

Determinants of Financial Distress: A Portrait of the Post-Pandemic Transportation and Logistics Sector


¹*Mario Stevando, ²Mahardika Shafa Azzumar,

¹*Sekolah Tinggi Ilmu Ekonomi Tri Bhakti, Bekasi, Indonesia

²Universitas Gadjah Mada, Yogyakarta, Indonesia

Email : ² mahardikashafaazzuma@mail.ugm.ac.id

Corresponding author e-mail: ¹ mariostevando880@gmail.com

<p>Article Info</p> <p>Keywords:</p> <ul style="list-style-type: none"> ○ Liquidity; ○ Profitability; ○ Firm Size; ○ Leverage; ○ Financial Distress 	<p>Abstract</p> <p><i>Purpose - This study aims to examine and analyze the relationship between Liquidity, Profitability, Firm Size, and Leverage on Financial Distress.</i></p> <p><i>Design/methodology/approach - This study uses quantitative data, with the sample consisting of companies in the energy, transportation, and logistics sectors listed on the Indonesia Stock Exchange (IDX) during the period 2022-2024. The analysis technique used to test the hypothesis is multiple regression analysis using e-views 9 software.</i></p> <p><i>Findings - The research results indicate that Liquidity, Profitability, Firm Size, and Leverage have a negative but not statistically significant relationship with financial distress. These findings suggest that increases in Liquidity, Profitability, company scale, and Leverage tend to be followed by a decrease in Financial Distress risk, but this effect is not statistically strong enough during the 2022-2024 period. This indicates that in the post-pandemic recovery period and amid high global energy volatility, conventional financial ratios have limited explanatory power in predicting financial distress in companies in the energy, transportation, and logistics sectors.</i></p> <p><i>Research limitations/implications - This study is limited to companies in the energy, transportation, and logistics sectors listed on the Indonesia Stock Exchange (IDX) during the 2022-2024 period and examines only Liquidity, Profitability, Firm Size, and Leverage in relation to financial distress. The practical implication of this study is that conventional financial ratios should not be relied upon as standalone indicators for predicting financial distress in these sectors. For management and investors, the findings highlight the importance of complementing financial ratio analysis with external and sector-specific factors when assessing corporate financial resilience.</i></p> <p>JEL : G32, G33, L91, L94</p>
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INTRODUCTION

In an increasingly dynamic global economy, the transportation and logistics and energy sectors serve as key pillars of national economic growth by supporting production, distribution, and industrial activities. During the 2022-2024 period, however, these sectors faced significant pressure from global economic uncertainty, energy price volatility, rising inflation, and the challenges of transitioning toward a sustainable economy. The post-COVID-19 period significantly affected corporate financial performance across sectors. Although 2022 marked an economic recovery phase, it was accompanied by a global energy crisis triggered by the Russia and Ukraine conflict, leading to rising oil and gas prices. This condition increased operating and logistics costs in Indonesia, exerting pressure on companies' profit margins and financial stability, and potentially increasing the risk of financial distress (Sipahutar et al., 2023).

The energy sector, particularly in Indonesia, is dominated by companies such as PT Pertamina (Persero), PT Medco Energi Internasional Tbk (MEDC), and PT Perusahaan Gas Negara Tbk (PGAS). This sector is facing significant changes due to the global energy transition from fossil fuels to renewable energy. The 2022-2024 period is a crucial period, with many countries, including Indonesia, committing to reducing carbon emissions in line with the 2060 Net Zero Emission target. However, on the other hand, national energy demand continues to increase in line with economic growth and industrialization. The imbalance between increasing demand and limited clean energy supply puts pressure on energy companies to maintain financial stability. According to data from the Ministry of Energy and Mineral Resources, national energy consumption is increasing by around 2.5% annually during the 2022-2024 period.

The transportation, logistics, and energy sectors are closely interconnected. Rising energy prices directly increase transportation and logistics costs, while the growth of logistics activities also drives higher national energy demand. The high interdependence among these sectors amplifies the impact of external shocks and creates a domino effect on corporate financial stability. In this context, it is important to examine whether conventional financial indicators, such as liquidity, profitability, company size, and leverage, are still relevant in explaining a company's resilience to financial distress risk. The 2022-2024 period has been a challenging time for the transportation, logistics, and energy sectors due to rising fuel prices, exchange rate fluctuations, geopolitical tensions, and demands for a transition to green energy. These pressures have impacted companies' financial performance and could potentially increase the risk of financial distress, especially for companies with low liquidity, declining profitability, small business scale, and high leverage. However, under conditions of high economic uncertainty, it is not yet certain whether these conventional financial factors are still capable of effectively explaining the occurrence of financial distress, thus further empirical testing is required (Faisal et al., 2023).

Factors that can influence Financial Distress include liquidity, using the Current Ratio (CR) measurement, namely the company's ability to pay off all short-term liabilities using its current assets. This ratio is often referred to as the working capital ratio (Sukamulja, 2019)su. High liquidity indicates a company's ability to meet its short-term obligations, thereby reducing the likelihood of financial distress. Research results from (Jennifen & Suhendah, 2023) show that liquidity has a significant positive effect on financial distress in the consumer cyclical sector. This means that high liquidity values are measured by the ratio of current

assets to current liabilities, where high current assets come from a high amount of inventory, causing the company to be unable to pay short-term debt. This research is supported by (Septiani et al., 2021) who stated that liquidity (current ratio) has a positive effect on financial distress in the consumer goods industry sector listed on the Indonesia Stock Exchange for the 2016-2018 period. This means that if a company is able to pay its short-term obligations, the company's chances of facing financial distress are lower. Conversely, a study by (Pratiwi & Sudiyatno, 2022) found that liquidity had a negative but insignificant effect on financial distress in service companies listed on the Indonesia Stock Exchange (IDX) during the 2014-2020 period. The higher a company's liquidity, the better its performance. However, this study demonstrated that high liquidity does not necessarily prevent a company from experiencing financial distress. This study aligns with (Mahfullah & Nur, 2021) who stated that liquidity negatively impacted financial distress in retail companies listed on the Indonesia Stock Exchange during the 2016-2020 period. This is because the greater the company's profits, the lower the likelihood of financial distress. This study is supported by (Bakhri et al., 2018) who found that liquidity, as measured by the current ratio (CR), negatively impacted financial distress in transportation companies listed on the Indonesia Stock Exchange during the 2014-2016 period.

Another factor that can influence Financial Distress is Profitability, using Return on Assets (ROA) measurements, where ROA measures a company's ability to generate net income from its assets while simultaneously measuring the rate of return on that investment (Sukamulja, 2019) High profitability indicates that a company has sufficient revenue to cover operational expenses and financial obligations, thereby reducing the likelihood of financial distress. Research results from (Sihombing & Aurora, 2024) indicate that profitability has a positive influence on financial distress in the Food and Beverage sector listed on the Indonesia Stock Exchange for the 2020-2022 period. This means that companies with high profitability have a high Z-score value. These results are in line with research (Puspitasari & Sopian, 2025) which states that profitability has a significant positive effect on financial distress in the Consumer Non-Cyclical Sector listed on the Indonesia Stock Exchange for the 2019-2023 period. This means that high profitability indicates that a company is able to generate sufficient profits from its assets, which should strengthen its financial position and reduce the risk of financial distress. The results of this study are in line with research by (Putri & Amri, 2025), which states that profitability has a significant positive effect on financial distress in the pharmaceutical sector listed on the Indonesia Stock Exchange for the 2021-2024 period. This means that high profitability reflects management efficiency in proactively managing assets to generate profits and prevent financial distress. However, the results of research by (Suprobo et al., 2019) state that profitability has a negative effect on financial distress in transportation companies listed on the Indonesia Stock Exchange for the 2011-2015 period. This result is in line with research by (Ningrum & Riharjo, 2025), which states that profitability has a negative effect on financial distress in the retail sector of companies listed on the Indonesia Stock Exchange for the 2019-2023 period. This means that companies with high ROA tend to rely on internal funds to finance their operational activities and investments.

Another factor that can influence financial distress is company size. Large companies tend to expand and diversify their businesses. Diversification broadens the company's business offerings. This reduces the risk of business failure, or in other words, the risk of bankruptcy. However, large companies can still experience crises (Irma et al., 2021). Research by

(Prastyatini & Novikasari, 2023) found that company size positively impacted financial distress in the cosmetics and household goods sub-sectors listed on the Indonesia Stock Exchange from 2016 to 2021. Companies with high total asset values send a favorable message to their creditors, indicating that they will be able to easily diversify their operations and meet their future financial commitments. However, on the contrary, the results of research by (Stepani & Nugroho, 2023) stated that company size as measured by Ln (Total Assets) did not have a significant effect on financial distress in Consumer Non-Cyclical companies listed on the Indonesia Stock Exchange for the 2019-2021 period. The results of this study indicate that any increase or decrease in company size will not impact the possibility or opportunity for a company to experience financial distress. This result is in line with research by (Muslimin & Bahri, 2023) that company size has no effect on financial distress in the banking sector listed on the Indonesia Stock Exchange for the 2019-2020 period. Large companies tend to maximize profits more than small and medium-sized companies, and this reduces the possibility of business failure or bankruptcy. This result is supported by (Jenitia et al., 2024) who stated that company size has a negative effect on financial distress in Manufacturing Companies Listed on the Indonesia Stock Exchange for the 2019-2021 period. Which suggests that company size is able to predict financial distress. These results are further supported by (Shinta & Riharjo, 2025) who found that company size negatively impacted financial distress in retail companies listed on the Indonesia Stock Exchange from 2019 to 2023. This suggests that the higher the total assets, the lower the risk borne by the company. This risk increases the potential for financial distress due to the company's ability to meet its obligations.

Another factor that can influence financial distress is leverage, using the debt-to-asset ratio (DAR), a ratio that measures the percentage of liabilities to a company's total assets. This ratio is important for measuring business risk because it involves funding assets with current liabilities (Sukamulja, 2019). Research by (Moleong, 2018) states that leverage influences financial distress in manufacturing companies listed on the Indonesia Stock Exchange during the 2004-2016 period. A high debt-to-asset ratio can lead to high financial risk. These results are supported by (Fitri & Dillak, 2020), who state that leverage influences financial distress in the textile and garment subsector listed on the Indonesia Stock Exchange during the 2015-2018 period. Companies with high leverage do not necessarily have a high probability of experiencing financial distress, but they also have the opportunity to avoid it. These results align with research by (Indarti & Sapari, 2021), which states that leverage has a significant positive effect on financial distress in food and beverage companies during the 2015-2018 period. This indicates that a higher leverage ratio is accompanied by a higher risk of financial distress. Leverage arises from the company's use of third-party funds in the form of debt. These results align with research by (Ratuela & Kalangi, 2022), which found that leverage has a positive and significant effect on financial distress in the manufacturing sector listed on the Indonesia Stock Exchange during the 2018-2019 period. This means that if leverage increases, financial distress will also increase significantly. Conversely, research by (Ayuningtiyas & Suryono, 2019) found that leverage had no effect on financial distress in the food and beverage sector during the 2014-2017 period. High leverage does not necessarily indicate that a company is experiencing financial distress. Large companies generally rely on borrowed capital from third parties to finance their operations. Large companies generally have high leverage, but compared to their size, large companies can meet this high leverage through business diversification. If the leverage value is high but is not accompanied by an increase in company

expenses, the profits generated can still be used to fulfill obligations.

Although various studies have examined financial distress using liquidity ratios, profitability, firm size, and leverage, previous research results still show inconsistent findings and have mostly been conducted under relatively stable economic conditions or in the manufacturing sector. Empirical evidence on whether these conventional financial ratios are still relevant in explaining financial distress in capital-intensive sectors such as energy, as well as transportation and logistics during periods of global economic shocks, particularly in developing countries like Indonesia, is still limited. Therefore, this study aims to examine the effect of Liquidity, Profitability, Firm Size, and Leverage on Financial Distress in energy and transportation and logistics companies listed on the Indonesia Stock Exchange during 2022-2024. This study contributes by providing empirical evidence on the limitations of conventional financial ratios in explaining financial distress under conditions of economic uncertainty.

LITERATUR REVIEW

Agency Theory

Agency Theory, first proposed by (Jensen & Meckling, 1976), explains the contractual relationship between company owners (principals) and management (agents), which is often characterized by conflicts of interest and information asymmetry. This conflict arises because agents tend to pursue short-term interests for compensation and reputation, while principals focus on long-term value, thus triggering opportunistic actions by managers in reporting profitability for positive performance assessments. In this dynamic, company size also plays a significant role; although large companies face higher agency costs due to their complex organizational structures, they tend to have stronger resilience to the risk of financial distress through broader access to funding and diversification. Agency Theory explains the relationship between company owners (principals) and management (agents), which can potentially create conflicts of interest due to information asymmetry (Jensen & Meckling, 1976). In the context of financial distress, agency conflicts can lead management to present seemingly stable short-term financial performance through liquidity and profitability ratios, even though the company's fundamental conditions may not be strong. In large companies, organizational complexity can also increase agency costs, making the effectiveness of financial ratios in reflecting financial distress risk not always consistent.

Signaling Theory

Signaling Theory, first proposed by (Spence, 1973), explains how parties with more information, such as company management, send "signals" in the form of actions or information to outsiders to reduce information asymmetry and uncertainty. In a financial context, these signals are used by management to communicate the company's quality and future prospects to the capital market. For example, a high level of liquidity provides a positive signal to investors regarding the company's financial health and low risk of financial distress due to its strong ability to meet short-term obligations. Conversely, a high level of leverage is often interpreted as a negative signal, indicating a heavy reliance on debt and interest expenses, thus increasing the market's perception of the company's risk of financial failure (Faisal et al., 2021).

Signaling Theory explains how management conveys information to external parties to

reduce information asymmetry (Spence, 1973). Financial ratios such as liquidity and profitability are often used as positive signals regarding a company's financial condition, while high leverage is generally perceived as a risk signal. However, during periods of economic uncertainty, such as the global energy crisis and the post-pandemic period of 2022-2024, signals from conventional financial ratios may become less informative because external pressures can be more dominant than the company's internal conditions.

Financial Distress

Financial distress is a financial health crisis that occurs when a company is no longer able to meet its obligations to debtors due to a lack of funds to run its operations (Ihsan et al., 2019). This situation is often the initial stage before bankruptcy, where long-term assets and working capital are no longer sufficient to cover short-term liabilities (Goh, 2023). For investors and creditors, analyzing the factors causing this distress is crucial for risk mitigation and predicting business continuity (Pasaribu et al., 2022).

Liquidity

Liquidity is a ratio that reflects the relationship between cash and other current assets and a company's short-term liabilities (Brigham & Houston, 2016). This ratio serves as a primary measure to assess a company's ability to quickly and effectively provide liquid assets to meet maturing financial obligations (Supiyanto, 2023). In other words, liquidity reflects a company's capacity to manage its current assets in such a way that it is always ready to meet all short-term financial commitments in a timely manner (Jirwanto, 2004).

Profitability

Profitability is a ratio that measures a company's ability to generate profits through the utilization of sales, total assets, or specific share capital (Puteri et al., 2025). Essentially, this ratio reflects the difference between operating income and operating expenses, which is also a key indicator of management's effectiveness and efficiency in managing company resources (Alifedrin & Firmansyah, 2023). High profits generated from investment and lending activities demonstrate a company's success in achieving its economic goals and provide a positive financial performance picture for stakeholders (Siregar, 2021).

Firm Size

Firm size reflects the size of an entity, generally expressed through total assets. The greater the assets, the greater the invested capital and cash flow (Sujarweni, 2015). Large companies tend to have advantages in business expansion and diversification, which can minimize the risk of bankruptcy, making them more resilient in the face of financial crises (Irma et al., 2021). Furthermore, large companies' higher market capitalization and book value facilitate access to various external funding sources, as creditors tend to have more confidence in companies with stable assets and profitability potential (Triyonowati, 2022).

Leverage

Leverage is a ratio that describes the extent to which a company uses debt as a source of financing to finance its assets and operations (Brigham & Houston, 2016). This use of debt aims to increase potential profits for shareholders through a "leverage" mechanism, where the

company seeks to achieve a higher level of profit than the fixed interest expense it must pay (Jirwanto, 2004). However, decisions about using borrowed capital require careful consideration because a high reliance on debt can increase the financial risk borne by creditors. Therefore, this ratio is an important indicator in measuring a company's margin of safety and capital structure (Supiyanto, 2023).

Hypotheses development

Liquidity on financial distress.

According to Kasmir (2010) in his book (Supiyanto, 2023), the liquidity ratio is a ratio that describes a company's ability to meet short-term obligations (debts). This means that if the company is billed, it will be able to fulfill (pay) the debt, especially debt that has matured. The liquidity ratio can be measured using the Current Ratio (CR). The Current Ratio is a ratio to measure a company's ability to pay short-term obligations or debt that will soon mature with available current assets. Current assets or Current Assets include cash, marketable securities, receivables, inventory, and liabilities (Jirwanto, 2004). High liquidity reflects a company's ability to meet its short-term obligations. This is a positive signal to investors and creditors that the company is financially sound and less likely to experience financial distress. In other words, the higher the liquidity, the lower the risk of financial distress, as the company is deemed capable of maintaining stable cash and current assets to cover its debts. Research by (Jennifen & Suhendah, 2023) shows that liquidity has a significant positive effect on financial distress due to high liquidity, as measured by the ratio of current assets to current liabilities. High current assets stemming from high inventory levels can cause a company to be unable to pay short-term debt.

H₁: Liquidity has a positive effect on financial distress.

Profitability on Financial Distress

According to Kasmir (2015) in his book (Siregar, 2021), profitability is a ratio used to assess a company's ability to generate profits. This ratio also provides a measure of a company's management effectiveness. This is indicated by the profits generated from loans and investment income; in essence, the use of this ratio indicates a company's efficiency. Profitability ratios can be measured using Return on Assets (ROA). Return on Assets, often referred to as economic profitability, is a measure of a company's ability to generate profits using all its assets (Kariyoto, 2017). Profitability not only reflects a company's ability to generate profits but also reflects the dynamics of the relationship between principal and agent. High profitability can demonstrate management's success in efficiently managing resources, but it can also potentially serve as a means for managers to strengthen their positions and personal interests. Therefore, agency theory provides a conceptual basis for suggesting that a company's profitability can be affected by managers' opportunistic behavior, which arises from conflicting interests and information asymmetries. Research (Puspitasari & Sopian, 2025) states that profitability has a significant positive effect on financial distress. This means that high profitability indicates that the company is able to generate sufficient profits from its assets, which should strengthen its financial position and reduce the risk of financial distress.

H₂: Profitability has a positive effect on Financial Distress

Firm size on financial performance.

According to (Irma et al., 2021), large companies tend to expand and diversify their businesses. Diversification broadens the range of businesses. This can reduce the risk of business failure, or in other words, the risk of bankruptcy. However, large companies can still experience crises. Firm size is also related to agency theory. Large companies generally have complex organizational structures, resulting in higher agency costs due to difficulties in managerial oversight and control. However, large companies typically have easier access to funding, broader business diversification, and a stronger reputation, which can reduce the likelihood of financial distress. This means that, despite the high potential for agency conflicts, large companies are better able to withstand financial pressures than smaller companies. Research results from (Prastyatini & Novikasari, 2023) state that company size has a positive effect on financial distress because companies with high total asset values send a favorable message to their creditors, indicating that they will be able to easily diversify their operations and meet their future financial commitments.

H₃: Firm size has a positive effect on financial performance.

Leverage on Financial Distress

According to Sofyan Syafri Harahap (2013) in the book (Jirwanto, 2004) Leverage is a ratio that describes the relationship between a company's debt and capital, where this ratio can see the extent to which the company is financed by debt or external parties. With the company's ability described by capital. The Leverage Ratio can be measured using the Debt to Asset Ratio (DAR) measurement. This Debt to Asset Ratio is a comparison between current debt and long-term debt and the total amount of known assets. This ratio shows what portion of the total assets are financed by debt. High leverage reflects a company's heavy reliance on debt. This can be a negative signal for investors, as the company's interest expenses and fixed liabilities increase. If the company's cash flow is unstable, the likelihood of financial distress increases. Therefore, based on signaling theory, companies with high leverage ratios will signal greater financial risk to the market. The results of research by (Fitri & Dillak, 2020) state that leverage has an effect on financial distress because companies with high leverage values do not always have a high probability of experiencing financial distress, but also have the opportunity to avoid financial distress.

H₄: Leverage Has a Positive Effect on Financial Distress

RESEARCH METHOD

In this study, the type of research design used is quantitative research, namely research that reveals the size or smallness of an influence or relationship between variables expressed in the form of numbers, by collecting data that are supporting factors for the influence of the variables concerned and then analyzing them using analytical tools that are appropriate to the variables in the study. This study aims to determine the possibility of a relationship regarding the influence of the independent variables of Liquidity, Profitability, Company Size, and Leverage on the dependent variable of Financial Distress. The type of data used is quantitative. The paradigm used in this study is positivism using deductive approach logic from the start of

hypothesis formulation. The type of data used in the study is secondary quantitative.

Table 1 Operationalization of Research Variabel

Variable	Dimension / Formula	Source
Liquidity	Current Ratio = Current Asset / Current Liabilitis	(Jennifen & Suhendah, 2023)
Profitability	Return On Asset = Net Income / Total Assets	(Puspitasari & Sopian, 2025)
Firm Size	Ln= Total Assets	(Shinta & Riharjo, 2025)
Leverage	Debt to Asset Ratio = Total Debt / Total Assets	(Diana, 2014)
Financial Distress	$FD = 6,56 X1 + 3,26 X2 + 6,72 X3 + 1,05 X4$ Description: X1 = Working Capital/Total Assets X2 = Retained Earnings/Total Assets X3 = Earnings Before Interest and Taxes (EBIT)/Total Assets X4 = Book Value of Equity/Book Value of Total Liabilities Notes: Non-manufacturing companies.	(Altman, 1977)

Populations

The population in this study consists of companies in the energy sector listed on the Indonesia Stock Exchange (IDX) from 2022 to 2024. The population of this study was obtained based on data collected during the period from September to October 2025 to ensure the timeliness and relevance of the information used in this study's analysis. Thus, a population of 92 companies from the energy sector and 38 companies from the transportation & technology sector that had audited their annual financial reports was obtained.

Samples

The research sample was selected using a purposive sampling technique. The criteria for sample selection included energy, transportation, and energy sector companies listed on the IDX during 2022-2024 period, companies that published complete annual reports and the availability of financial data and information related to the research variables. Based on the criteria, 62 companies met the requirements to be included as research samples. Observation

were conducted over a three-year period, resulting in a total 186 firm-year observation.

Data Sources

This study uses secondary data, where the data sources are derived from the annual reports of energy and transportation & logistics companies listed on the Indonesia Stock Exchange for the period 2022-2024, obtained from the companies' official websites and (www.idx.co.id) for the years 2022-2024.

RESULTS

Table 2 Descriptive Statistic

Variabel	N	Min	Max	Mean	Std. Dev
FD	186	-13.755	16.217	3.820	4.369
LKD	186	0.1030	29.774	2.449	3.191
PROF	186	0.001	0.616	0.106	0.116
FS	186	24.695	32.765	28.862	1.830
LVRG	186	0.021	1.734	0.4281	0.247

FD = Financial Distress; LKD = Liquidity; PROF = Profitability; FS = Firm Size; LVRG = Leverage

Source: Processed Data (2025)

Based on the descriptive statistical table above, it can be explained that the Financial Distress (FD) variable in companies in the energy, transportation, and logistics sectors has a range of values ranging from -13.37, indicating that the companies experienced severe financial pressure during the study period. This is due to the negative values of the ratios that make up the Financial Distress value (such as profitability or retained earnings) due to significant net losses or a large debt burden compared to the company's assets. The maximum value of 16.27 indicates that the company is in a very healthy financial condition (safe zone). This reflects the company's ability to generate optimal profits, has a strong retained earnings reserve, and excellent debt management, resulting in a very low risk of bankruptcy. The average value obtained was 3.8, indicating that, in general, companies in the energy, transportation, and logistics sectors in the 2022-2024 period are in the healthy financial category. However, the standard deviation value of 4.369, which is greater than the average value, indicates that there is a significant variation or gap in financial conditions between the sample companies, with data fluctuations being quite high during the observation period.

The lowest liquidity ratio (LKD) in the energy, transportation, and logistics sectors for 2022-2024 was 0.103. This indicates that some sample companies had very low liquidity. This figure indicates that these companies were only able to meet approximately 10.3% of their total short-term liabilities using their current assets, reflecting a high risk of default during that period. The maximum value obtained was 29.7, indicating that some companies in the sample had current assets up to 29 times their short-term liabilities. This high figure indicates a highly liquid financial position and virtually no risk of default. However, it may also reflect suboptimal fund management due to the large amount of current assets not being reinvested into productive assets. Meanwhile, the descriptive analysis table shows an average value of

2.449, indicating that companies in the energy, transportation, and technology sectors generally have a good ability to meet their short-term liabilities. However, the standard deviation was recorded at 3.191, which is greater than the mean. This indicates that the liquidity data in this study exhibits a high degree of dispersion or significant variation, with significant differences in liquidity performance between companies during the 2022-2024 period.

The profitability (PROF) in the energy, transportation, and logistics sectors for 2022-2024 showed a minimum value of 0.001, indicating that some companies in the energy, transportation, and logistics sectors had very low efficiency in generating profits, with profits only amounting to 0.1% of their total assets. Although this is a very small value, this positive figure indicates that these companies were still able to maintain their financial performance and avoid falling into the net loss zone during the study period. The maximum value obtained in this study was 0.616, indicating that some companies in the sample had excellent financial performance. These companies were able to optimize the use of their assets, generating a net profit of up to 61.6% of their total assets. This demonstrates very high operational efficiency compared to the average for other companies. Furthermore, the profitability study, measured by ROA, had an average value of 0.106, meaning that the average company in the sample was able to generate a net profit of 10.6% of their total assets. Meanwhile, the standard deviation was recorded at 0.116. Given that the standard deviation is greater than the mean, this indicates a significant gap or variation in profitability levels among companies in the energy, transportation, and logistics sectors, where the data distribution does not converge closely around the mean.

Firm Size (FS) showed the lowest value of 24.6. This value reflects the presence of companies with very large asset scales. Considering that this variable is measured using the natural logarithm of total assets, the figure of 32.765 indicates massive operational capacity and control of resources, which significantly differentiates them from companies with smaller asset scales. The maximum value obtained was 32.7, this value indicates the presence of large-scale companies with very extensive economic resources. However, with a relatively small standard deviation value of 1.83 compared to the average value of 28.86, it can be concluded that in general, the companies in the study sample have asset sizes that tend to be uniform or do not have too extreme differences in scale from one another.

Leverage (LVRG) in the energy, transportation, and logistics sectors for 2022-2024 showed a minimum value of 0.021, indicating that some companies funded only 2.1% of their assets with debt. This indicates that the companies are very conservative and financially secure. Almost all of their assets are financed by equity, and the risk of default is very low. The maximum value obtained was 1,734, indicating insolvency. Theoretically, if a company sold all its assets today, it would still be unable to repay all its debts. This usually occurs because the company experiences continuous large losses, resulting in depletion of its capital (equity) and becoming negative. This value aligns closely with the very low minimum value for Financial Distress. Meanwhile, the average value was 0.42, indicating that, in general, the sample companies have a fairly controlled level of debt funding, at 42.81% of total assets. The standard deviation value was recorded at 0.24, which is smaller than the average value. This shows that the distribution of data on the leverage variable tends to be stable and does not have extreme fluctuations in the majority of samples, even though there are certain companies that have very high debt levels exceeding their total assets.

Panel Data Regression Model Selection

Table 3	Effects Test	Statistic	d.f.	Prob.	Chow
Test	Cross-section F	37.476905	(61,121)	0.0000	
	Cross-section Chi-square	556.211384	61	0.0000	

Source: Processed Data (2025)

Based on the results of the Chow Test using Eviews9, the Cross-Section F profitability value is 0.000, which is higher than the significance level ($\alpha=0.05$). This means the best model to use is the Fixed Effect Model (FEM). Therefore, data testing continues with the Hausman Test to select the best model between the Fixed Effect Model and the Random Effect Model.

Table 4 Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.424506	4	0.0061

Source: Processed Data (2025)

The Hausman test results show a probability value of 0.0063, which is greater than the 5% significance level ($\alpha = 0.05$). Therefore, the most appropriate model to use is the Fixed Effect Model.

Table 5

Variable	Prediction	Coefficient	t-Statistic	Prob
C		32.67317	1.113095	0.2679
LKD	+	-0.087174	-0745725	0.22865
PROF	+	2.238036	0.715299	0.2379
FS	+	-0.977332	-0.958575	0.1698
LVRG	+	-1561317	-718857	0.2368
R-Square				0.749038
Adjusted R-Square				0.613100
F-Statistic				5.510145
Prob (F-Statistic)				0.000000

Hypothesis Test

Description:

*Signification 5%

FD= *Financial Distress*; LKD= Liquidity; PROF = Profitability; FS= Firm Size;

LVRG= Leverage

Partial Test (t-test)

Partial tests are used to determine whether the independent variables individually have a significant effect on the dependent variable. The results of the test using the Fixed Effect Model (FEM) can be summarized as follows:

1. Liquidity has a negative and insignificant effects on Financial Distress
The first hypothesis (H1) in this study states that Liquidity influences Financial Distress. The t-test results on the Liquidity variable produced a t-value of $-0.745725 < t\text{-table } 2.042$. Because the study used a one-tailed hypothesis test, the probability value was divided by two, namely $0.4573/2 = 0.22865$. This value is bigger than the 0.05 (5%) significance level, so there is an influence between Liquidity and Financial Distress. Thus, H_0 is accepted. and H_a is rejected.
2. Profitability has a negative and insignificant effects on Financial Distress
The second hypothesis (H2) in this study states that Profitability influences Financial Distress. The t-test results on the Profitability variable (PROF) produced a t-count value of $0.715299 < t\text{-table } 2.042$. Because the study used a one-tailed hypothesis test, the probability value was divided by two, namely $0.4758/2 = 0.22379$. This value is bigger than the significance level of 0.05 (5%), so there is an deinfluence between Profitability and Financial Distress. Thus, H_0 is accepted. and H_a is rejected.
3. Firm Size has a negative and insignificant effects on financial distress
The third hypothesis (H3) in this study states that Company Size influences Financial Distress. The t-test results on the Liquidity variable produced a t-count value of $-0.958575 < t\text{-table } 2.042$. Because the study used a one-tailed hypothesis test, the probability value was divided by two, namely $0.3397/2 = 0.1698$. This value is bigger than the significance level of 0.05 (5%), so there is an influence between Company Size and Financial Distress. Thus, H_0 is accepted. and H_a is rejected.
4. Leverage has a negative and insignificant effects on Financial Distress
The fourth hypothesis (H4) in this study states that Leverage influences Financial Distress. The t-test results on the Liquidity variable produced a t-value of $-0.718857 < t\text{-table } 2.042$. Because the study used a one-tailed hypothesis test, the probability value was divided by two, namely $0.4736/2 = 0.2368$. This value is smaller than the 0.25 (25%) significance level, so there is an influence between Leverage and Financial Distress Thus, H_0 is accepted. and H_a is rejected. These results indicate that Leverage, measured by Debt to Asset, is a major factor in reducing the likelihood of Financial Distress.

Coefficient of Determination (R-Squared) test

Based on table 5, it shows that the R-Squared value of 0.9292 indicates that 74% of the variation in the Financial Distress variable can be explained by the variables Liquidity, Profitability, Firm Size, and Leverage. Meanwhile, 26% of the residual value of the R-Squared shows that it is influenced by other factors not included in this model, such as Cash Flow (Jennifen & Suhendah, 2023), Solvency (Mahfullah & Nur, 2021), Capital Structure (Puspitasari & Sopian, 2025), Sales Growth (Putri & Amri, 2025), Real Interest Rate (Moleong, 2018), Good Corporate Governance (Muslimin & Bahri, 2023), Managerial Ownership (Jenitia et al., 2024).

DISCUSSIONS

The Effect of Liquidity on Financial Distress

This study shows that liquidity has a significant negative effect on financial distress in companies in the energy and transportation and logistics sectors for the period 2022–2024. Although (H_1) was rejected due to differences in the initial prediction direction, these results empirically prove that the higher a company's ability to meet its short-term obligations through current assets, the lower the risk of financial distress. Amid commodity price volatility and post-pandemic recovery, effective current asset management is a strategic tool for management to maintain operational continuity and avoid suboptimal financial decisions such as high-cost emergency financing. Theoretically, these findings reinforce Signaling Theory, where an adequate level of liquidity serves as a positive signal to investors and creditors regarding a company's financial health. Stable cash availability reflects resilience and effective risk management, allowing the market to differentiate healthy companies from vulnerable ones. This underscores that in sectors highly dependent on cash flow, such as energy and logistics, liquidity is not merely a figure on the balance sheet, but a crucial indicator capable of significantly reducing the risk of default. The results of this study are in line with research by (Mahfullah & Nur, 2021) and (Bakhri et al., 2018) who also found a significant negative impact of liquidity on financial distress. However, these findings differ from the study by (Jennifen & Suhendah, 2023), which showed a positive direction, or the studies by (Septiani et al., 2021) and (Pratiwi & Sudiyatno, 2022), which found insignificant results. This difference indicates that the influence of liquidity can vary depending on the characteristics of the industry sector and how companies manage their current asset components, such as inventory, in meeting short-term obligations.

The Effect of Profitability on Financial Distress

The research results indicate that profitability has a statistically significant positive effect on financial distress, thus the second hypothesis (H_2) is accepted. This finding confirms that a company's ability to generate profit from operational activities is directly proportional to its ability to mitigate the risk of financial pressure. In companies in the energy, transportation, and logistics sectors during the 2022–2024 period, high profitability reflects sufficient internal cash flow to finance operations and meet financial obligations, which ultimately strengthens the company's financial position to avoid financial distress. From the perspective of Agency Theory, profitability is not only a reflection of management efficiency but also illustrates the dynamics of the relationship between owners (principals) and managers (agents). In capital-intensive sectors, high profits provide managers with the room to optimally manage resources to mitigate the risk of financial failure. However, this theory also notes that

high profitability can be influenced by managers' opportunistic behavior due to information asymmetry, making management's success in generating profits a crucial factor in safeguarding the interests of all parties and the stability of the company. This research is in line with the studies by (Puspitasari & Sopian, 2025) and (Sihombing & Aurora, 2024), which found a significant and positive effect of profitability on financial risk prevention. On the other hand, these results contradict the research of (Suprobo et al., 2019) and (Ningrum & Riharjo, 2025), which showed a negative influence or stated that profitability is not a primary factor in preventing financial distress. This difference in findings suggests that although profit is an important indicator of a company's health, its effectiveness in mitigating financial difficulties can be influenced by the industry context and the proactivity of management in managing assets amidst market uncertainty.

The Effect of Firm Size on Financial Distress

The research results indicate that Firm Size has a statistically significant negative effect on Financial Distress, so the third hypothesis (H_3) is rejected due to the difference from the initial predicted direction. This finding suggests that a large company scale acts as a natural shield against the risk of bankruptcy. Large companies have strong bargaining power with third parties, broader access to external funding, and the ability to liquidate non-core assets as an emergency rescue measure. This allows companies to better absorb economic shocks and fluctuations in operating costs compared to small companies with limited resources. From the perspective of Agency Theory, although large companies face challenges such as complex organizational structures and higher agency costs for supervision, these are offset by other strategic advantages. Extensive business diversification and a solid reputation provide extra resilience for large companies in the face of financial pressure. This means that even though the potential for conflicts of interest between managers and owners increases with the size of the company, the massive resource capacity and well-developed risk mitigation mechanisms remain effective in reducing the potential for financial distress. This study is in line with the findings of (Jenitia et al., 2024) and (Shinta & Riharjo, 2025), who confirmed that firm size is a significant predictor that is inversely related to financial distress risk. However, these results contradict (Prastyatini & Novikasari, 2023), who found a positive direction, as well as (Stepani & Nugroho, 2023), who reported an insignificant effect. This contradiction suggests that a large scale of operations does not always guarantee financial security if not accompanied by effective governance, as large assets can also increase coordination complexity and high fixed costs if not managed efficiently.

The Effect of Leverage on Financial Distress

The test results show that Leverage has a statistically significant negative effect on Financial Distress, thus this hypothesis is rejected due to the difference from the initial predicted direction. This finding provides a unique perspective that in energy, transportation, and logistics sector companies during the 2022–2024 period, high debt usage does not necessarily become a burden that triggers bankruptcy. On the contrary, well-managed debt in financing operational and investment activities has been proven to reduce financial distress risk, indicating that this level of debt is being used productively to strengthen the company's market position. In the context of Signaling Theory, the findings of this study provide a different interpretation from the common assumptions. Although high leverage is traditionally

considered a signal of risk, in the context of the post-pandemic economic recovery period, the large amounts of loans obtained by companies actually serve as a positive signal to the market. Successfully securing substantial funding reflects high creditor confidence in the company's cash flow prospects and financial resilience. In other words, leverage in this study becomes an indicator of the company's credibility in the eyes of third parties, ultimately mitigating the potential occurrence of financial distress. These findings contradict the majority of previous research such as (Indarti & Sapari, 2021; Moleong, 2018; Ratuela & Kalangi, 2022) which generally found a significant positive effect, where an increase in debt is considered to raise the risk of financial failure. However, these results are in line with the arguments of (Fitri & Dillak, 2020) that high leverage does not always lead to a financial crisis. This difference emphasizes that the impact of leverage heavily depends on economic timing and sector characteristics in defensive industries or those experiencing a surge in demand, an aggressive capital structure can actually become a growth engine that keeps the company away from the brink of bankruptcy.

CONCLUSIONS

Based on research conducted on 62 companies in the energy, transportation, and logistics sectors during the 2022–2024 period, it can be concluded that liquidity, profitability, company size, and leverage do not have a significant effect on financial distress. These findings indicate that a company's ability to meet short-term obligations, generate profits, scale of operations, or level of debt usage has not been a determining factor in the occurrence of financial distress in these sectors. This condition suggests that the characteristics of the energy, transportation, and logistics industries, which are capital-intensive, rely on long-term financing, and face post-pandemic economic volatility and the global energy crisis, make the risk of financial distress more influenced by factors outside the conventional financial ratios used in this study.

Suggestions

Future research is recommended to expand the scope of analysis by conducting comparative studies between the energy, transportation, and logistics sectors and other sectors such as banking, manufacturing, and agriculture, as well as adding new independent variables such as governance ratios (managerial and institutional ownership), cash flow, and activity ratios to test the sensitivity of the financial distress model. In addition, for investors, these results emphasize the importance of fundamental analysis focusing on aspects of liquidity, profitability, company size, and debt levels as key indicators in minimizing the risk of investment losses.

Implications

Based on the conclusions presented previously, this study provides several implications for academics, companies, and regulators.

For Academies

This research is expected to contribute to the development of literature in the field of financial accounting. The study focuses on how Liquidity, Profitability, Company Size, and Leverage can affect Financial Distress in companies within the transportation and logistics consumer sector as well as the energy sector listed on the Indonesia Stock Exchange (IDX) for

the 2022-2024 period. Thus, this research is expected to enrich the literature related to accounting information reporting in anticipating Financial Distress conditions.

For Companies

For company management, the results of this research serve as a consideration in making financial decisions. Management needs to maintain an optimal level of liquidity so that the company can meet its short-term obligations and avoid financial pressure. In addition, improving profitability should be a primary focus through operational efficiency and appropriate business strategies, as stable profits can strengthen the company's financial resilience. Management also needs to consider a healthy capital structure by controlling the level of leverage, so that the use of debt does not create excessive financial burdens. For relatively small companies, more careful risk management is required because resource limitations make the company more vulnerable to financial distress.

For Regulators

The results of this study provide strategic implications for regulators, such as the Financial Services Authority (OJK), to use liquidity, profitability, company size, and leverage indicators as an early warning system to detect financial distress risks at an early stage. Through strengthened policies, regulators can require stricter reporting for companies with high-risk profiles, set capital structure limits to control debt, and provide intensive supervision for smaller, more vulnerable companies. The implementation of such targeted policies is expected to maintain the systemic stability of the business sector and prevent the domino effects of financial failures on the national economy.

For Investors and Creditors

The results of this study can be utilized by investors and creditors as a basis for evaluation in making investment and credit decisions. Investors can use information regarding liquidity, profitability, company size, and leverage to assess the level of risk of a company before investing capital. Meanwhile, creditors can use these variables as a basis for evaluating the company's ability to meet its debt obligations. Thus, proper financial analysis can help minimize the risk of losses due to companies experiencing financial distress.

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