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Detecting Financial Distress in the Technology Industry: The Moderating Role of Managerial Ownership

Meiko Andreas Pangaribuan[1], Fachrul A Siregar[*1], Iskandar Muda[1], Noor Marini Haji Abdullah[2]
Universitas Sumatera Utara, Indonesia[1], UiTM Cawangan Kelantan, Malaysia[2]
*Coresponding Email : fachrula@students.usu.ac.id

ABSTRACT

This study investigates the influence of internal financial factors profitability and leverage on the likelihood of financial distress in technology companies listed on the Indonesia Stock Exchange (IDX) during the period 2022–2024. Using a quantitative approach with 102 data observations, the study also examines the moderating role of managerial ownership in these relationships. Results show that profitability has a significant negative effect on financial distress, indicating that higher profitability lowers the risk of financial trouble. Conversely, leverage has a significant positive effect, suggesting that greater debt levels increase the probability of financial distress. Furthermore, managerial ownership strengthens both the negative relationship between profitability and financial distress and the positive relationship between leverage and financial distress. These findings highlight the importance of sound financial management and corporate governance mechanisms in improving the financial stability of technology firms operating in high-risk, innovation-driven environments.

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INTRODUCTION

The rapid development of technology in the past two decades has encouraged the growth of various technology-based companies in Indonesia. The Indonesia Stock Exchange (IDX) has recorded an increase in the number of technology companies conducting initial public offerings (IPOs), especially since 2020. This reflects the market's confidence in the potential of the technology sector to create added value and contribute to national economic growth. However, amidst the great opportunities, technology companies also face serious financial challenges. One of the main challenges faced by technology companies is the risk of financial distress, a condition in which the company experiences significant financial pressure and has the potential to lead to bankruptcy (Brigham & Davis, 2018) . This phenomenon is increasingly relevant when several large technology companies experience a significant decline in share value and losses in the period 2022-2024, such as PT GoTo Gojek Tokopedia Tbk (GOTO) and PT Bukalapak.com Tbk (BUKA). Market volatility, high innovation costs, and aggressive growth strategies often make technology companies more vulnerable to financial stress than other sectors.

In the finance and management literature, there are various approaches to understanding the causes and dynamics of financial distress, one of which is by examining the internal factors of the company that play an important role in reflecting its financial condition. Some fundamental factors that are consistently used in various empirical studies

to predict the likelihood of financial distress are profitability and leverage (Sari & Machdar, 2023) . These variables represent important aspects of corporate financial management: the ability to generate profits, the level of dependence on debt, and the adequacy of short-term funds to meet financial obligations. Profitability reflects the company's ability to generate profits from its operational activities (Minanari, 2022) . Profitability is not only an indicator of financial performance, but also a reflection of the company's operational efficiency and resilience in the face of external pressures such as economic fluctuations, regulatory changes, and industry competition. In this context, a company with a high level of profitability is assumed to have sufficient financial resources to support its business continuity and to overcome possible temporary and long-term financial disruptions.

Companies that are able to book profits consistently will have a safer position from the risk of financial distress. This is because high profits reflect operational efficiency, revenue growth, and good cost management. In addition, profits can also be used to pay debt obligations, fund business expansion, or be kept as cash reserves to deal with future uncertainties. Thus, profitability not only serves as a performance measure, but also as a financial risk mitigation tool. Research conducted (Wardhana, 2021; Mahasin et al., 2025) shows a negative relationship between profitability and financial distress. For example, companies with high Return on Assets (ROA) tend to be more financially stable because they are able to manage their assets efficiently to generate revenue. Conversely, companies with low profitability indicate problems in operational strategy, cost efficiency, or ability to sell products/services, all of which have the potential to push the company towards financial distress.

Meanwhile, leverage is an indicator that describes the extent to which a company uses borrowed funds (debt) to finance its operational and investment activities. Leverage is a crucial element in capital structure management because it is directly related to the company's financial risk (Fitriana et al., 2021) High leverage ratio indicates that most of the company's assets are financed through debt rather than equity, which means that the company bears interest expenses and periodic debt repayment obligations. The use of a certain amount of debt can indeed increase shareholder returns through the multiplier effect (financial leverage), especially if the rate of return on investment is higher than the cost of debt. However, if the company's financial condition weakens or cash flow is insufficient to pay the debt burden, high leverage can backfire. In such a scenario, the company faces the risk of default, increased interest expenses, and possible loss of confidence from investors and creditors, all of which lead to financial distress.

In financial distress experienced by large companies, including in the technology sector, excessive leverage is one of the main causes. Companies that are too aggressive in using debt without considering their ability to pay in the future, especially when not offset by increased revenue or cost efficiency, will face serious financial pressure (Fauziyah & Handayani, 2020) . Therefore, leverage is often used as one of the early indicators in bankruptcy prediction analysis. In the context of a company, liquidity shows the company's ability to meet its short-term obligations, such as salary payments, debt instalments, and routine operating costs. A high liquidity ratio indicates that the company has sufficient cash and current assets to cover its short-term liabilities, thus providing room for manoeuvre in maintaining operational continuity.

Profitability and leverage factors are closely related in their influence on the company's financial condition (Indarti et al., 2020) . For example, companies that are not profitable tend to increase debt to cover operational deficits, which then worsens the leverage ratio. On the other hand, companies that have high profitability and liquidity may not need to rely heavily on debt, thus maintaining a healthy capital structure. The combination of the three creates a holistic system of assessing a company's financial health, where an imbalance in one aspect can have negative implications for the others. Particularly in the technology industry, company characteristics are often different from the non-technology sector. Many technology companies operate with a business model based

on rapid growth, but often at the expense of short-term profitability (Sari et al., 2024) . In the early growth phase, these firms may exhibit high leverage as they rely on external financing for expansion, while profitability and leverage are still limited. This makes technology companies more vulnerable to financial distress if not managed wisely (Gunawan et al., 2023) .

The relationship between these financial factors and financial distress is not always linear or consistent. In this context, managerial ownership can be a moderating variable that plays an important role. Managerial ownership describes how large a portion of the company's shares are owned by management (Kalbuana et al., 2022) . Agency theory states that the higher the managerial ownership, the greater the management's interest in company performance, thus encouraging more careful and efficient decisions. Managerial ownership is believed to be able to encourage management to make more prudent, efficient, and long-term orientated decisions, including in managing profitability and using leverage. As an illustration, managers who own shares in the company will be more careful in adding debt and will try to maintain profitability so that there is no financial pressure that harms the value of the company and their own ownership (Balboula & Shemes, 2025) . Thus, the role of managerial ownership can be key in strengthening or weakening the effect of internal financial variables on the risk of financial distress. Thus, managerial ownership can strengthen or weaken the relationship between financial factors and the likelihood of financial distress.

In this study, an analysis of the effect of these variables on financial distress is very relevant to be carried out, especially for technology companies listed on the Indonesia Stock Exchange (IDX) for the period 2022-2024. This period covers the post-COVID-19 pandemic period, which has put significant pressure on the financial performance of many companies, as well as the post-pandemic period, which is characterised by uneven economic recovery. This study aims to determine how firms' internal financial characteristics affect their financial resilience amid these macroeconomic dynamics. By exploring the effect of profitability and leverage on the likelihood of financial distress, it is hoped that this study can provide a more comprehensive understanding of the factors that need to be considered by management in maintaining the company's financial stability. In addition, the results of this study can also provide useful information for investors, financial analysts, and other stakeholders in conducting risk assessment and making investment decisions.

METHODS

This study uses a quantitative approach with a population of Technology Sector companies listed on the IDX for the period 2022-2024. Data was obtained from the official IDX and company websites, with a purposive sampling technique that selected 34 companies whose companies had been listed on the IDX at least since 2022 or earlier, resulting in 102 observation data.

Data analysis was conducted using SPSS, including classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) and hypothesis testing (Sugiyono, 2018) . Tests include the R^2 test, individual parameter significant tests, and Moderated Regression Analysis (MRA) to analyse the role of moderator variables. According to (Koeshardjono et al., 2019) the equation model that can be used in the MRA test is as follows:

Model 1 Y = a + b1X1 + b2X2 + e
Model 2 Y = a + b1X1 + b2Z + b3X1.Z + e
Model 3 Y = a + b1X2 + b2Z + b3X2.Z + e
Description:
X1 = Profitability
X2 = Leverage

Y = Financial Distress
Z = Managerial Ownership

Moderation testing is done by comparing the coefficient of determination (R^2) in model 1 (Y = a + b1X1 and Y = a + b1X2) with model 2 and model 3. Terms of the results:

a. If the R^2 of model 1 is lower than the R^2 of model 2 and model 3, then the moderating variable (Z) strengthens the relationship between X and Y.
b. If the R^2 of model 1 is higher than the R^2 of model 2 and model 3, then the moderating variable (Z) does not strengthen the relationship between X and Y.

RESULTS AND DISCUSSION

RESULTS

Table 1. Descriptive Statistics

Variables	N	Min	Max	Mean	Std. Deviation
Profitability (X1)	102	-0.150	0.290	0.085	0.072
Leverage (X2)	102	0.120	1.850	0.765	0.395
Financial Distress (Y)	102	-5.200	2.500	-1.320	1.435
Managerial Ownership (Z)	102	0.000	0.230	0.045	0.061

Source : Processing data Author (2025)

Based on the results of the descriptive statistics presented, the profitability variable (X1) has an average value of 0.085 with a minimum value of -0.150 and a maximum of 0.290. This shows that the average level of profitability of technology companies in the research sample is relatively positive, although there are several companies that record negative profitability values of up to -0.150, which indicates a loss in a certain period. The variability of the profitability data is also relatively small with a standard deviation of 0.072, which indicates that the profitability values are not too far spread from the average value.

For the leverage variable (X2), the average value is 0.765 with a minimum value range of 0.120 to a maximum of 1.850. This positive and quite large leverage value indicates that most companies use a funding structure with a varying portion of debt, with some companies having a very high level of leverage. The standard deviation of leverage of 0.395 indicates a significant variation in the use of leverage between companies. Meanwhile, the financial distress variable (Y) has an average value of -1.320 with a minimum value of -5.200 and a maximum of 2.500. This negative average value indicates that most companies are in a relatively safe condition from the risk of financial distress, but there are several companies with very low (negative) financial distress values, which reflect a fairly serious level of financial difficulty. The high standard deviation of financial distress, which is 1.435, indicates that there is considerable variation between companies in terms of financial distress risk.

Finally, the managerial ownership variable (Z) has an average of 0.045 with a minimum value of 0.000 and a maximum of 0.230. This indicates that in general, managerial ownership in technology companies is relatively small with limited variation between companies. The standard deviation of 0.061 indicates that the distribution of managerial ownership tends to be concentrated and not spread too widely. Overall, this data provides an overview of the financial characteristics of the technology companies under study, with considerable variation in terms of profitability, leverage, and risk of financial distress, as well as managerial ownership that tends to be low but diverse among the analysed companies.

Table 2. Classical Assumption Test Results

Assumption Test	Testing Criteria	Results	Conclusion
Normality	Sig. Kolmogorov-Smirnov > 0.05	Sig. = 0.200	Data is normally distributed
Multicollinearity	Tolerance > 0.10 and VIF < 10	Tolerance: 0.682-0.845VIF: 1.184-1.466	No multicollinearity
Heteroscedasticity	Sig. Glejser > 0.05	Sig. = 0.188-0.412	No heteroscedasticity
Autocorrelation	Durbin-Watson close to 2 (around 1.5-2.5 for cross-section data)	DW = 1.925	No autocorrelation

Source : Processing data Author (2025)

The results of classical assumption testing show that the regression model used has met the eligibility requirements. The normality test with a Kolmogorov-Smirnov significance value of 0.200 (> 0.05) indicates that the data is normally distributed. The multicollinearity test shows a tolerance value between 0.682-0.845 and a Variance Inflation Factor (VIF) value between 1.184-1.466, which is within safe limits (tolerance> 0.10 and VIF < 10), so it can be concluded that there is no multicollinearity between the independent variables. The heteroscedasticity test with the Glejser method produces a significance value between 0.188-0.412 (> 0.05), indicating that no heteroscedasticity occurs. Furthermore, the results of the autocorrelation test show a Durbin-Watson value of 1.925 which is in the range of 1.5-2.5, so there is no autocorrelation in the model.

Table 3. Multiple Linear Regression Analysis Results

Variables	Unstandardised Coefficient (B)	Description
(Constant) (α)	-0.834	
Profitability (X1)	-3.247	Negative Relationship
Leverage (X2)	1.519	Positive Relationship

Source : Processing data Author (2025)

Based on the results of linear regression analysis, it is obtained that profitability (X1) has a regression coefficient of -3.247 which shows a negative relationship to financial distress, while leverage (X2) has a coefficient of 1.519 which shows a positive relationship to financial distress.

Table 4. Results of the t-test

Variables	Sig. (p-value)	t count	t table (α = 0.05)	Description
Profitability (X1)	0.000	-4.548	1,983	Has a significant negative effect on Financial Distress
Leverage (X2)	0.000	5.293	1,983	Has a significant positive effect on Financial Distress

Source : Processing data Author (2025)

The t-test results reinforce this, with the significance value of each variable at 0.000 (<0.05), as well as the calculated t values of -4.548 for profitability and 5.293 for leverage which are greater than the t table (1.983). This shows that both profitability and leverage have a significant effect on financial distress, where profitability has a significant negative effect and leverage has a significant positive effect.

Table 5. Moderation Test Results of the Relationship between Profitability and Financial Distress with Managerial Ownership as a Moderating Variable

Model	R Square	Predictors
1	0,095	(Constant), Profitability (X1)
2	0,347	(Constant), Profitability (X1), Managerial Ownership (Z), X1*Z

Source : Processing data Author (2025)

The moderation test results show that managerial ownership is able to strengthen the relationship between profitability and financial distress. This is indicated by an increase in the R Square value from 0.095 (in the model without moderating variables) to 0.347 after including the moderating variable of managerial ownership and its interaction with profitability (X1*Z). This indicates that the presence of managerial ownership as a moderating variable strengthens the negative effect of profitability on financial distress, which means that the greater the managerial ownership, the stronger the effect of profitability in reducing the level of financial distress of the company.

Table 6. Moderation Test Results of the Relationship between Leverage and Financial Distress with Managerial Ownership as a Moderating Variable

Model	R Square	Predictors
1	0,003	(Constant), Leverage (X2)
3	0,153	(Constant), Leverage (X2), Managerial Ownership (Z), X2*Z

Source : Processing data Author (2025)

The moderation test results show that Managerial Ownership has a role as a moderating variable in the relationship between leverage (X2) and financial distress. In the first model, which only involves leverage as a predictor, the R Square value of 0.003 indicates that leverage alone only explains 0.3% of the variation in Financial Distress, however, when the moderating variable Managerial Ownership (Z) and its interaction with leverage (X2*Z) are included in the model (Model 3), the R Square value increases to 0.153. This increase in R Square indicates that managerial ownership strengthens the effect of leverage on financial distress. Thus, it can be concluded that managerial ownership is able to moderate the positive relationship between leverage and financial distress, where the greater the managerial ownership, the stronger the effect of leverage on financial distress.

DISCUSSION

The results showed that profitability has a significant negative effect on financial distress. This means that the higher the level of profitability of a company, the lower the possibility of the company experiencing financial difficulties. This finding is consistent with theory and previous research (Altman, 1968; Brigham & Houston, 2013), which states that companies with good profits have greater internal resources to meet short and long term obligations, making them more resistant to financial pressure.

In contrast, leverage is shown to have a positive and significant effect on financial distress. Companies with high levels of debt tend to have greater financial burdens (such as interest and instalments), which in turn increase the risk of not being able to meet financial obligations. This is in line with the views of Sartono (2016) and the findings of Santosa (2021), that debt-based funding structures need to be managed carefully so as not to worsen financial conditions.

Two other important findings come from the moderation test. First, managerial ownership strengthens the negative relationship between profitability and financial distress. This means that when management owns shares in the company, they tend to be more efficient and prudent in managing profits, so the positive impact of profitability in suppressing financial risk becomes greater. Second, managerial ownership also strengthens the positive effect of leverage on financial distress. This means that in companies with high managerial ownership, the negative effect of high leverage on financial risk becomes more pronounced. This can be interpreted that managers who own shares are more sensitive to debt risk because it involves the value of the shares they own. Overall, the role of managerial ownership as a moderating variable shows the importance of corporate governance mechanisms in strengthening or weakening the relationship between financial characteristics and corporate financial risk.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that profitability has a significant negative effect on financial distress, which indicates that technology companies with high levels of profit tend to be better able to avoid financial difficulties. Conversely, leverage has a significant positive effect on financial distress, which means that the higher the level of corporate debt, the greater the potential for the company to experience financial stress. This study also found that managerial ownership acts as a moderating variable that strengthens the relationship between profitability and leverage on financial distress. The greater the proportion of shares owned by management, the stronger the influence of these two financial variables on the possibility of financial distress. These findings underscore the importance of sound financial performance management and the role of corporate governance, particularly in terms of share ownership by management, in maintaining the financial stability of technology companies operating in a dynamic and risky business environment.

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