a more comprehensive basis for evaluating corporate resilience in a significant emerging-market manufacturing sector.

2. Methodology

2.1 Research Design

The present study adopts a quantitative explanatory archival design, with the objective of examining the association between firm-level financial and governance characteristics and financial distress. The design exhibits congruence with a positivist framework, whereby hypotheses

are evaluated through the utilisation of observable and standardised variables. These variables are derived from audited corporate disclosures and undergo statistical scrutiny across firm-year observations. Quantitative archival designs have been extensively utilised in the domain of corporate governance and financial distress research. These designs facilitate the estimation of partial relationships among accounting indicators and governance mechanisms, while maintaining constant other predictor variables (Gerged et al., 2023; Tron et al., 2023). The present study employs the firm-year unit of analysis, encompassing listed textile and garment companies on the Indonesia Stock Exchange (IDX) during the 2021–2023 period.

The theoretical specification under discussion combines agency theory with signalling theory. The predominant rationale for incorporating the Independent Board of Commissioners and Gender Diversity is provided by agency theory. This is due to the fact that board structure has the capacity to influence monitoring quality, managerial discretion, and organisational responses to deteriorating financial conditions (Gerged et al., 2023; Tron et al., 2023). Signalling theory provides a complementary rationale for ROA and DER. The reason for this is that profitability and leverage ratios, when reported in a public fashion, convey observable information regarding such matters as operating strength, financing pressure and the capacity of firms to meet their financial commitments. This perspective aligns with the findings of research that suggests accounting-based profitability and leverage indicators provide valuable early warning signals for financial distress across ASEAN firms (Powell et al., 2024). Consequently, the research design evaluated the hypothesized relationships between the variables of interest, rather than merely providing a descriptive account of financially distressed firms.

2.2 Population and Sample Selection

The population of this study comprises twenty-two textile and garment manufacturing companies that are listed on the Indonesian Stock Exchange (IDX) during the 2021–2023 period. Purposive sampling was employed due to the fact that the inclusion of data was contingent upon the availability and comparability of the financial and governance information necessary to operationalise the empirical model. This procedure is considered to be suitable for archival corporate research when complete firm-level observations are necessary to ensure consistency in measurements across companies and reporting periods. Conducting comparable financial-distress and corporate governance studies necessitates the establishment of analytical samples through the implementation of explicit listing, reporting and data availability requirements (Gerged et al., 2023; Ali et al., 2023). This enables the estimation of multivariate models to facilitate more nuanced assessments.

The study's design incorporated three distinct inclusion criteria. Firstly, it was imperative that companies retained their listing within the textile and garment sector for the 2021–2023 period. Secondly, the requirement was for the publication of audited annual financial statements to be consistently applied for the duration of the three observation years. Thirdly, the reports were required to provide comprehensive information regarding ROA, DER, the Independent Board of Commissioners, Gender Diversity, and the designated financial-distress measure. A total of twenty corporations satisfied all the stipulated criteria, producing 60 firm-year observations in addition to a balanced three-year dataset.

The application of consistent observation requirements across firms has been demonstrated to enhance measurement comparability and mitigate variation caused by incomplete disclosures (Gerged et al., 2023). However, it should be noted that purposive selection imposes limitations on the statistical generalisation beyond firms satisfying the stated inclusion criteria.

2.3 Data Collection

Secondary archival data were collected from the annual reports and audited financial statements of the sampled companies. The documentation was retrieved from two distinct databases: the official IDX reporting archive and the Indonesian Capital Market Directory. The Indonesian Capital Market Directory (ICMD) is accessible via the Universitas Dharma AUB Surakarta Stock Corner. The identification, recording and cross-checking of the requisite accounting and governance information for each firm-year observation was facilitated by the implementation of a structured documentation procedure. The present study finds support in contemporary archival research in the field of financial distress and governance for the notion that reliance on audited corporate disclosures is consistent with the findings of research in this area. In the abovementioned research, it is standard practice to use public reports to provide the underlying data for constructing financial ratios and board characteristics (Gerged et al., 2023; Powell et al., 2024). It was imperative that the firm-year coding structure was maintained consistently throughout data extraction in order to ensure the preservation of traceability between source documents and the resulting analytical dataset.

Financial Distress (FD) was proxied by the Interest Coverage Ratio (ICR), calculated as earnings before interest and taxes (EBIT) divided by interest expense:

$$ICR_{it} = \frac{EBIT_{it}}{Interest\ Expense_{it}} \tag{1}$$

The Return on Assets (ROA) was calculated by dividing net income by average total assets, whilst the Debt to Equity Ratio (DER) was calculated by dividing total liabilities by total equity. The measurement of the Independent Board of Commissioners (DKI) was determined by dividing the number of independent commissioners by the total number of commissioners. In turn, the measurement of Gender Diversity (GD) was derived by dividing the number of female directors by the total number of directors. The aforementioned ratio-based measures align with contemporary archival research on financial condition and board structure (Gerged et al., 2023; Powell et al., 2024).

2.4 Analytical Procedure

Multiple linear regression was employed in the empirical analysis to estimate the partial associations of return on assets (ROA), debt-to-equity ratio (DER), days' inventory (DKI), and gross debt to equity (GD) with the financial-distress score. Regression-based designs are extensively utilised in archival governance research due to their capacity to estimate the incremental contribution of multiple firm characteristics within a unified statistical model (Gerged et al., 2023; Tron et al., 2023). Initially, the descriptive statistics were calculated for all variables, incorporating minimum, maximum, mean, and standard deviation values. These statistics were utilised to evaluate central tendency, dispersion, and the potential for anomalous observations prior to inferential testing.

Subsequent regression diagnostics were then performed on the predictors and residuals. The residual normality of the data was assessed using the Kolmogorov–Smirnov test at the 5% significance level. Multicollinearity was examined using tolerance and variance inflation factor (VIF) statistics. Values of tolerance above 0.10 and VIF values below 10 were interpreted as indicating no severe multicollinearity. The Glejser test was employed to evaluate heteroskedasticity, with non-significant relationships between the predictors and absolute residuals at $\alpha = .05$ indicating the absence of detected heteroskedasticity. The assessment of autocorrelation was conducted by utilising the Durbin–Watson statistic and interpreting the results in relation to the specified lower and upper statistical bounds, with particular attention paid to the proximity of the results to 2. This methodology is deemed superior to the frequently cited yet statistically inappropriate '−2 to +2' rule. The importance of

diagnostic assessment stems from the potential sensitivity of financial-distress models to multicollinearity, heteroskedasticity, and specification problems (Tron et al., 2023).

The estimated relationships were derived using Equation (2), where subscripts i and t denote company and year, respectively. The coefficients, designated as β_1–β_4, denote the partial associations of the four explanatory variables with financial distress, with the caveat that this is achieved only after controlling for the remaining predictors in the model. The regression equation is specified as follows:

$$FD_{it} = \alpha + \beta_1 ROA_{it} + \beta_2 DER_{it} + \beta_3 DKI_{it} + \beta_4 GD_{it} + \varepsilon_{it} \quad (2)$$

In this study, FD denotes financial distress, ROA denotes return on assets, DER denotes the debt-to-equity ratio, DKI denotes the independent board of commissioners, and GD denotes gender diversity. In the estimated model, α represents the intercept and ε represents the error term. The specification integrates accounting and governance predictors within a single empirical model, consistent with contemporary research on financial distress (Gerged et al., 2023; Powell et al., 2024). The hypotheses were evaluated using two-tailed t-tests at a significance level of $\alpha = .05$, taking into account the direction, magnitude, and statistical significance of each regression coefficient. The ability of the model to explain the data was evaluated by means of the R^2 and the adjusted R^2, with the latter providing a more appropriate assessment when multiple predictors are included relative to sample size. It is also necessary to report the overall F-test in order to ascertain whether the explanatory variables are associated with financial distress in a joint manner. Given that the dataset encompasses repeated observations for the same firms over a period of three years, the validity of inferences may be compromised by within-firm dependence. In instances where the estimation software and original dataset provide support, heteroskedasticity-robust or firm-clustered standard errors should be reported as a robustness analysis. Research in the field of contemporary distress analysis similarly places emphasis on the utilisation of model diagnostics and the assessment of robustness when evaluating corporate predictors (Balagobei and Keerthana, 2023; Lagasio et al., 2023; Tron et al., 2023).

2.5 Conceptual Framework

The conceptual framework organizes the determinants of financial distress into two complementary dimensions: financial performance and governance quality. Financial performance is represented by ROA and DER. ROA captures firms' capacity to generate earnings from their asset base, whereas DER represents the extent of debt financing relative to shareholders' equity. These indicators provide observable information regarding operating strength and financing pressure and are consistent with evidence that profitability and leverage contain relevant information for identifying financial distress (Powell et al., 2024). Governance quality is represented by DKI and GD, reflecting monitoring independence and gender representation within corporate boards. Contemporary evidence indicates that board composition can materially affect the probability of financial distress, although such effects may depend on institutional and organizational conditions (Ali et al., 2023; Gerged et al., 2023).

Agency theory connects these dimensions by proposing that effective board monitoring can constrain managerial behavior that weakens financial stability and improve oversight of financing and risk decisions. Accordingly, DKI and GD are modeled alongside ROA and DER rather than as substitutes for financial information. This integrated specification recognizes that financial distress can arise from both deteriorating financial fundamentals and weaknesses in governance responses to those conditions (Tron et al., 2023). The empirical framework therefore tests whether profitability, leverage, board independence, and gender diversity explain variation in financial distress among Indonesian textile and garment firms during the post-pandemic period.

From an agency theory perspective, the framework emphasises that weak governance structures may permit managerial decisions that increase distress risk, whereas effective oversight can align managerial actions with shareholder interests (Samudra, 2021; Jensen and Meckling, 1976). This framework informs the empirical examination of how financial ratios and governance mechanisms jointly influence the likelihood of financial distress in the Indonesian textile and garment sector.

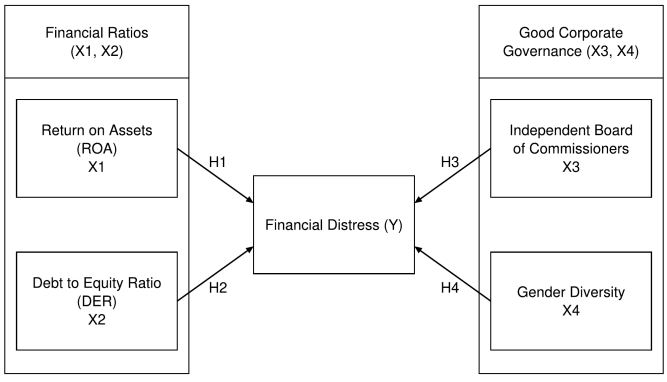

Figure 1: Conceptual framework of financial ratios, good corporate governance, and financial distress

3. Results

3.1 Descriptive Statistics

Table 1 presents the descriptive statistics of the research variables based on 60 firm-year observations obtained from 20 textile and garment companies listed on the Indonesia Stock Exchange during 2021–2023. The descriptive statistics comprise the minimum, maximum, mean, and standard deviation of each variable.

Table 1: Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Return on Assets (ROA)	60	−0.87	0.12	0.0407	0.15002
Debt to Equity Ratio (DER)	60	−30.15	8.00	−0.9653	6.38289
Independent Board of Commissioners	60	0.25	1.00	0.4140	0.13171
Gender Diversity	60	0.00	0.67	0.1214	0.17777
Financial Distress	60	−55.57	10.84	−2.0620	16.13644
Valid N (listwise)	60				

Source: Secondary data processed (2024).

ROA has a mean value of 0.0407 and a standard deviation of 0.15002, with values ranging from −0.87 to 0.12. The negative minimum value shows that some firm-year observations recorded accounting losses, whereas the positive maximum indicates that other firms remained profitable during the observation period. The relatively large standard deviation compared with the mean also indicates substantial variation in profitability across the sample.

DER ranges from −30.15 to 8.00, with a mean of −0.9653 and a standard deviation of 6.38289. The wide range indicates considerable heterogeneity in firms' capital structures. Negative DER values arise when shareholders' equity is negative and therefore indicate financially impaired balance-sheet positions rather than a conventional low-debt capital structure.

The Independent Board of Commissioners has a mean proportion of 0.4140, with values ranging from 0.25 to 1.00. This indicates that, on average, approximately 41.40% of commissioners in the sampled firms are independent. Gender Diversity has a mean of 0.1214 and ranges from 0.00 to 0.67, indicating relatively limited female representation on boards across the observations.

The Financial Distress measure ranges from −55.57 to 10.84, with a mean of −2.0620 and a standard deviation of 16.13644. The relatively large dispersion indicates substantial differences in financial conditions across companies and observation years.

3.2 Classical Assumption Tests

Prior to hypothesis testing, regression diagnostics were performed to assess residual normality, multicollinearity, heteroscedasticity, and residual dependence.

Normality Test

Residual normality was examined using the One-Sample Kolmogorov–Smirnov test. The results are presented in Table 2.

Table 2: Normality Test Results

Statistic	Unstandardized Residual
N	60
Most Extreme Difference — Absolute	0.169
Most Extreme Difference — Positive	0.148
Most Extreme Difference — Negative	−0.169
Kolmogorov–Smirnov Z	1.310
Asymp. Sig. (2-tailed)	0.064

Note: Test distribution is Normal.
Source: Secondary data processed (2024).

The Kolmogorov–Smirnov test yields a significance value of 0.064. Because this value exceeds the 5% significance level, the null hypothesis of residual normality is not rejected. Accordingly, the test does not provide statistically significant evidence of a departure from normality.

Multicollinearity Test

Multicollinearity was evaluated using tolerance and Variance Inflation Factor (VIF) statistics. The results are reported in Table 3.

Table 3: Multicollinearity Test Results

Variable	Tolerance	VIF	Assessment
Return on Assets (ROA)	0.964	1.037	No indication of multicollinearity
Debt to Equity Ratio (DER)	0.802	1.247	No indication of multicollinearity
Independent Board of Commissioners	0.801	1.249	No indication of multicollinearity
Gender Diversity	0.748	1.336	No indication of multicollinearity

Source: Secondary data processed (2024).

Tolerance values range from 0.748 to 0.964, while VIF values range from 1.037 to 1.336. These values indicate that no substantial

multicollinearity is detected among the four explanatory variables. Therefore, each predictor contributes sufficiently distinct information to the regression model.

Heteroscedasticity Test

The Glejser test was conducted by regressing the absolute residuals on the explanatory variables. Table 4 presents the results.

Table 4: Heteroscedasticity Test Results

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	11.433	5.043	—	2.267	0.027
Return on Assets (ROA)	8.492	9.926	0.112	0.856	0.396
Debt to Equity Ratio (DER)	−0.292	0.256	−0.164	−1.143	0.258
Independent Board of Commissioners	0.959	12.289	0.011	0.078	0.938
Gender Diversity	−18.749	9.494	−0.294	−1.975	0.053

Dependent variable: Absolute residual.
Source: Secondary data processed (2024).

The significance values for ROA, DER, the Independent Board of Commissioners, and Gender Diversity are 0.396, 0.258, 0.938, and 0.053, respectively. All values exceed 0.05. Thus, the Glejser test does not provide statistically significant evidence of heteroscedasticity at the 5% level. Nevertheless, the significance value for Gender Diversity is close to the conventional threshold and should therefore be interpreted cautiously.

Residual Dependence Test

The Durbin–Watson statistic was examined to assess serial dependence in the regression residuals. The result is reported in Table 5.

Table 5: Durbin–Watson Test Result

Model	Durbin–Watson	Assessment
1	0.739	Indication of positive residual dependence

Source: Secondary data processed (2024).

The Durbin–Watson statistic is 0.739. Because the value is substantially below 2, the result indicates potential positive dependence among the regression residuals. This finding should be considered when interpreting the inferential results because the dataset contains repeated firm observations over the three-year period.

3.3 Hypothesis Testing

Multiple Linear Regression Analysis

Multiple linear regression was estimated to examine the associations between ROA, DER, the Independent Board of Commissioners, Gender Diversity, and Financial Distress. The regression results are presented in Table 6.

Table 6: Multiple Linear Regression Results

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	−8.159	6.986	—	−1.168	0.248
Return on Assets (ROA)	14.061	13.592	0.131	1.034	0.305
Debt to Equity Ratio (DER)	0.689	0.350	0.272	1.966	0.054
Independent Board of Commissioners	7.472	16.988	0.061	0.440	0.662
Gender Diversity	25.488	13.019	0.281	1.958	0.055

Dependent variable: Financial Distress.
Source: Secondary data processed (2024).

Based on the unstandardized coefficients, the estimated regression equation is:

$$FD_{it} = -8.159 + 14.061ROA_{it} + 0.689DER_{it} + 7.472DKI_{it} + 25.488GD_{it} + \varepsilon_{it}. \quad (1)$$

where FD denotes Financial Distress, ROA denotes Return on Assets, DER denotes the Debt to Equity Ratio, DKI denotes the Independent Board of Commissioners, GD denotes Gender Diversity, and ε denotes the error term.

The coefficient for ROA is 14.061, indicating that a one-unit increase in ROA is associated with a 14.061-unit increase in the numerical Financial Distress score, holding the other variables constant. The DER coefficient is 0.689, while the coefficients for the Independent Board of Commissioners and Gender Diversity are 7.472 and 25.488, respectively.

Because the dependent variable is represented by a financial-distress score, the economic meaning of a positive coefficient must be interpreted according to the direction of the underlying measure. Where a higher score reflects stronger financial capacity, a positive coefficient represents an improvement in financial condition rather than an increase in economic distress.

Partial Effects

Table 7 summarises the statistical decisions for the four proposed hypotheses using a two-tailed significance level of 5%.

Table 7: Summary of Hypothesis Testing

Hypothesis	Relationship	t	p-value	α	Decision
H1	ROA → Financial Distress	1.034	0.305	0.05	Not supported
H2	DER → Financial Distress	1.966	0.054	0.05	Not supported
H3	Independent Board → Financial Distress	0.440	0.662	0.05	Not supported
H4	Gender Diversity → Financial Distress	1.958	0.055	0.05	Not supported

Note: Hypotheses are evaluated using a two-tailed significance level of 5%.
Source: Secondary data processed (2024).

ROA produces a coefficient of 14.061, $t = 1.034$, and $p = 0.305$. Because the p-value exceeds 0.05, the estimated relationship is not statistically significant. Accordingly, H1 is not supported.

DER produces a coefficient of 0.689, $t = 1.966$, and $p = 0.054$. The p-value is slightly above the predetermined 5% threshold. Accordingly, H2 is not supported at the 5% significance level, although the estimate is close to the threshold.

The Independent Board of Commissioners produces a coefficient of 7.472, $t = 0.440$, and $p = 0.662$. The relationship is not statistically significant, and H3 is therefore not supported.

Gender Diversity produces a coefficient of 25.488, $t = 1.958$, and $p = 0.055$. Although this p-value is also close to 0.05, it remains above the predetermined threshold. Accordingly, H4 is not supported.

Overall, none of the four hypothesised relationships is statistically significant at the 5% level.

Coefficient of Determination

The explanatory power of the regression model is summarised in Table 8.

Table 8: Model Summary and Coefficient of Determination

Model	R	R^2	Adjusted R^2	Std. Error of Estimate	Durbin–Watson
1	0.391	0.153	0.092	15.37936	0.739

Predictors: ROA, DER, Independent Board of Commissioners, and Gender Diversity.
Dependent variable: Financial Distress.
Source: Secondary data processed (2024).

The model produces an R value of 0.391 and an R^2 of 0.153. Accordingly, ROA, DER, the Independent Board of Commissioners, and Gender Diversity jointly account for approximately 15.3% of the observed variation in the Financial Distress measure. After adjustment for the number of explanatory variables and sample size, the adjusted R^2 decreases to 0.092. Thus, the adjusted explanatory power of the model is 9.2%. The remaining variation is not explained by the four predictors included in the specified model.

4. Discussion

The empirical results show that none of the four hypothesised relationships reaches statistical significance at the 5% level. However, the estimated coefficients remain informative when interpreted in relation to the direction of the dependent variable. Because Financial Distress is proxied by the Interest Coverage Ratio (ICR), a higher dependent-variable value represents stronger debt-servicing capacity and therefore a lower level of financial distress. Accordingly, positive coefficients for ROA, DER, the Independent Board of Commissioners, and Gender Diversity indicate positive associations with financial capacity rather than increases in distress. The findings should therefore be interpreted as statistically inconclusive relationships whose directions nevertheless provide useful information about the financial and governance characteristics of Indonesian textile and garment firms during 2021–2023.

4.1 Return on Assets and Financial Distress

ROA exhibits a positive coefficient ($\beta = 14.061$), but the relationship is not statistically significant ($p = 0.305$). Given that a higher ICR represents stronger financial capacity, the coefficient direction suggests that more profitable firms tend to exhibit better interest-covering capacity and consequently lower financial distress. Nevertheless, the evidence is insufficient to conclude that profitability systematically explains differences in financial distress within the observed sample. This result differs from broader ASEAN evidence showing that profitability ratios provide meaningful early-warning information for financial distress (Powell et al., 2024). One possible explanation is that the explanatory role of profitability becomes weaker when firms operate under substantial external and sector-specific pressures. Research on firms exposed to extreme shocks similarly indicates that liquidity, capital structure, and operating flexibility may become more important than conventional profitability measures in determining financial resilience (Christie et al., 2024).

The insignificant ROA effect is also plausible in the Indonesian textile and garment context. The sector has faced persistent supply-chain, competitiveness, and structural adjustment challenges, which may weaken the direct translation of accounting profitability into financial stability

(Sarasi et al., 2024). Consequently, a firm may report positive earnings while simultaneously facing cash-flow constraints, financing pressure, or weak debt-servicing capacity. The finding therefore does not imply that profitability is irrelevant; rather, it suggests that ROA alone may be insufficient to distinguish financially resilient from financially vulnerable firms in a sector undergoing substantial structural pressure.

4.2 Debt to Equity Ratio and Financial Distress

DER has a positive coefficient of 0.689 and a p-value of 0.054. Although this p-value is close to the 5% threshold, the relationship remains statistically insignificant under the predetermined decision rule. The coefficient should also be interpreted cautiously because the sample contains negative DER values arising from negative shareholders' equity. In such cases, the conventional economic interpretation of DER as a monotonic measure of leverage becomes less straightforward. A negative DER does not indicate low indebtedness; rather, it may reflect accumulated losses that have eroded equity and therefore represent severe financial weakness.

The result differs from evidence showing that financial leverage can materially increase bankruptcy vulnerability, particularly among highly leveraged firms (Cathcart et al., 2024). It also differs from ASEAN evidence in which leverage contributes to the identification of financial distress (Powell et al., 2024). However, the near-threshold result suggests that capital structure may still be economically relevant even though the evidence does not satisfy the conventional 5% significance criterion. Recent research further indicates that the effect of leverage on corporate resilience depends on the interaction between debt exposure, liquidity, and shock-absorption capacity (Christie et al., 2024). Therefore, DER should not be viewed in isolation, particularly in a sample where negative equity creates substantial heterogeneity in the denominator of the ratio.

4.3 Independent Board of Commissioners and Financial Distress

The Independent Board of Commissioners has a positive coefficient of 7.472 but is statistically insignificant ($p = 0.662$). Because a higher ICR indicates stronger financial capacity, the positive coefficient is directionally consistent with the agency-theory expectation that independent oversight may contribute to better monitoring and financial discipline. However, the large p-value indicates that the proportion of independent commissioners does not explain a meaningful share of the variation in financial distress within this sample.

This result contrasts with evidence from UK firms showing that greater board independence is associated with a lower likelihood of financial distress (Gerged et al., 2023). It also differs from studies demonstrating that governance structures and board committees can contribute to financial stability (Lagasio et al., 2023). Nevertheless, the present result is consistent with the broader argument that governance effectiveness depends on institutional context and the substantive functioning of the board rather than solely on formal board composition (Tron et al., 2023). A higher proportion of independent commissioners may therefore be insufficient when independence is not accompanied by relevant expertise, effective monitoring authority, or meaningful participation in strategic and financial decision-making. The present study cannot directly test these qualitative dimensions, but the insignificant coefficient indicates that numerical board independence alone does not explain financial-distress variation in the observed firms.

4.4 Gender Diversity and Financial Distress

Gender Diversity produces a positive coefficient of 25.488 with a p-value of 0.055. Although the estimate does not meet the 5% significance criterion, it is close to the threshold and should therefore be regarded as statistically inconclusive rather than substantively irrelevant. Because higher ICR values indicate stronger debt-servicing capacity, the positive coefficient suggests that greater female representation is associated with better financial capacity in the sample, although the evidence is not sufficiently precise to support the hypothesis.

The direction of this coefficient is consistent with international evidence indicating that greater board gender diversity can be associated with lower financial-distress risk (Ali et al., 2023; Lee and Thong, 2022). However, prior studies also show that this relationship is sensitive to institutional conditions, managerial power, and crisis periods (Ali et al., 2023; Khanchel et al., 2025). In the present sample, gender diversity averages only 0.1214, indicating relatively limited female representation. This restricted variation may reduce the statistical ability to detect an association even when economically meaningful differences exist. The finding therefore supports a cautious interpretation: female board representation may be relevant to financial stability, but its effect cannot be established conclusively from the present sample.

4.5 Overall Model Interpretation

The model reports $R^2 = 0.153$ and adjusted $R^2 = 0.092$. Thus, the four explanatory variables jointly account for 15.3% of the observed variation in the financial distress measure, while the explanatory power declines to 9.2% after adjustment for sample size and the number of predictors. These values indicate that a substantial proportion of variation in firms' financial conditions is not captured by ROA, DER, board independence, and gender diversity alone.

This relatively limited explanatory power is consistent with the multidimensional nature of financial distress. Accounting-based distress research shows that predictive performance generally improves when multiple dimensions of financial condition are incorporated rather than relying on a narrow set of ratios (Powell et al., 2024). Governance research likewise indicates that distress risk depends on the interaction of board characteristics, organizational structures, and institutional conditions (Tron et al., 2023). In the Indonesian textile industry, additional sectoral pressures may also matter, including import competition, supply-chain vulnerability, and broader structural adjustment (Sarasi et al., 2024; Rifa'i, 2025). Accordingly, the present model should be interpreted as a partial explanation of financial distress rather than a comprehensive prediction system.

The Durbin-Watson statistic of 0.739 also deserves consideration when interpreting the regression results. The value indicates positive residual dependence, which is plausible because the dataset contains repeated observations for the same firms over three consecutive years. Consequently, conventional OLS standard errors may not fully account for within-firm correlation. The substantive conclusions should therefore remain cautious until robustness tests using firm-clustered standard errors or an appropriate panel-data specification are performed.

Theoretical Implications

The findings identify several boundary conditions for the application of signaling and agency theories to financial distress. First, signaling theory suggests that profitability and leverage convey information about financial strength, but the insignificant coefficients indicate that these signals may have limited explanatory power when firms operate under substantial sectoral and external pressures. The results therefore support a context-dependent rather than deterministic interpretation of accounting signals.

Second, the findings refine the agency-theory interpretation of corporate governance. The insignificant coefficient for the Independent Board of Commissioners indicates that formal independence alone should not be equated with effective monitoring. The broader governance literature similarly shows that board effectiveness depends on composition, functionality, managerial power, and institutional context (Gerged et al., 2023;

Tron et al., 2023). Third, the near-threshold gender diversity result suggests that governance diversity may be relevant to financial stability, but its statistical manifestation may depend on the extent of representation and the institutional environment (Lee and Thong, 2022; Khanchel et al., 2025). Overall, the findings support a multidimensional view of financial distress in which financial condition, governance quality, and external context interact rather than operate independently.

Practical Implications

The results have several practical implications. Managers should not rely exclusively on profitability or leverage ratios as indicators of financial resilience, particularly in industries exposed to volatile demand, financing pressure, and structural competition. Financial monitoring should combine profitability with liquidity, cash flow, debt servicing, and operating-flexibility indicators.

For investors and creditors, the results suggest that board structure and financial ratios should be interpreted jointly rather than as isolated signals. A formally independent board or a higher proportion of female directors does not necessarily provide sufficient evidence of lower financial risk without information concerning board effectiveness, expertise, and actual oversight practices.

For regulators, the results indicate that governance assessment may benefit from moving beyond numerical compliance toward the substantive quality of board oversight. Board independence, diversity, expertise, and participation in risk-management processes may provide a more informative basis for evaluating governance effectiveness than structural proportions alone.

Limitations and Future Research

Several limitations should be considered when interpreting the findings. First, the study covers only 20 firms and 60 firm-year observations over a three-year period, which limits statistical power and external generalisability. Second, the analysis focuses exclusively on the textile and garment sector, and the findings should therefore not be generalized automatically to other industries. Third, the financial distress measure is based on interest-covering capacity, and alternative distress measures may capture different dimensions of financial vulnerability. Future studies should therefore test the robustness of the findings using alternative distress measures.

Fourth, the presence of negative equity in several observations complicates the conventional interpretation of DER. Future research may supplement leverage ratios with debt-to-assets, cash-flow-based, or market-based risk indicators. Fifth, the Durbin-Watson statistic indicates residual dependence, suggesting that future analysis should employ panel-data estimators or firm-clustered standard errors. Finally, subsequent studies should incorporate additional financial, governance, and contextual variables, including liquidity, operating cash flow, firm size, board expertise, ownership structure, import exposure, and macroeconomic conditions. A longer observation period would also enable researchers to distinguish temporary post-pandemic effects from more persistent determinants of financial distress.

Author Contributions

Ramadhan Wahyu Sukamto: Conceptualization, Methodology, Formal Analysis, Writing—Original Draft.
Yuniatin Trisnawati DKW: Data Curation, Validation, Supervision, Writing—Review & Editing, Project Administration.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data Availability Statement

The data that support the findings of this study are derived from publicly available secondary sources, namely the annual reports and financial statements of textile and garment manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2023 period. These documents were obtained through the Indonesian Capital Market Directory (ICMD) and the official IDX website (www.idx.co.id). All data sources used in this study are properly cited in the reference list. Additional information regarding the data collection procedure, sampling criteria, and variable measurements is available from the corresponding author upon reasonable request.

Acknowledgments

The authors would like to express their sincere gratitude to the editorial team of the *Advances in Accounting Innovation* (AAI) and the anonymous reviewers for their valuable comments and constructive suggestions that significantly improved the quality of this manuscript. The authors also wish to thank colleagues and peers at Universitas Dharma AUB Surakarta who provided feedback during the preparation of this study.

Conflict of Interest

The author(s) declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The authors confirm that there are no conflicts of interest regarding the publication of this manuscript.

Declaration of Generative AI

Informed Consent Statement

This study does not involve human participants. The data used in this study are publicly available secondary data obtained from the annual reports and financial statements of textile and garment manufacturing companies listed on the Indonesia Stock Exchange. Therefore, informed consent was not required for this research. No personal or sensitive data were collected, processed, or analyzed in this study.

Ethical Statement

This study is a quantitative empirical study using publicly available secondary data derived from the annual reports and financial statements of textile and garment manufacturing companies listed on the Indonesia Stock Exchange. The study does not involve human participants or animal subjects. Therefore, ethical approval was not required. All data sources used in this study have been properly cited and acknowledged in accordance with academic integrity standards. The research was conducted in compliance with the ethical principles and the publication ethics of

the *Advances in Accounting Innovation* (AAI).

References

Ali, S., Rehman, R., Aslam, S., Khan, I., Murtaza, G., 2023. Does board diversity reduce the likelihood of financial distress in the presence of a powerful Chinese CEO? Management Decision 61. doi:10.1108/MD-01-2022-0007.

Balagobei, S., Keerthana, S., 2023. Financial Distress and Corporate Governance: Evidence from Listed Firms. Journal of Financial Studies .

Boshnak, H.A., Alsharif, M., Alharthi, M., 2023. Corporate governance mechanisms and firm performance in Saudi Arabia before and during the COVID-19 outbreak. Cogent Business and Management 10. doi:10.1080/23311975.2023.2195990.

Cathcart, L., Dufour, A., Rossi, L., Varotto, S., 2024. Corporate bankruptcy and banking deregulation: The effect of financial leverage. Journal of Banking and Finance 166. doi:10.1016/j.jbankfin.2024.107219.

Christie, N., Jankensgård, H., Marinelli, N., 2024. The Black Swan problem: The role of capital, liquidity and operating flexibility. International Review of Financial Analysis 91. doi:10.1016/j.irfa.2023.103024.

Gerged, A.M., Yao, S., Albitar, K., 2023. Board composition, ownership structure and financial distress: insights from UK FTSE 350. Corporate Governance (Bingley) 23. doi:10.1108/CG-02-2022-0069.

Jensen, M.C., Meckling, W.H., 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. Journal of Financial Economics 3, 305–360.

Kazancoglu, Y., Mangla, S.K., Berberoglu, Y., Lafci, C., Madaan, J., 2024. Towards Industry 5.0 Challenges for The Textile and Apparel Supply Chain for The Smart, Sustainable, and Collaborative Industry in Emerging Economies. Information Systems Frontiers 26. doi:10.1007/s10796-023-10430-5.

Khanchel, I., Massoudi, A., Lassoued, N., Kharrat, A., 2025. Board gender diversity and financial stability COVID-19 vs pre-COVID-19 era. Gender in Management 40. doi:10.1108/GM-09-2023-0317.

Lagasio, V., et al., 2023. Non-executive directors on board committees and financial stability. Corporate Governance: An International Review .

Lee, K.W., Thong, T.Y., 2022. Board gender diversity, firm performance and corporate financial distress risk: international evidence from tourism industry. Equality, Diversity and Inclusion doi:10.1108/EDI-11-2021-0283.

Powell, R.J., Dinh, D.V., Vu, N.T., Vo, D.H., 2024. Accounting-based variables as an early warning indicator of financial distress in crisis and non-crisis periods. International Journal of Finance and Economics 29. doi:10.1002/ijfe.2864.

Rachman, F., Ahmad, G.N., Kurnianti, D., 2024. Pengaruh Board Gender Diversity, Board Independence, CEO Duality, dan CEO Tenure terhadap Nilai Perusahaan Perbankan yang Terdaftar di BEI pada Masa Sebelum dan Sesudah Pandemi COVID-19. El-Mal: Jurnal Kajian Ekonomi & Bisnis Islam 5. doi:10.47467/elmal.v5i6.2540.

Rifa'i, A., 2025. The impact of import tariff protectionism on Indonesia textile industry: GTAP model. Journal of the Textile Institute 116. doi:10.1080/00405000.2025.2480240.

Samudra, G.D., 2021. Gender Diversity dan Good Corporate Governance terhadap Financial Distress. Eqien: Jurnal Ekonomi dan Bisnis 8, 52–60. doi:10.34308/eqien.v8i2.226.

Sarasi, V., Primiana, I., Harsanto, B., Satyakti, Y., 2024. Sustainable supply chain of Indonesia's textile & apparel industry: opportunities and challenges. Research Journal of Textile and Apparel 28. doi:10.1108/RJTA-08-2022-0091.

Singh, K., Rastogi, S., 2026. Financial Distress, COVID-19 and Listed SMEs: A Multi-methodology Approach. Vision 30. doi:10.1177/09722629221096055.

Suprapto, Y., Ng, I., 2025. Does Board Gender Diversity Affect Financial Distress? Matrik: Jurnal Manajemen, Strategi Bisnis dan Kewirausahaan 17. doi:10.24843/matrik:jmbk.2023.v17.i02.p01.

Tron, A., Dallocchio, M., Ferri, S., Colantoni, F., 2023. Corporate governance and financial distress: lessons learned from an unconventional approach. Journal of Management and Governance 27. doi:10.1007/s10997-022-09643-8.

Wang, K., Ma, J., Xue, C., Zhang, J., 2024. Board Gender Diversity and Firm Performance: Recent Evidence from Japan. Journal of Risk and Financial Management 17. doi:10.3390/jrfm17010020.

Zhou, J., Wang, L., Huang, Q., Cai, H., 2024. An Empirical Study on the Impact of Tariff Reduction on China's Textile Industry under the Background of RCEP. Economics 18. doi:10.1515/econ-2022-0102.

Author Biographies

Ramadhan Wahyu Sukamto is a researcher at the Department of Accounting, Economics and Business, Universitas Dharma AUB Surakarta, Indonesia. His research focuses on financial distress, financial ratio analysis, and corporate governance mechanisms. He is particularly interested in how financial indicators and governance structures influence firm performance and sustainability in emerging markets.

Yuniatin Trisnawati DKW is an academic affiliated with the Department of Accounting, Economics and Business at Universitas Dharma AUB Surakarta, Indonesia. Her expertise lies in financial accounting and corporate governance. Her research examines the intersection of financial reporting, governance practices, and firm financial distress prediction models.