INVESTIGATING OF FINANCIAL DISTRESS IN HEALTHCARE INDUSTRIES: THE MODERATING ROLE OF PROFITABILITY

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Article history:	*Abstract*
	This study aims to investigate the factors of liquidity, leverage, and company size, with profitability serving as a moderating component in relation to financial distress. The focus of the research is directed at health sector issuers listed on the Indonesia Stock Exchange during the period 2020-2024, considering that this sector is very vulnerable to financial pressures due to fluctuations in operational costs and market dynamics. The theoretical analysis employs agency theory and signaling theory as its primary frameworks. This study uses quantitative methodologies. This study utilizes secondary data obtained from the official website of the Indonesia Stock Exchange. This research used a sample of 17 firms. This study utilizes panel data moderation regression analysis, facilitated by Eviews 12 software. The study findings indicate that, to some extent, the liquidity variable and firm size do not significantly influence financial distress. partially, the leverage factors significantly influence financial distress. It was shown that profitability moderates the association between liquidity and firm size concerning financial distress, however the leverage variable's relationship with financial distress is not moderated by profitability. This study underscores the need for healthcare organizations to exercise more prudence in managing liquidity and leverage to prevent financial disaster.

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INTRODUCTION

The emergence of the Covid-19 pandemic, which spread to various countries, has triggered a major shock in the global economy, including in Indonesia. This pandemic has caused a sharp decline in economic activity, forcing many business sectors to halt their operations temporarily or even permanently close their businesses. Mobility restriction policies, the closure of business premises, and the decline in people's purchasing power further worsened the situation, creating a domino effect that impacted various sectors widely.

The condition in Indonesia, the tourism and hospitality sector was experiencing a downturn due to travel bans and a decrease in the number of tourists, both domestic and international. The aviation industry was also facing significant pressure due to low occupancy rates and high operational costs that still needed to be borne. The retail and MSME sectors have experienced a drastic decline in revenue due to changes in consumer behavior that prioritize basic needs and reduce non-essential spending. The manufacturing industry has also been disrupted due to the disturbance in the global supply chain and the decrease in market demand.

However, a different finding was observed in the healthcare sector, where throughout the Covid-19 pandemic, the healthcare sector's stock index experienced a significant increase. Starting from early 2020 when the Covid-19 pandemic was spreading very massively, the stock index of the healthcare sector actually experienced an upward trend. The increase in the stock index in the healthcare sector continued until 2022. Next, in 2023, the stock index in the healthcare sector began to show a decline, caused by the Covid-19 pandemic, which had started to be brought under control.
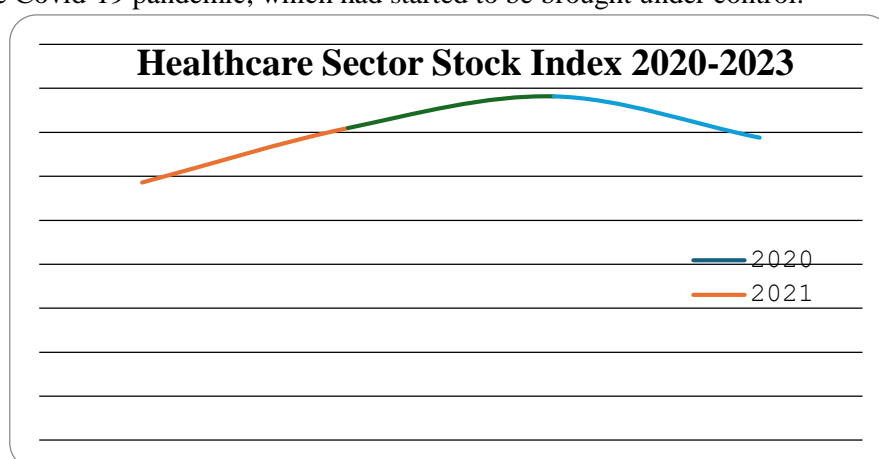
Source: Bursa Efek Indonesia, 2024

Figure 1. Movement of share price trends in the health sector 2020-2023

Based on the graph presented above, it can be seen that there is an increase in the health sector stock index, where in 2020 the value of the health sector index was recorded at 1172, then in 2021 the health sector stock index was 1420, indicating an increase in the index value from the previous year. Subsequently, in 2022, the health sector stock index was 1564, indicating an increase in the index value from the previous year. Next, in 2023, when the COVID-19 pandemic had improved, it was recorded that the health sector index was 1376, which means there was a significant decrease compared to the previous year. The decline in the index in 2023 also indicates that the demand for healthcare services has started to decrease.

Through the observations presented using the graph above, which shows a tendency of increasing index values in the healthcare sector, investors assume that the issuers in the healthcare sector have good economic growth prospects (Purwanti, 2022). However, in reality, the increasing index value in the healthcare sector from 2020 to 2022 does not always align with good prospects for the future, as there

are still issuers in the healthcare sector experiencing poor prospects, facing losses from their ongoing business operations. Continuous losses can indicate that the company is experiencing financial distress. Here are five issuers that have experienced losses throughout 2023.

Table 1.
List of Health Sector Issuers Experiencing Fluctuations in Profit and Loss Values from 2020-2023

Code	2023	2022	2021	2020
KAEF	-177.400.000.000	-180.900.000.000	301.900.000.000	37.200.000.000
PEHA	-15.500.000.000	28.100.000.000	11.100.000.000	50.000.000.000
INAF	-191.690.000.000	-428.500.000.000	-37.600.000.000	-18.900.000.000
PYFA	-45.500.000.000	283.740.000.000	5.500.000.000	22.100.000.000
PRIM	-2.700.000.000	-21.600.000.000	105.500.000.000	38.200.000.000

Source: Bursa Efek Indonesia, 2024

Based on the table above, it can be seen in 2023, the largest loss was experienced by INAF amounting to 191.69 billion, which is an increase compared to the previous year. The second highest loss position is held by KAEF with 177.4 billion. Then, in third place with a loss of 45.5 billion, there is PYFA. Next, in fourth place occupied by PEHA, a loss of 15.5 billion was recorded. Then, in the fifth position, PRIM recorded a loss of 2.7 billion. Through the explanation provided above, the condition of the healthcare sector index, which has increased from 2020 to 2022, does not mean that all issuers in the healthcare sector have good prospects, because in reality, there are still some issuers in the healthcare sector that are in financial distress with continuous losses.

When a business encounters money problems that might result in insolvency if not handled quickly, this is known as financial distress. Liquidity is one of the elements that might impact financial hardship. A company's liquidity indicates how well it can pay its short-term bills. Businesses that don't have a lot of cash on hand are more likely to go into financial trouble since they can't pay their short-term bills. Leverage, the percentage of debt in a company's capital structure, is the second element that matters. An organization's interest expense is directly proportional to its leverage. There will be financial trouble for the business if its high debt levels are not accompanied by enough revenue to pay them. Secondly, financial hardship is influenced by the company's size. When opposed to smaller businesses, larger ones tend to be more secure financially and have easier access to capital. Because of this, bigger businesses have a better chance of making it through tough economic times. It is common practice to use a company's total assets or revenue as a proxy for its size; generally speaking, bigger organizations are less likely to have financial difficulties than smaller ones. Profitability is the final component that impacts financial hardship. How well a business can turn a profit after deducting all of its operating expenses and debts is a good indicator of its profitability (Ceylan, 2021; Sehgal *et al.*, 2021; Dasman *et al.*, 2023). There is less likelihood of financial hardship for companies that are very profitable since they are better equipped to manage their money (Husain & Sunardi, 2020). Profitability moderates the effect of liquidity, leverage, and firm size on financial distress in this research. This suggests that profitability may either amplify or dampen the link.

The subsequent phenomenon includes ongoing research related to financial distress, yielding a variety of findings. This diversity in outcomes highlights a gap in the literature, known as gap research. For instance, Nila (2021) found that liquidity negatively and significantly affects financial distress, while Lela *et al.*, (2021) concluded that liquidity does not have a significant impact. In terms of leverage, Angriani et al. (2023) demonstrated a significant effect on financial distress, contrasting with Agatha and Wijaya (2022), who found no significant effect. Additionally, regarding company size, Nila (2021) reported that it does not significantly affect financial distress, whereas Agatha and Wijaya (2022) indicated that it does have a significant impact.

According to the research conducted by Mujiani and Jum'atul (2020), there is a significant relationship between profitability and financial distress. Conversely, Noviyana *et al.*, (2024) observe that profitability does not exert a significant influence on financial distress. This research also considers profitability as a moderating variable. Minanari *et al.*, (2024) propose that profitability may influence the interplay between liquidity and financial distress, whereas Savitri and Rochdianingrum (2022) argue against this notion. Moreover, Minanari *et al.*, (2024) illustrate that profitability may influence the interplay between leverage and financial distress, while Amah and Sudrajat (2024) suggest that it does not have such an effect. Ultimately, Savitri and Rochdianingrum (2022) demonstrate that profitability may influence the connection between company size and financial distress, whereas Syani (2024) concludes that it does not.

This research has novelty in two main aspects. First, this research focuses on the healthcare sector, which has long been considered relatively safe from economic crises, yet there are still companies experiencing financial distress. Second, this research introduces profitability as a moderating variable in the relationship between liquidity, leverage, and company size on financial distress occurring in the healthcare sector. Through this approach, the research is expected to provide new insights into how companies in the healthcare sector can survive in uncertain economic conditions.

The healthcare sector was chosen as the focus of this research due to its distinct characteristics that differentiate it from other industries. During the Covid-19 pandemic, the sector experienced a significant increase in demand for healthcare services, a rise in the production of medical devices, and an expansion of the pharmaceutical industry. However, this surge does not ensure financial stability for all companies within the sector. Many face considerable challenges in financial management, arising from factors such as reliance on government policies, changes in consumer behavior regarding health products, and the disparity between revenue growth and operational costs. Therefore, it is crucial to understand the factors contributing to financial distress in the healthcare sector for the benefit of academics, investors, company management, and regulators. This understanding can facilitate the development of more effective strategies aimed at enhancing the financial resilience of companies in the future.

Jensen & Meckling (2019) articulate that agency theory elucidates the dynamics that arise when one entity (the agent) undertakes actions on behalf of another entity (the principal) to execute a designated task. The agency relationship emerges when the principal delegates responsibilities to the agent and empowers the agent with the authority to make decisions in their stead. The primary concern within the framework of agency relationships lies in the possible discord of interests between the principal and the agent. The principal endeavors to guarantee that the agent acts in alignment with their interests. However, the agent possesses their own motivations to pursue personal goals and interests. In the context of financial distress, agency theory becomes particularly relevant because the divergence of interests between principals (such as shareholders or creditors) and agents (such as managers) can exacerbate the financial vulnerabilities of a company. Managers may engage in risk-averse behavior to protect their positions or, conversely, pursue high-risk projects to enhance short-term returns at the expense of long-term financial stability. Excessive leverage, for instance, can be a result of agency conflicts where managers opt for debt financing to increase company value or fulfill personal incentives, which may inadvertently heighten the company's exposure to financial distress.

The signaling theory, as articulated by Spence in 1978, elucidates a concept within the realms of economics and finance that seeks to clarify how individuals or organizations employ signals or particular indicators to communicate information about themselves to others. The signaling theory posits that there exists an imbalance of information between the entity that issues the signal (the sender) and the entity that interprets the signal (the receiver). The act of providing a signal serves to diminish ambiguity and enhance the degree of trust between the parties engaged in the interaction.

According to the opinion outlined by Altman *et al.*, (2017), financial distress is when a business faces significant financial challenges that can jeopardize its ability to continue operating, thus the business is said to be in financial distress. A business may have difficulty meeting its financial commitments, including debt payments and other obligations, when it is in financial distress. Of course, there are many factors involved, such as changes in the company's environmental conditions, ineffective management, or economic constraints, that can lead to this situation.

Bukhari and Linda (2022) define liquidity as the capacity of a business to fulfill its short-term obligations, generally those that are due within one year and within the conventional operating cycle (Darma *et al.*, 2021). Thus, liquidity is fundamental to the financial well-being of an enterprise. The assessment of a firm's capacity to meet its immediate financial commitments is conducted via an analysis of its liquidity status. The liquidity of an entity reflects its ability to meet current obligations through the utilization of its current assets (Utama *et al.*, 2021). In general, a liquid business operates with a high degree of efficiency and safeguards itself against prospective financial adversities.

In relation to agency theory, the conflict of interest between managers (agents) and owners (principals) may influence managerial decisions in managing a company's liquidity. Managers who have personal interests tend to maintain high liquidity to ensure the availability of funds for short-term operational expenditures that benefit them. However, low liquidity may indicate poor cash management, which can increase the risk of financial distress. Moreover, Altman (2017) asserts that liquidity is fundamental in forecasting financial distress, as it reflects a company's ability to meet its short-term obligations without experiencing considerable financial pressure. An organization characterized by insufficient liquidity is prone to challenges in meeting short-term obligations, funding its operations, and sustaining overall financial health, consequently heightening the likelihood of experiencing financial distress (Hidayat *et al.*, 2024). This conclusion aligns with previous research (Putri & Erinos, 2020; Nila, 2021; Noviyana *et al.*, 2024),indicating that strong liquidity may mitigate the risk of financial distress. In consideration of the aforementioned discourse, the investigator puts forth the subsequent hypothesis:

H_1: Liquidity has a significant impact on financial distress

Sudaryanti & Dinar (2019) define leverage as a financial ratio that quantifies the degree to which a company utilizes debt in its capital structure and assesses its capacity to meet both short-term and long-term obligations. This ratio serves as a crucial metric for assessing the financial risk faced by a company, particularly in fluctuating economic environments. Increased leverage signifies a heightened reliance on debt, which may augment profit potential; however, it also raises the risk of bankruptcy if not adequately managed. A comprehensive ratio analysis is crucial for evaluating a company's ability to fulfill its obligations during liquidation or dissolution (Wang *et al.*, 2024).

According to agency theory, high levels of debt usage (leverage) may lead to conflicts of interest between owners and creditors. Managers may be encouraged to take greater risks for personal or short-term gains, which can increase the likelihood of financial distress. Moreover, a high debt burden can create financial pressure that leads to financial distress. Within the framework of signaling theory, companies with high leverage levels may send negative signals to the market regarding their dependence on external financing and potential inability to repay debt. This can raise concerns among investors and creditors about the company's operational continuity, thereby increasing the perceived risk of financial distress. In addition, Altman (2017) asserts that the prediction of financial distress is heavily impacted by leverage, reflecting the extent to which a company employs debt in its capital structure. Firms with high leverage face significant obligations to service interest and repay principal on their debt, increasing financial pressure, especially when revenue does not meet these commitments. A high leverage ratio can subject a company to financial difficulties stemming from an overdependence on external financing, particularly in times of economic instability. The intensification of debt burdens and a company's difficulty in meeting obligations promptly increase the probability of financial distress. This assertion is

supported by multiple studies (Susilowati & Fadhillah, 2019; Lela *et al.*, 2021; Angriani *et al.*, 2023), indicating that higher leverage substantially raises the likelihood of companies facing financial difficulties. The subsequent hypothesis is presented:

H_2: Leverage has a significant impact on financial distress

The size of a company is assessed based on various criteria, including total assets, market value of shares, average sales levels, and sales volume, which collectively facilitate the classification into large, medium, and small businesses (Saputra *et al.*, 2022). Hidayat and Arfiansyah (2023) identify three primary categories of company size: large, medium, and small. The assessment of a company's development and growth can be effectively conducted by analyzing its total assets, as a higher total asset value suggests more favorable long-term prospects for the organization (Prasetyo *et al.*, 2024).

Agency theory suggests that larger firms often operate under more complex managerial structures, which may heighten the potential for conflicts of interest between managers and owners. Nevertheless, such firms generally possess greater access to resources, broader product diversification, and more favorable financing opportunities, all of which can serve to mitigate the risk of financial distress. From the lens of signaling theory, firm size itself may function as a positive signal to investors and stakeholders, indicating organizational stability, strong market presence, and solid reputation. This positive perception can enhance stakeholder confidence in the firm's financial performance and lessen concerns about the likelihood of financial distress. Moreover, Altman (2017) also argues that in predicting financial distress, it will certainly be influenced by the size of the company, as the size of the company reflects its capacity and operational stability in facing financial pressures. Larger companies generally have broader resources, easier access to funding, and stronger competitiveness, making them more capable of enduring difficult economic conditions compared to smaller companies (Tan, 2023). Various studies conducted by (Bernardin & Indriani, 2020; Das, 2022; Syani, 2024; Kebede *et al.*, 2024) state that large companies with many assets have a greater potential to avoid financial distress. Based on this explanation, the following hypothesis is formulated:

H_3: Company Size Significantly Affects Financial Distress

Altman (2017) asserts that profitability has a significant impact in the forecast of financial trouble. Moreover, profitability may serve as a moderator in the correlation between liquidity and financial crisis. High profitability may mitigate the adverse effects of limited liquidity on financial hardship, since the firm can still make profits to offset its cash deficiencies. Prior research by Amah and Sudrajat (2023) & Minanari *et al.*, (2024) indicates that profitability serves as a moderating factor that might enhance the association between liquidity and financial hardship. The fourth hypothesis is articulated as follows based on the subsequent explanation;

H_4: Profitability as a moderator is able to strengthen the relationship between liquidity and financial distress

The financial distress theory articulated by Altman (2017) elucidates the role of profitability as a moderating factor in the interplay between leverage and financial distress. In scenarios where profitability is elevated, the organization demonstrates an enhanced capacity to manage both interest and principal debt obligations, thereby reducing the likelihood of financial distress associated with elevated leverage levels. Conversely, when profitability is diminished, the firm's capacity to meet interest obligations is likely compromised, thereby heightening the risk of financial distress for the organization. Multiple prior investigations carried out by Amah and Sudrajat (2023) & Minanari *et al.*, (2024) have indicated that profitability serves as a moderating variable, influencing the relationship between leverage and financial distress. In light of the provided explanation and empirical findings, the fifth hypothesis is articulated as follows;

H_5: Profitability as a moderator is able to strengthen the relationship between leverage and financial distress

Moreover, the financial distress theory articulated by Altman (2017) elucidates the manner in which profitability serves as a moderating variable in the interplay between company size and financial distress. Large corporations typically enjoy broader access to various funding sources and operate within more stable market conditions. However, in the absence of sufficient profitability, these entities may still encounter financial difficulties stemming from their inability to effectively optimize their assets. Prior investigations undertaken by Savitri (2022) and Anisah *et al.*, (2022) have indicated that profitability possesses the capacity to influence the interplay between company size and financial distress. In light of the data obtained, the sixth hypothesis is articulated in the following manner;

H_6: Profitability as a moderator is able to strengthen the relationship between company size and financial distress
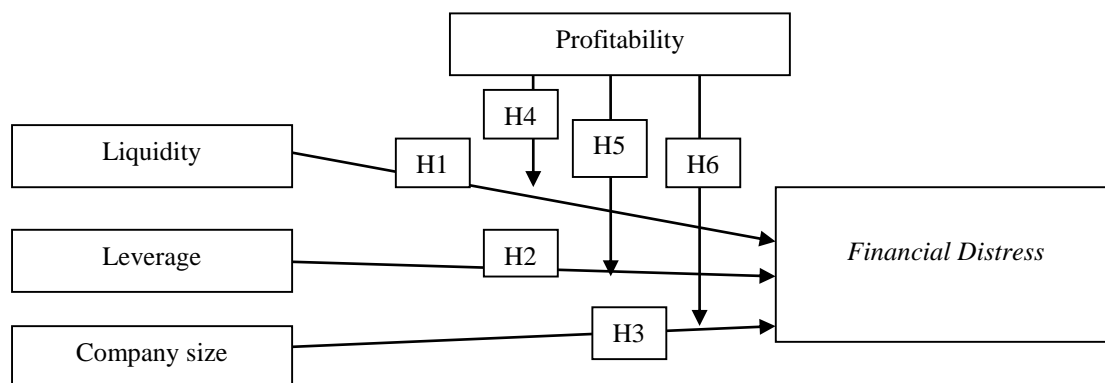
Source: Data Processed by Researcher, 2025

Figure 2. Research Model

RESEARCH METHODS

This study employs a quantitative approach, utilizing secondary data sourced from the Indonesia Stock Exchange. Sugiyono (2020) posits that the quantitative research method is grounded in the philosophy of positivism, specifically crafted to examine a defined population or sample. This study examines a cohort of 34 companies operating within the healthcare sector, all of which are publicly listed on the Indonesia Stock Exchange. The methodology employed a non-probability sampling approach, specifically utilizing purposive sampling techniques. The parameters for the selection of samples are delineated in the table provided below.

Table 2.
Sampling criteria

No	Criteria	Sample
1	All healthcare sector companies listed on the Indonesia Stock Exchange until 2024.	34
2	Companies in the healthcare sector that did not publish complete financial reports during the 2020-2024 period.	(11)
3	Companies in the healthcare sector that do not present financial statements in rupiah.	(1)
4	Companies in the healthcare sector that had consecutive positive profits for five years from 2020-2024	(5)
5	Total sample	17
6	The amount of data observed	17×5=85

Source: Data Processed by Researcher, 2025

The analysis involved data from 17 companies, resulting in a total of 85 observed data points. The financial distress variable was evaluated utilizing the Springate score, commonly referred to as the s-score. The liquidity variable was quantified using the current ratio, whereas the leverage variable was assessed through the debt-to-asset ratio (DAR). The size of the company was measured by total assets, while the profitability variable, which acted as a moderator, was assessed using the net profit margin. The analysis of data was conducted using Moderated Regression Analysis, with EViews 12 software as the tool of choice. The analysis began with descriptive statistical tests to offer a preliminary overview of the data. The selection of the appropriate panel data regression model was conducted, incorporating the Chow test, Hausman test, and Lagrange multiplier test. Upon identifying the appropriate model, classical assumption tests were performed, including evaluations for normality, heteroscedasticity, multicollinearity, and autocorrelation. Following the successful completion of the classical assumption tests, moderated regression analysis was conducted. Partial hypothesis testing and coefficient of determination testing were conducted based on the outcomes of the MRA test.

Table 3.
Measurement Variables

Variable	Indicator	Scale
Financial Distress (Y)	S = 1,03 A + 3,07 B + 0,66 C + 0,4 D Explanation: S : S-Score value A: Net Working Capital to Total Assets B: Earnings Before Interest and Taxes to Total Assets C: Profit Before Tax to Total Current Liabilities D: Sales to Total Assets	Ratio
Liquidity (X1)	$CR = \dfrac{current\ asset}{current\ liability}$	Ratio
Leverage (X2)	$DAR = \dfrac{total\ debt}{total\ assets}$	Ratio
Company size (X3)	$Size = Ln \times Total\ Assets$	Ratio
Profitability (M)	$NPM = \dfrac{Net\ Profit}{Revenue}$	Ratio

Source: Data Processed by Researcher, 2025

RESULT AND DISCUSSIONS

In this part of the documentation, a number of tests are performed on the data that was gathered. An examination of descriptive statistics is the initial step in the testing process. Within the scope of this investigation, the descriptive statistical analysis test provides a broad explanation of the data pertaining to each variable that was used in the investigation. The financial distress variable serves as the dependent variable in this research, while the variables of liquidity, leverage, and firm size serve as independent factors. The profitability variable serves as the moderating variable in this investigation.

Table 4.
Descriptive Statistical Analysis

	FD	CR	DAR	SIZE	NPM
Mean	1,202	2,583	0,397	28,936	0,051
Median	1,328	2,519	0,299	29,003	0,082
Maximum	4,009	8,262	2,279	30,936	0,401
Minimum	-3,920	0,147	0,048	26,155	-1,377
Std. Dev.	1,267	1,753	0,353	1,039	0,250
Skewness	-0,561	0,807	3,067	0,022	-3,768
Kurtosis	5,348	3,171	15,860	2,299	21,063
Jarque-Bera	24,011	9,346	719,053	1,745	1356,782
Probability	0,000	0,009	0,000	0,417	0,000
Sum	102,181	219,623	33,775	2459,567	4,379
Sum Sq.Dev.	135,424	258,420	10,511	90,693	5,252
Observations	85	85	85	85	85

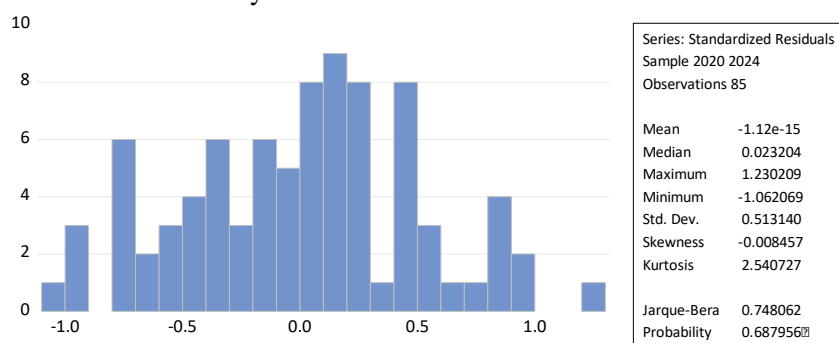*Source:* Based on Data Processing Results, 2025

According to the findings from the descriptive statistical analysis, variable Y (financial distress) has an average value of 1.202 and a standard deviation of 1.269, indicating a considerable level of variation. The distribution of Y is left-skewed (skewness = -0.561) with a kurtosis of 5.349, suggesting a distribution that is more peaked than normal. Variable X1 (liquidity) has an average of 2.584 and a standard deviation of 1.754, with a slightly right-skewed distribution (skewness = 0.808) that approaches normality (kurtosis = 3.172). In contrast, variable X2 (leverage) displays a highly right-skewed distribution (skewness = 3.067) and a very high kurtosis (15.861), indicating the presence of outliers or a distribution that deviates significantly from normality. Variable X3 (company size) has an average value of 28.936 and a standard deviation of 1.039, exhibiting a nearly symmetric distribution (skewness = 0.023) and closer to normality (kurtosis = 2.299). Variable M (profitability) shows a very negative skewness (-3.768) and extremely high kurtosis (21.064), indicating a distribution that is far from normal. The Jarque-Bera test confirms that variables Y, X1, X2, and M exhibit non-normal distributions with probabilities below 0.05, while X3 demonstrates a tendency toward normality (p = 0.417).

Table 5.
Selection Panel Model

Chow Test	FEM vs CEM	FEM
Hausman Test	FEM vs REM	REM
LM-Test	REM vs CEM	REM
Final Model		REM

Source: Based on Data Processing Results, 2025

Based on the results of the panel data model testing shown in table 5, it can be concluded that the best panel model chosen in this study is the REM model.

Series: Standardized Residuals	
Sample 2020 2024	
Observations	85
Mean	-1.12e-15
Median	0.023204
Maximum	1.230209
Minimum	-1.062069
Std. Dev.	0.513140
Skewness	-0.008457
Kurtosis	2.540727
Jarque-Bera	0.748062
Probability	0.687956

Source: Based on Data Processing Results, 2025
Figure 3. Normality Test

The findings from the residual normality test, supported by the histogram and descriptive statistics, indicate that the residuals in the regression model conform to a normal distribution. The conclusion is further substantiated by a Jarque-Bera statistic of 0.748062 and a corresponding probability of 0.687965, both surpassing the significance threshold of 0.05. Moreover, the skewness value of -0.008457 indicates that the residual distribution approaches symmetry, while the kurtosis value of 2.540727 is near 3, suggesting a normal distribution. As a result, the presumption of residual normality within the regression model is maintained, thus allowing for the application of the estimation outcomes in subsequent analysis.

Table 6.
Multicolinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2,354	825,280	NA
CR	0,001	5,328	1,667
DAR	0,110	10,874	4,776
SIZE	0,002	800,128	1,018
NPM	0,176	3,981	3,817

Source: Based on Data Processing Results, 2025

The results of the multicollinearity assessment utilizing the Variance Inflation Factor (VIF) demonstrate that this model does not exhibit significant multicollinearity. The liquidity variable shows a centered VIF of 1.667, indicating the absence of substantial multicollinearity concerns. The leverage variable presents a centered VIF of 4.776, which, although slightly higher than the other variables, remains within an acceptable range. The company size variable has a centered VIF of 1.018, confirming that multicollinearity is not an issue. Similarly, the profitability variable displays a centered VIF of 3.818, suggesting no serious multicollinearity problems. Overall, all VIF values fall within acceptable limits, affirming that this model is free from multicollinearity.

Table 7.
Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 3 lags			
F-statistic	1,955	Prob. F(3,74)	0,129
Obs*R-squared	7,240	Prob. Chi-Square(3)	0,064

Source: Based on Data Processing Results, 2025

According to the Breusch-Godfrey Serial Correlation LM Test results, the F-statistic value is 1.955496, with a corresponding probability of 0.1298, which surpasses the 0.05 significance level. Up to latency 3, this discovery implies that serial correlation is not present in the model. Additionally, the OBS*R-squared value is 7.240845, with a probability of 0.0646, which is also greater than 0.05. These findings collectively verify that the model does not demonstrate serial correlation issues until latency 3.

Table 8.
MRA-test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Dependent Variable: FD				
C	0,922	1,857	0,496	0,621
CR	0,040	0,082	0,494	0,622
DAR	-0,976	0,496	-1,996	0,042
SIZE	0,006	0,063	0,106	0,915
NPM	13,178	3,119	4,225	0,000
CR_NPM	0,891	0,296	3,007	0,003
DAR_NPM	0,054	0,360	0,150	0,880
SIZE_NPM	-0,405	0,112	-3,614	0,000

Source: Based on Data Processing Results, 2025

The formulation of the regression model is as follows; FD= 0,922+0,04CR-0,976DAR+ 0,006SIZE+ 13,17NPM+ 0,89CR*NPM+ 0,05DAR*NPM-0,4SIZE*NPM+ε

The findings from the moderation regression indicate that the constant is valued at 0.922074. This implies that when all independent variables are set to zero, the dependent variable FD will assume the value of this constant. The CR variable exhibits a positive coefficient of 0.040961, suggesting that a 1 percent increase in CR will result in an increase of 0.040961 in FD. The DAR variable exhibits a negative coefficient of -0.976339, indicating that a 1 percent increase in DAR will result in a decrease in FD by 0.976339. The NPM variable exhibits a positive coefficient of 13.17892, indicating that a 1 percent increase in NPM substantially elevates FD by 13.17892. The interaction between CR and NPM exhibits a positive coefficient of 0.891072, suggesting that the impact of CR on FD intensifies with an increase in NPM. Specifically, a 1 percent rise in this interaction correlates with an increase in FD by 0.891072. Conversely, the interaction SIZE_NPM exhibits a negative coefficient of -0.405076, suggesting that an increase in SIZE under elevated NPM conditions leads to a decrease in FD. Specifically, a 1 percent increase in this interaction is associated with a significant reduction in FD by 0.405076. The DAR_NPM interaction exhibits a positive coefficient of 0.054178, indicating that a 1% increase in this interaction does not yield a significant effect.

Table 9.
Model Feasibility Testing

Sum squared resid	6,951	F-statistic	49,685
Durbin-Watson stat	1,404	Prob(F-statistic)	0,000

Source: Based on Data Processing Results, 2025

The results of the test to determine whether or not the model is feasible indicate that the F-statistic value is 49.68506 with a probability of 0.000000. This indicates that the regression model should be considered statistically significant at the 5 percent confidence level. It may be deduced from this that the independent variables and the interactions between them have a substantial impact on the variable that is being studied (the dependent variable). The sum squared resid value of 6.951673 reflects the sum of squared residuals, which describes the magnitude of the gap between the actual values and the model's projected values, where the lower this number, the better the model explains the dependent variable. Due to the fact that it is statistically significant in describing the link between the variables that were evaluated, this model may be regarded applicable in general.

Table 10.
Partial Hypothesis Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0,922	1,857	0,496	0,621
CR	0,040	0,082	0,494	0,622
DAR	-0,976	0,496	-1,996	0,042
SIZE	0,006	0,063	0,106	0,915
NPM	13,178	3,119	4,225	0,000
CR_NPM	0,891	0,296	3,007	0,003
DAR_NPM	0,054	0,360	0,150	0,880
SIZE_NPM	-0,405	0,112	-3,614	0,000

Source: Based on Data Processing Results, 2025

The results of the hypothesis testing lead to the following conclusions: The initial hypothesis, suggesting that liquidity (as indicated by the current ratio, CR) has no impact on financial distress, is dismissed, as evidenced by a probability value greater than 0.05. The second hypothesis yielded a probability value of 0.042, indicating a significance level below 0.05. This suggests that leverage, as measured by the debt-to-assets ratio (DAR), has a significant impact on financial distress, leading to the acceptance of the second hypothesis. The third hypothesis produced a probability value of 0.9153, suggesting a significance level exceeding 0.05. This indicates that company size does not have a significant impact on financial distress, resulting in the rejection of the third hypothesis. The fourth hypothesis demonstrated a probability value of 0.0036, suggesting that profitability, as indicated by NPM, plays a moderating role in the relationship between liquidity, measured by CR, and financial distress; therefore, the fourth hypothesis is accepted. The fifth hypothesis test yielded a probability value of 0.88, suggesting that profitability, as indicated by NPM, does not serve as a moderating factor in the relationship between leverage, measured by DAR, and financial distress. Consequently, the fifth hypothesis is rejected. The sixth hypothesis test yielded a probability value of 0.0005, suggesting that profitability, as measured by NPM, plays a moderating role in the relationship between company size and financial distress. Consequently, the sixth hypothesis is accepted.

Table 11.
Testing the Coefficient of Determination

Root MSE	0,285	R-squared	0,818
Mean dependent var	0,365	Adjusted R-squared	0,802

Source: Based on Data Processing Results, 2025

The results of the test to determine the coefficient of determination reveal that the R-squared value is 0.818736. This indicates that the variables in the regression model that include liquidity, leverage, firm size, and profitability are able to explain roughly 81.87 percent of the variance in the variable that is being explained. In the meanwhile, the adjusted R-squared value of 0.802258 shows that the model is still able to explain around 80.23 percent of the variance in the dependent variable, which suggests that the model has a good fit. This is the case even after taking into account the number of independent variables and the number of observations. There is still around 18.13 percent of the variance in the dependent variable that is impacted by factors that are not included in the model, despite the fact that the regression model has a reasonably good capacity to describe the link between the variables that were evaluated.

The probability value for the first hypothesis test is 0.622, above the significance threshold of 0.05. Therefore, the first hypothesis is dismissed. This suggests that liquidity does not substantially influence financial distress. This insignificance may arise because, although liquidity reflects a firm's ability to fulfil short-term commitments, a company with substantial liquidity may nevertheless

encounter financial challenges if it does not manage its liquid assets effectively or has an unsound financial structure. This problem may be clarified via agency theory, highlighting the possible conflict of interest between management and shareholders, where managers may choose investment or growth efforts over maintaining optimum liquidity. From the perspective of signalling theory, elevated liquidity does not intrinsically provide a favourable signal to investors and creditors unless it is underpinned by strong financial performance and proficient risk management measures.

This study's results align with the findings of Dirman (2020) and Lela *et al.*, (2021), which indicate that liquidity does not influence the incidence of financial distress. Nonetheless, several investigations provide a contrasting viewpoint to the findings of this study. Studies (Christopoulos *et al.*, 2019; Anwar & Javed, 2020; Amoa-Gyarteng, 2021; Budi & Dillak, 2022; Archanskaia *et al.*, 2023; Guizani & Abdalkrim, 2023) indicate that liquidity significantly influences financial distress.

The p-value for the second hypothesis test is 0.042, which is below the 0.05 threshold. Therefore, we accept the secondary hypothesis. Leverage substantially influences financial distress. Elevated leverage substantially decreases a company's probability of insolvency. This research finding indicates that leverage, as measured by the Debt to Asset Ratio (DAR), has a significant negative effect on financial distress in companies within the healthcare sector. This means that the higher the level of leverage or the use of debt relative to total assets, the lower the likelihood of the company experiencing financial distress. Conversely, the lower the leverage, the higher the level of financial distress. This result may appear contradictory to the findings of most previous studies, which suggest that high leverage tends to increase financial pressure and the risk of bankruptcy. However, in the context of the healthcare sector, this finding can be explained by the specific characteristics of the industry and its relevance to the underlying financial theories.

Within the framework of agency theory, the use of debt can serve as a disciplinary mechanism for managers. When a company employs high levels of debt financing, managers are required to be more accountable in managing the company's funds in order to meet obligations on time. This can minimize wasteful spending and opportunistic behavior, while encouraging operational efficiency. Therefore, healthcare sector companies with high leverage may actually demonstrate more efficient and disciplined financial resource management, thereby avoiding financial distress. Furthermore, from the perspective of signaling theory, high leverage can serve as a positive signal to the market that the company possesses stable revenue prospects and is confident in its ability to meet its financial obligations in the future. This is particularly relevant in the healthcare sector, which generally enjoys relatively stable cash flows due to the high demand for healthcare services, both from the general public and through insurance or government funding. Companies with high leverage in this sector may exhibit financial credibility and confidence in debt management, thereby reassuring creditors and investors that they are unlikely to fall into distress. On the other hand, companies with low leverage may face limitations in accessing external funding sources or may be reluctant to utilize loans despite having significant capital needs. This may result in underinvestment, delays in innovation, or stagnation in growth, which ultimately pushes the company toward financial distress.

The research findings are substantiated by studies conducted by Isayas (2021) and Umam & Yusuf (2024), which indicate that leverage significantly influences financial distress. In the interim, the studies carried out by (Dirman, 2020; Digdowiseiso, 2022) indicate that leverage does not significantly impact financial distress.

The probability value for the third hypothesis test is 0.915, above the 0.05 criterion. Therefore, we dismissed the third hypothesis. This suggests that the company's size does not substantially influence financial difficulty. Situations in which a firm's size does not markedly affect financial hardship may arise when the overall assets possessed by the company do not immediately enhance financial stability or its ability to fulfil debt commitments. In the healthcare industry, bigger corporations may hold significant assets, like hospitals, labs, and sophisticated medical equipment; yet, ownership of these

assets does not inherently correspond with improved financial resilience. If the assets are illiquid or provide little returns, the corporation is vulnerable to financial strain, especially when encumbered by substantial debt. Moreover, an increased firm size does not always ensure enhanced operational efficiency. Should the firm neglect to optimise its assets to improve profitability or provide consistent cash flow, the impact on financial hardship would be negligible.

The findings of this study align with the conclusions drawn by Utama and Setiawati (2022), Saputri and Santoso (2023), Febriyanti and Haryanto (2024), Dwipayana and Candradewi (2024), indicating that company size does not significantly affect financial distress. In the interim, the studies carried out by Muthia *et al.*, (2024) and Tariq *et al.*, (2025) indicate that the size of a company plays a crucial role in influencing financial distress.

The test results indicate a probability value of 0.0036 for the fourth hypothesis test, which is below the 0.05 barrier; hence, the fourth hypothesis is accepted. This suggests that profitability substantially influences the correlation between liquidity and financial crisis. A substantial net profit margin indicates that the corporation efficiently transforms revenue into net profit, hence improving its financial flexibility. Conversely, diminished liquidity may exacerbate the risk of financial crisis, since the firm may struggle to fulfil its short-term commitments. When profitability is robust, the company can leverage cash flow from net income to address liquidity shortfalls, thereby diminishing the likelihood of financial distress. Furthermore, strong profitability can reinforce the positive correlation between liquidity and the company's overall financial stability. Companies with a healthy net profit margin typically find it easier to manage working capital, secure funding at lower costs, and sustain operations without relying exclusively on liquid assets. Additionally, high profitability enhances investor and creditor confidence, broadening the company's access to external financing and mitigating potential financial risks associated with liquidity imbalances. In contrast, if profitability is low, a company with sufficient liquidity may still be susceptible to financial distress due to its inability to cover escalating operational costs.

This research is supported by studies conducted by Amah and Sudrajat (2023) & Minanari *et al.*, (2024), where the role of profitability as a moderator can strengthen the relationship between liquidity and financial distress. However, the research conducted by Rangga *et al.*, (2025) states that profitability is unable to moderate the relationship between liquidity and financial distress.

The test results indicate that the probability value for the fifth hypothesis test is 0.88, above the 0.05 barrier. Consequently, the fifth hypothesis is dismissed. This indicates that profitability does not substantially influence the link between leverage and financial hardship. The influence of profitability on the link between leverage and financial distress in healthcare sector firms is often constrained and less impactful, especially when examining the Net Profit Margin (NPM) and Debt to Asset Ratio (DAR). Leverage, as represented by the Debt to Asset Ratio (DAR), indicates the degree to which a corporation depends on debt in its capital structure. An elevated Debt-to-Asset Ratio indicates increased financial liabilities, thereby increasing the danger of financial disaster. A high Net Profit Margin indicates that a corporation effectively converts sales into net profit; yet, it does not mitigate the detrimental impacts of excessive debt on financial hardship. When a company's debt is too elevated, leading to a high Debt-to-Asset Ratio (DAR), the profits earned may be inadequate to meet interest and principal obligations, especially during volatile market circumstances or decreases in demand for healthcare services. Thus, despite substantial profits, the weight of debt commitments may result in financial imbalances and suffering. Furthermore, highly profitable organisations may be predisposed to augment leverage to expedite investments, thereby heightening financial risk if debt management is not executed judiciously. Conversely, when profitability is diminished and leverage is elevated, firms may have escalating difficulties in obtaining more financing, as investors and creditors recognise an augmented danger of insolvency.

This study reinforces previous research conducted by (Rangga *et al.*, (2025) where profitability is unable to moderate the relationship between leverage and financial distress. This study has results that contradict the research conducted by Amah and Sudrajat (2023) & Minanari et al. (2024) where the role of profitability as a moderator can moderate the relationship between leverage and financial distress.

The test results indicate that the p-value for the sixth hypothesis test is 0.0005, which falls beneath the significance threshold of 0.05. As a result, the sixth hypothesis is affirmed. This discovery suggests that profitability plays a crucial role in influencing the connection between company size and financial distress. The influence of profitability may serve to moderate the connection between company size and financial distress, as elevated profitability allows organisations to allocate resources more efficiently and alleviate financial risks. Within the healthcare sector, characterised by companies that generally hold considerable assets to facilitate their operations, the interplay between the size of a company and its financial distress presents a complex scenario. The scale of a company, frequently assessed through its total assets, serves as an indicator of its financial and operational prowess in managing economic volatility and market dynamics. Larger companies typically enjoy superior access to funding, more advantageous economies of scale, and heightened competitiveness in comparison to their smaller counterparts. Nonetheless, an expansion in size may also introduce various challenges, such as heightened fixed costs, increased operational complexities, and sophisticated financial management requirements, which can elevate the risk of financial distress if not meticulously overseen. Within this framework, profitability, quantified through Net Profit Margin (NPM), acts as a moderating element that can enhance the beneficial influence of company size on financial resilience. Major corporations demonstrating a substantial net profit margin showcase adeptness in revenue management and profit generation. This proficiency can be utilised to enhance their capital framework, meet financial commitments, and facilitate investments in innovation and growth. In conclusion, while larger enterprises may encounter heightened financial risks, strong profitability can reduce the probability of financial distress by providing a steady cash flow to satisfy both operational and strategic requirements.

This study's results are confirmed by research carried out by Savitri (2022) and Anisah *et al.*, (2022), which claim that profitability has the potential to control the link between the size of a business and its level of financial distress.

CONCLUSIONS AND RECOMMENDATION

Following a series of conducted tests, it can be inferred that, to some extent, the liquidity variable and company size do not exert a significant influence on financial distress. In the interim, it is evident that the interplay leverage substantially influences the phenomenon of financial distress. The interaction of the leverage variable supports agency theory, in which high debt usage can generate conflicts between management, shareholders, and creditors. This is also reinforced by signaling theory, which posits that companies with high levels of leverage may send negative signals to the market, thereby raising concerns among investors. Subsequently, the examination of the moderation effect revealed that profitability can partially influence the relationship between liquidity and company size concerning financial distress, whereas the leverage variable in relation to financial distress remains unaffected by profitability. The results of this research offer significant perspectives for organisations within the healthcare sector as they navigate financial challenges, emphasising the importance of liquidity, leverage, firm size, and profitability as influential variables. It is imperative for managers to prioritise the maintenance of optimal liquidity levels, as an overabundance of liquidity may suggest a suboptimal use of assets, whereas a deficiency in liquidity could heighten the risk of financial instability. Prudent management of cash flow and the strategic distribution of liquid assets can significantly bolster financial stability. Furthermore, the concept of leverage is pivotal in the context of financial distress; an overdependence

on debt financing heightens financial susceptibility, especially in times of economic decline. Consequently, it is imperative for managers to achieve a harmonious balance between debt and equity financing by meticulously optimising the capital structure, thereby ensuring financial flexibility and mitigating the risk of insolvency.

This study presents several limitations that warrant attention. Initially, it is important to note that the utilisation of financial data spanning from 2020 to 2024 in the study may overlook enduring trends in financial distress, especially considering the ramifications of the Covid-19 pandemic on the economy. Future investigations ought to adopt an extended temporal framework to thoroughly examine the patterns of financial distress. This research utilises purposive sampling to ensure the inclusion of pertinent companies. However, this method may introduce selection bias, thereby constraining the generalisability of the findings to a wider population. Future investigations might consider employing a more randomised sampling methodology to improve the representativeness of the findings. Furthermore, this analysis emphasises quantitative financial metrics, possibly neglecting qualitative elements such as managerial decision-making, corporate governance, and regulatory shifts, which could profoundly impact financial distress. Future investigations ought to integrate qualitative methodologies, such as interviews or case studies, to attain a more profound understanding of the fundamental factors contributing to financial distress.

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