

FINANCIAL PERFORMANCE TO DETERMINE FINANCIAL DISTRESS CONDITIONS

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Abstract

The aim of this study is to examine the relationship between financial performance and the prediction of financial distress in a mining sector company listed on the Indonesia Stock Exchange from 2018 to 2022. A quantitative research method was employed for this study. The study focused on three independent variables, namely profitability, liquidity, and leverage, which were used to measure financial performance. The dependent variable, financial distress, was measured using the Altman Z-score model. A purposive sampling method was used to select 90 samples for this research, including 18 companies in the mining sector listed on the Indonesia Stock Exchange from 2018 to 2022. The data was analyzed using SPSS 17, with logistic regression as the chosen analysis method. The findings of this study indicate that profitability, as measured by ROA, and liquidity, as measured by CR, have a negative and significant impact on financial distress. Additionally, leverage, as proxied by DAR, has a positive and significant effect on financial distress.

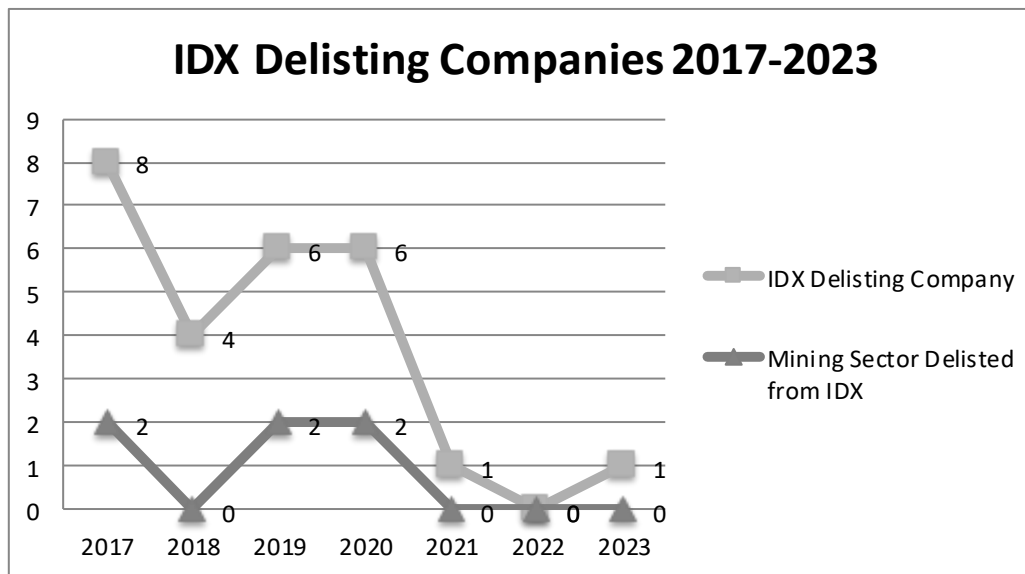
Keywords: *Financial Distress, Profitability, Liquidity, Leverage*

1. INTRODUCTION

Financial distress has emerged as a concerning economic reality in both developing and developed nations (Sehgal et al., 2021). As economic conditions fluctuate, financial performance is impacted, intensifying competition and necessitating companies to ensure their survival (Dwiantari et al., 2021). Over the past few decades, the prediction of financial distress has garnered significant attention in the realm of corporate finance, attracting the interest of scholars and practitioners alike. It is regarded as an effective early warning signal for companies, creditors, investors, regulatory authorities, and other relevant stakeholders (Balasubramanian et al., 2019; Khoja et al., 2019; Mehmood & De Luca, 2023). Within the realm of business development, finance stands as a crucial pillar, with poor financial management often being the root cause of business bankruptcies (Erayanti, 2019). Stakeholders must gain a deeper understanding of the financial well-being of investment opportunities to evaluate their potential business viability (Wu et al., 2022).

A clear indication of a company facing financial distress is its inability to effectively address long-term financial issues that have the potential to result in bankruptcy (Nurdiawansyah et al (2021); Succurro et al., 2019). When a company finds itself in a state of financial distress, it may be delisted from the Indonesia Stock Exchange (IDX), meaning that its shares are no longer traded on the stock exchange (Amna et al., 2021). It is widely recognized in Indonesia that the mining sector plays a crucial role in supporting the country's economic growth by providing energy resources (Ramadhan & Munawaroh,

2022). At the start of 2023, there was a significant decline in the shares of IDX Energy, with a 20% drop, which was the most severe among all other sectors. Specifically, the shares of PT Adaro Minerals Indonesia Tbk (ADMR) experienced a staggering decline of 50.15%, while the shares of ADMR's parent company, PT Adaro Energy Indonesia Tbk (ADRO), also experienced a sharp decline of 37.14%, as reported by CNBC Indonesia (Putra, 2023).



Source: Indonesia Stock Exchange, 2022 from www.idxchannel.com

Figure 1. List of Delisting Companies on the Indonesia Stock Exchange that are Experiencing Financial Difficulties

The provided data illustrates that the mining sector has a significant proportion of companies delisting from the IDX between 2017 and 2023, accounting for 23% of the total delistings. This percentage is comparable to other industries, including textile and garment, investment, transportation, property and real estate, electronics, tourism, banking, pharmaceutical, and chemical sectors. This trend suggests that the management capabilities of these mining companies may not be sufficient, leading to financial distress. In fact, this condition serves as a primary indicator of failure and an initial sign of bankruptcy for these companies (Farooq et al., 2018).

Financial distress refers to a situation where a company's financial condition deteriorates, indicating poor financial performance or disruption caused by a crisis (Permata, 2023). To predict such conditions, one approach involves measuring financial performance indicators disclosed by the company. This prediction aims to provide stakeholders with information to analyze the company's financial status and evaluate investment opportunities, ultimately assessing the company's survival prospects (Wu et al., 2022). In this regard, monitoring the efficiency of profit generation becomes crucial, which can be achieved by assessing the level of profitability, the ability to cover current liabilities with current assets, and the extent to which the company's assets are financed

by debt. Consequently, the study focuses on three financial ratios: profitability, liquidity, and leverage.

Several studies have examined the relationship between financial performance and financial distress in various sectors. However, these studies have yielded inconsistent results. For instance, Curry & Banjarnahor (2018) found that profitability negatively affects financial distress, while leverage has no impact. On the other hand, Sariroh (2021) discovered that profitability, liquidity, and leverage do not have a negative effect on financial distress. Similarly, Delayanti et al (2022) found that profitability negatively influences financial distress, but liquidity and leverage do not. In contrast Permata (2023), found that profitability, liquidity, and leverage all have a positive and significant effect on financial distress.

Furthermore, research conducted by Dwiantari et al (2021) and Susilowati, P. I. M & Fadlillah (2019) revealed that profitability and liquidity have a negative impact on financial distress, while leverage has a positive effect. These inconsistent findings have prompted researchers to conduct a re-study focusing on financial distress in the mining sector. The study aims to investigate the relationship between financial performance and the prediction of financial distress in mining companies listed on the Indonesia Stock Exchange from 2018 to 2022. This research seeks to provide a clearer understanding of the factors contributing to financial distress in the mining sector and potentially inform strategies for mitigating such risks.

2. LITERATURE REVIEW

2.1. Signaling Theory

Ross (1977) developed Signaling Theory, which proposes that companies have incentives to disclose both positive (good news) and negative (bad news) information to external parties regarding their current situation. This theory, as defined by Scott Besley and Eugene F. Brigham in 2008, explains that a signal serves as a hint for management regarding actions taken by the company, which is then conveyed to investors to provide insights into the company's prospects. The primary objective of this theory is to minimize information asymmetry within a company by offering relevant financial information that is reliable and trustworthy. This ensures that all stakeholders have access to transparent financial information (Suhadak et al., 2018). Consequently, investors can utilize this information to evaluate and make informed investment decisions (Setiyowati & Tjahjono, 2022).

If a company's financial statements display unfavorable outcomes, it will serve as a factor for investors to reconsider their investment in said company. Consequently, signaling theory proves valuable as it acts as an indicator that offers predictive insights regarding the likelihood of financial distress based on the information contained within the company's financial statements. These statements provide details about the company's capacity and financial condition, enabling the determination of whether the company is experiencing financial distress or not. The correlation between this theory and the present research lies in the fact that a positive signal signifies a favorable financial condition for the company, whereas a negative signal indicates a poor condition (Assagaf, 2017). Financial ratios can be employed to measure this theory's effectiveness in predicting

financial distress within companies, thereby serving as a foundation for making informed decisions in both the present and future.

2.2. Pecking Order Theory

The concept of pecking order theory was introduced by Myers and Manjuf in 1984. This theory posits that companies prioritize internal funds as their primary source of funding and resort to debt as a secondary option to augment their financial resources (Acaravci, 2015; Noor et al., 2015). According to this theory, debt is utilized when a company's retained earnings are insufficient to meet its operational requirements. In such cases, the company prefers to rely on internal sources, which are considered the safest means of funding (Mehrabanpour et al., 2020; Tripathy & Uzma, 2020; Wijaya et al., 2020). The rationale behind this preference lies in the potential risks associated with external funds, particularly the accumulation of high levels of debt that may ultimately lead to the company's inability to repay its obligations, potentially resulting in bankruptcy. By understanding and applying the pecking order theory, managers can make informed decisions to safeguard the company's financial well-being and mitigate the likelihood of encountering financial distress.

2.3. Financial Distress

Financial distress is a term used to describe the critical financial difficulties that a company encounters, which may pose a threat to its continued operations. It is closely associated with the company's inability to meet its debt obligations to creditors (Isayas, 2021). Through the examination of financial ratios, it becomes possible to identify early signs of financial distress. The insights gained from analyzing these ratios serve as a valuable resource for decision-making and risk management in addressing financial challenges and securing the company's long-term viability (Permata, 2023).

2.4. Profitability on Financial Distress

Return on Asset (ROA) is a profitability ratio that measures the company's ability to generate profits in relation to its assets and their value to shareholders. It serves as an indicator of the company's efficiency in generating profits relative to its costs over a specific period. Signal theory and pecking order theory provide insights into the implications of ROA. Signal theory is valuable in conveying positive or negative information to external parties, while pecking order theory prioritizes internal funding sources.

According to signal theory, an increase in a company's return on assets enables it to avoid financial distress, whereas a decrease may indicate potential financial difficulties. On the other hand, pecking order theory, which is relevant to both internal and external stakeholders, establishes a connection between corporate profits and managerial decision-making. By enhancing their company's performance and achieving high profits, managers can benefit both the company and its stakeholders. Supporting research conducted by Dwiantari et al (2021) and Jihadi et al (2021) as well as Curry & Banjarnahor (2018), Delayanti et al (2022), and Susilowati, P. I. M & Fadlillah (2019) suggests that the profitability ratio has a negative impact on financial distress. Based on these findings, we propose the following hypothesis:

H¹: Profitability has a negative effect on financial distress

2.5. Liquidity on Financial Distress

The company's ability to meet its short-term obligations, or debt, can be measured by the current ratio, as stated in the study conducted by Jihadi et al. (2021). The current ratio is calculated by dividing current assets by current liabilities. This ratio indicates whether the company can utilize its current assets to fulfill its short-term obligations. If the amount of current assets is high, it suggests that the company is less likely to experience financial distress. Signal theory suggests that if a company struggles to meet its short-term liabilities, it will also face difficulties in fulfilling its long-term obligations. This situation sends a negative signal to investors. Conversely, if the company is able to meet its short-term obligations, it provides a positive signal. According to the pecking order theory, if a company fails to fulfill its short-term obligations, it becomes an internal task to enhance the company's financial performance. Supporting research conducted by Dwiantari et al (2021) and Susilowati, P. I. M & Fadlillah (2019) found that liquidity has a significant negative impact on financial distress. Based on these findings, we propose the following hypothesis.

H²: Liquidity has a negative effect on financial distress.

2.6. Leverage on Financial Distress

The leverage ratio serves as a ratio to assess the degree to which a company's assets are financed through debt. A higher leverage ratio indicates that the company relies more heavily on debt to conduct its operations. Consequently, there is a possibility that the company may encounter difficulties in making payments in the future, as the debt surpasses the value of its owned assets (Dwiantari et al., 2021). In relation to the pecking order theory, it is evident that the management is aware of the company's financial condition. When a significant portion of the company's capital funding is acquired from external sources, it can potentially lead to financial hardships. According to the signal theory, obtaining a substantial amount of business capital from external parties sends a negative signal to investors. Supporting research conducted by Permata (2023), Dwiantari et al (2021), and Susilowati, P. I. M & Fadlillah (2019) has demonstrated that leverage has a positive and significant impact on financial distress. Based on these findings, we propose the following hypothesis.

H³: Leverage has a positive effect on financial distress

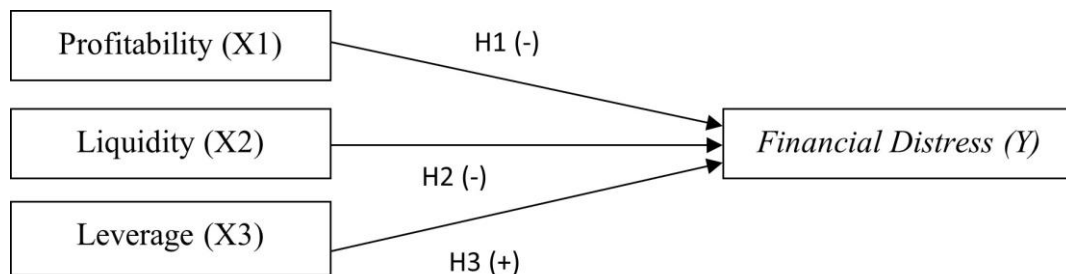


Figure 2. Conceptual Framework

3. RESEARCH METHODS

3.1. Population and Sample

The object of research is mining sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2018 to 2022. From this population, researchers took sample data from companies that met the criteria, where these criteria were determined using purposive sampling method. The following are the sample criteria in this study:

Table 1. Sampel Criteria

Description	Total	Criteria Violation
Mining companies that are active and listed on the Indonesia Stock Exchange (IDX) in 2018-2022.	83	
Companies that publish complete financial data from 2018 to 2022.	62	(21)
Mining companies that have profits during the period 2018 to 2022.	25	(37)
Mining companies whose profits use USD currency during the period 2018-2022.	18	(7)
Number of Sample		18
Total Samples during the 2018 - 2022 Research Period (18x5)		90

3.2. Data Collection Methods

This type of research is quantitative research. The data source is secondary data, namely the financial statements of mining sector companies listed on the Indonesia Stock Exchange (IDX) in 2018-2022. Financial report data is taken from the official website www.idnfinancials.com and the official website of each company.

3.3. Variable

a. Dependent Variable

The dependent variable in this study is financial distress as measured by Altman Z-score with the formula:

$$Z = 0,717X_1 + 0,847 X_2 + 3,107X_3 + 0,420X_4 + 0,998X_5$$

b. Independent Variable

The independent variables in this study are profitability, liquidity and leverage. The measurement of each variable is as follows:

Table 2. List of Variable Measurements

Variable	Definition	Measurement
Profitability	The ratio as a reference to the value of the effectiveness of the assets used by the company, where the greater the ROA, the better the company's financial position.	$ROA = \frac{Net\ profit}{Total\ Asset}$ (Delayanti <i>et al.</i> , 2022)
Liquidity	Indicates the company's ability to manage its finances well and cover its current liabilities.	$CR = \frac{Current\ Asset}{Current\ Liabilities}$ (Dwiantari <i>et al.</i> , 2021)
Leverage	A ratio that refers to the evaluation of the extent to which the company uses debt for financing.	$DAR = \frac{Total\ Debt}{Total\ Asset}$ (Susilowati & Fadlillah, 2019)

3.4. Data Analysis Method

The relationship between two or more variables, specifically the independent variables that explain and the dependent variables that are explained, is examined through regression analysis. In this particular study, dummy variables are employed, with a value of 0 representing conditions that do not experience financial distress, and a value of 1 indicating conditions that do experience financial distress. For z values greater than 1.23, the corresponding value is 0, while for z values less than 1.23, the corresponding value is 1. Logistic regression analysis, utilizing the SPSS (Statistical Product and Service Solution) application, is the chosen technique for analyzing the research data in this study. The logistic regression model used is as follows:

$$Y = \alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + e$$

Description:

Y = Financial Distress

X1 = Profitability

X2 = Liquidity

X3 = Leverage

β = Regression Coefficient

α = Regression Constant

4. RESULTS AND DISCUSSION

4.1. Research Results

a. Descriptive Statistics

Table 3. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PROFITABILITY	90	.00	.62	.1389	.15166
LIQUIDITY	90	.20	10.07	2.2077	1.80701
LEVERAGE	90	.00	.71	.3814	.18035
Valid N (listwise)	90				

Source: SPSS Data Processing Results, 2023

The descriptive statistical results of the research variables, including the minimum, maximum, average, and standard deviation values, are derived from the data presented in table 3 as follows:

- 1) From 2018 to 2022, the 18 companies analyzed exhibit a wide range of profitability (ROA) values. The lowest recorded value is 0.0001, while the highest value reaches 0.62. The average value is calculated to be 0.1389, with a standard deviation of 0.15166.
- 2) The analysis of liquidity (CR) in the 18 companies studied during the period 2018 to 2022 reveals interesting findings. The minimum recorded value is 0.20, whereas the maximum value reaches 10.07. The average liquidity value is 2.2077, with a standard deviation of 1.80701.
- 3) The leverage analysis (DAR) of the 18 companies during the 2018-2022 period provides valuable insights. The minimum recorded value is 0.0002, while the maximum value reaches 0.71. The average leverage value is 0.3814, with a standard deviation of 0.18035.
- 4) This study focuses on the mining sector companies, covering the period between 2018 and 2022, with a total of 90 samples.

Table 4. Descriptive Statistics of Financial Distress

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No Financial Distress	56	62.2	62.2	62.2
Financial Distress	34	37.8	37.8	100.0
Total	90	100.0	100.0	

Source: SPSS Data Processing Results, 2023

Based on the test results, we can conclude that a greater number of samples from this study did not face any financial difficulties. A total of 56 samples, which accounts for 62.2% of the companies, were found to be financially stable. On the other hand, 34 samples, equivalent to 37.8% of the companies, encountered financial distress.

b. Model Feasibility Test

Table 5. Hosmer and Lemeshow Goodness Fit Test

Step	Chi-square	df	Sig.
1	1.783	8	.987

Source: SPSS Data Processing Results, 2023

The Hosmer and Lemeshow Goodness Fit test reveals a Chi square of 1.783 and a significance value of 0.987. According to this test, the regression model in this study is suitable as it aligns with the observed data, given that the significance value exceeds 0.05.

c. Model Fit Assessment Test

Table 6. Model Fit Test

Iteration	-2 Log Likelihood
Step 0	119.334
Step 1	23.682

Source: SPSS Data Processing Results, 2023

The regression model seems to be effective and appropriate for this study. This is evident from the initial -2log likelihood of 119.334, which is the starting point, and then three variables are added in step 1, resulting in a decrease in the final -2 log likelihood value to 23.682.

d. Omnibus test

Table 7. Omnibus Test Result

	Chi-square	df	Sig.
Step 1 Step	95.651	3	.000
Block	95.651	3	.000
Model	95.651	3	.000

Source: SPSS Data Processing Results, 2023

The test shows that when all 3 variables are used together, they have an impact on financial distress. Looking at the test results, the significance value is 0.00, which is below the threshold of 0.05.

e. Coefficient of Determination Test (R^2)

Table 8. Model Summary

Model Summary ^b			
Step	-2 log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	23.682 ^a	.655	.891

Source: SPSS Data Processing Results, 2023

The summary model reveals that the Nagelkerke R-square outcome is 0.891, equivalent to 89.1% in percentage terms. This suggests that profitability, liquidity, and leverage have the ability to account for financial distress, which serves as the dependent variable. However, there is still 10.1% left unexplained, which can be attributed to other factors not considered in the research model when examining the presence of financial distress.

f. Classification Matrix Test

Table 9. Classification Matrix

Observed			Predicted		Percentage Correct
			Financial Distress		
			No Financial Distress	Financial Distress	
Step 1	Financial Distress	No Financial Distress	53	3	94,6
	Financial Distress	Financial Distress	3	31	91,2
					93,3

Source: SPSS Data Processing Results, 2023

The data in the table reveals that out of the 90 samples, 56 companies managed to avoid financial distress. This was accurately predicted in 53 cases, while 3 predictions turned out to be incorrect. The accuracy rate for predicting non-financial distress samples stands at 94.6%. On the other hand, out of the 34 companies that experienced financial distress, 31 were correctly predicted, while 3 were predicted incorrectly. The accuracy rate for the financial distress sample is 91.2%. Overall, the classification model demonstrates a robustness of 93.3%, indicating that further predictions can be made confidently.

g. Hypothesis Testing

Table 10. Hypothesis Test Result

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a X1	-87.507	28.208	9.624	1	.002	.000
X2	-1.900	.921	4.251	1	.039	.150
X3	21.356	6.607	10.449	1	.001	1.883E9
Constant	-.414	2.397	.030	1	.863	.661

Source: SPSS Data Processing Results, 2023

From the test results on logistic regression, the following results are obtained:

- 1) Based on the data, it is evident that profitability plays a crucial role with a value of 0.002 and a beta value of -87.507. This indicates that profitability has a negative and significant impact on financial distress. Therefore, we can confidently accept H1, considering the significance value is less than 0.05 and the beta value is negative.
- 2) The significance value of 0.039 and a beta value of -1.900 highlight the importance of liquidity in relation to financial distress. It can be concluded that liquidity has a negative and significant effect, leading us to accept H2. The significance value being less than 0.05 and the beta value being negative further support this conclusion.
- 3) Analyzing the data, we find that leverage holds a significant value of 0.001 and a beta value of 21.356. This suggests that leverage has a positive and significant impact on financial distress. Consequently, we accept H3, considering the significance value is less than 0.05 and the beta value is positive.

Based on the logistic regression results in table 10, it is concluded that the logistic regression model is as follows:

$$Y = -0,414 - 87.507 (\text{PROFIT}) - 1.900 (\text{LIQUID}) + 21.356 (\text{LEVE}) + e$$

Description:

Y	= Financial Distress
PROFIT	= Profitability (ROA)
LIQUID	= Liquidity (CR)
LEVE	= Leverage (DAR)
e	= error

4.2. Discussion

a. Effect of Profitability on Financial Distress

Table 10 presents the acceptance of hypothesis H1, as evidenced by the negative regression coefficient of -87.507 and a significance value of 0.002 for the profitability variable. This finding aligns with previous studies conducted by Curry & Banjarnahor (2018), Delayanti et al., (2022), Dwiantari et al (2021), and Susilowati, P. I. M & Fadlillah (2019). The research demonstrates that profitability plays a significant role in influencing financial distress. Profitability, defined as a ratio measuring the ability to generate profits, is crucial for a company's survival (Lilyani et al., 2023). A high profitability value indicates that the company can achieve its profit targets, leading to greater financial stability. In contrast, companies with low profitability values face a different financial situation.

b. Effect of Liquidity on Financial Distress

Table 10 presents evidence supporting hypothesis H2, as indicated by the negative coefficient of -1.900 and a significance value of 0.039 for the liquidity variable in the

regression analysis. This finding aligns with previous research conducted by Dwiantari et al (2021) and Susilowati, P. I. M & Fadlillah (2019). The liquidity ratio serves as a measure of a company's ability to meet its short-term debt obligations using its current assets. Therefore, a higher level of current assets suggests a greater likelihood of the company being able to fulfill its short-term liabilities. Conversely, if a company has low current assets, it may struggle to repay its short-term debts before they become due.

c. Effect of Leverage on Financial Distress

Table 10 presents the findings that support the H3 hypothesis. This is evident from the positive coefficient of 21.356 for the leverage variable in the regression analysis, along with a significance value of 0.001. These results align with previous research conducted by Permata (2023), Dwiantari et al (2021), and Susilowati, P. I. M & Fadlillah (2019). The leverage ratio is a measure of the company's debt financing. A low leverage ratio indicates a healthy company, while a high ratio suggests financial difficulties. Moreover, high leverage hampers profit maximization and influences borrowing decisions from creditors. If these issues are not addressed promptly, the company may face financial distress and potential bankruptcy in the future.

5. CONCLUSION

The research findings indicate that financial distress is influenced by profitability, liquidity, and leverage. Specifically, profitability and liquidity have a negative and significant impact on financial distress, while leverage has a positive and significant impact. These results align with signal theory and pecking order theory, as they suggest that the financial performance of a company, as measured by profitability, liquidity, and leverage ratios, can serve as signals of either positive or negative news. This information is valuable for all stakeholders involved. Company management can utilize this information to take proactive measures in improving the company's financial health and avoiding the possibility of bankruptcy. Additionally, investors and potential investors can consider these factors when making investment decisions, as they directly impact the financial condition of a company.

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