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Environmental Performance, Institutional Ownership, And Debt Cost Determinants of Financial Distress

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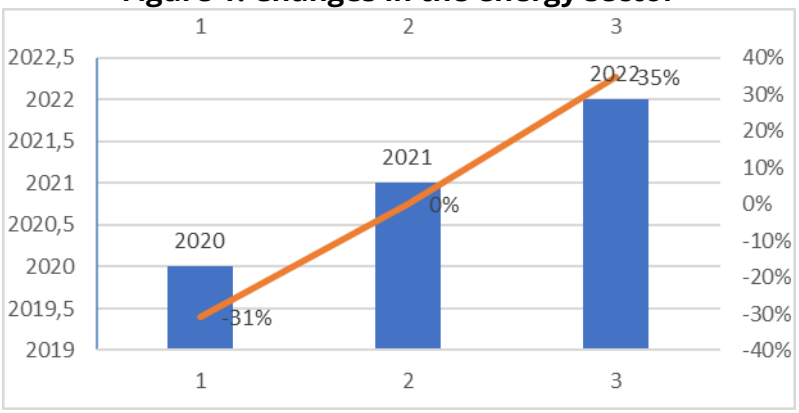
ABSTRACT

This study aims to examine and analyze the effect of environmental performance, institutional ownership, and debt costs on financial distress in companies in the energy, raw materials, and industrial sectors listed on the Indonesia Stock Exchange. This study uses a quantitative approach with secondary data obtained from annual reports. The population of this study is companies in the energy, raw materials, and industrial sectors listed on the IDX from 2020 to 2024. With purposive sampling, there are 155 samples based on PROPER certificate ownership and institutional ownership structure. The analysis was conducted using logistic regression with SPSS 26. The control variables used were Total Asset Turnover (TATO), Firm Age, and Firm Size. The results show that debt costs, TATO, firm age, and firm size have a significant effect on financial distress. Meanwhile, environmental performance and institutional ownership do not have a significant effect on financial distress. This study emphasizes the importance of financing structure management, particularly debt costs, in maintaining corporate financial stability. Debt costs play a decisive role in increasing the risk of financial distress if not managed properly. This study reinforces the relevance of trade-off theory in the context of corporate financing in the energy, raw materials, and industrial sectors.

INTRODUCTION

In Indonesia, investment levels have declined in recent years, mainly due to COVID-19 in 2020, which worsened the national economy. One of the sectors affected was the energy sector, with a 31% decline in investment. However, in 2022, there was a significant recovery, marked by a 35% increase in investment (Subaida, 2023). Several energy companies experienced a decline in profits during the 2019-2024 period, indicating potential financial distress. Additionally, the debt ratio for energy sector companies shows an average figure above one. This reflects a high dependence on debt financing (Rosalika et al., 2024).

Figure 1. Changes in the energy sector



Financial distress reflects serious problems in terms of a company's liquidity, solvency, and profitability. If left unaddressed, this situation could potentially lead to bankruptcy. Common indicators of distress include a decline in financial performance, the company's inability to meet its short-term and long-term obligations, cash flow disruptions, and a decline in share value and negative EPS (Kristanti & Pancawitri, 2024).

Research on financial distress has largely focused on the energy, raw materials, and industrial sectors because these sectors are dependent on commodity prices that are subject to price fluctuations. The decline in prices in these sectors has made it difficult to meet operational needs and debt repayment obligations, which in turn increases the likelihood of financial problems (Revanza & Wahyuni, 2023). Additionally, the energy, raw materials, and industrial sectors have environmental impacts, including carbon emissions and pollution. Therefore, companies in these sectors are a focus of attention in environmental performance evaluations (P. Sari et al., 2023).

Previous studies have shown that there are several factors that influence financial distress, such as institutional ownership (Yuli Soesetio, 2023); managerial ownership (Annisa et al., 2022); company size (Yuli Soesetio, 2023); debt cost (Masita & Purwohandoko, 2020),(Aditya, 2021); profitability (Annisa et al., 2022), (Aditya, 2021) ; environmental performance (P. Sari et al., 2023) and there are many other factors that influence financial distress.

This study will address issues related to the relationship between environmental performance, institutional ownership, and debt costs with financial distress. The relationship between these variables is important to reveal because, first, stakeholder theory has explained the role of environmental performance in enhancing corporate reputation and increasing profitability, thereby reducing the level of financial distress. Second, institutional ownership plays a role in making more active decisions in interacting with management, and with institutional ownership, it is expected that

agency costs will decrease or conflicts between management and shareholders will diminish, ultimately leading to improved financial performance (Roro et al., 2025). In this context, the role of debt costs becomes increasingly important as it can serve as a tool to finance investments in sustainable practices and improvements in good corporate governance (GCG). However, inappropriate use of debt, especially if the company is unable to afford it, can increase financial risk and generate sufficient income to meet its debt obligations (Alam et al., 2024).

Findings from Utami et al., (2021) reveal that both external and internal factors of a company, such as environmental performance and institutional ownership as shareholders, have a significant influence on financial distress Barrak et al., (2023) emphasize that companies with good financial performance will be able to avoid adverse financial situations.

Several studies, such as Benlemlih & Cai (2020) found that the optimal implementation of environmental responsibility can reduce the risk of financial distress, as companies are perceived as more responsible and have a higher chance of accessing financing.Kaakeh & Gokmenoglu., (2022) and Tzouvanas et al (2020) also showed that environmental performance can increase financial distress. Other researchers, such as Jia & Li., (2022), Nguyen et al., (2023), and Safitri et al., (2024) dentified no significant relationship between environmental performance and financial distress.

One factor that influences financial stability and effective corporate governance is the presence of institutional investors. Institutional investors not only act as shareholders, but also have a supervisory function that encourages management to be more cautious in making decisions (Aisyah & Afriyenti, 2022). According to Destriwanti et al., (2022) stated that the presence of institutional investors plays an important role in supervising management to be more careful in making financial decisions. Findings from Karjono (2022) and W. H. Sari et al., (2019) indicate that investor confidence in a company is reflected in high institutional ownership, which can enhance the company's financial stability. As in the research by Ferreras et al., (2024), Aisyah & Afriyenti (2022), and Mohamed Hosny F. & El-Deed (2024) institutional ownership can reduce the risk of financial distress due to more effective oversight mechanisms. However, other studies such as Anjani & Taswan (2023), Maghfiroh & Isbanah (2020), and Yuliandriani et al., (2023) found that institutional ownership does not significantly cause financial distress. Additionally, in some cases, institutional ownership can cause conflicts, which can disrupt company performance.

In addition to institutional ownership, debt usage is an important issue in maintaining financial stability. Research by Masita & Purwohandoko (2020), Farooq et al., (2023), and Chen (2024) found that the higher the debt-to-asset ratio, the higher the risk of a company experiencing financial distress. These findings indicate that improperly managed debt can burden a company's cash flow. Different results were found by Moon et al., (2020) who stated that debt costs actually have a negative correlation with financial distress. They identified that companies that are able to access low-cost debt financing tend to have stable financial conditions.

This study is novel in that it simultaneously tests the effects of environmental performance, institutional ownership, and debt costs on financial distress in energy, raw materials, and industrial companies in Indonesia. These three variables have rarely been examined in a single comprehensive model, especially in the context of companies relevant to sustainability issues. Additionally, this study strengthens the analysis by incorporating control variables such as TATO, firm age, and firm size.

LITERATURE REVIEW

Trade-Off Theory

Companies can achieve an ideal capital structure by balancing the tax benefits of debt with the bankruptcy costs that may be incurred by using debt. This trade-off theory was proposed by Modigliani, F., (1963). This theory explains the capital structure of companies that focus on the balance between the costs and benefits of using debt (Asai, 2020).

In addition, this theory explains that companies must balance the tax benefits gained from the use of debt with the risk of bankruptcy that may arise as a consequence of increased debt use, and assist companies in planning the amount of debt to be used in order to maximize value and minimize the risk of bankruptcy (Garnadi et al., 2023).

In the context of financial distress, the Trade-Off Theory emphasizes the importance of considering how companies can finance their operational activities and capital investments. This includes strategic decisions regarding the sources of funding that will be used to maintain business operations and the allocation of capital for long-term investments, even though the company is facing financial pressure (Azis et al., 2024).

Agency Theory

Since both parties have a vested interest in maximizing their profits, agents may not always act in the best interests of the company. Jensen Meckling, (1976), argues that agency is a contract in which investors appoint agents to perform a number of tasks on their behalf, including granting decision-making authority.

Agency theory explains the delegation of authority from company owners to management to run operations based on contractual agreements. In this context, management acts as an agent responsible for running the business, while owners or principals delegate strategic authority with the expectation that management decisions will remain in the owners' best interests (Aji Pangestu, et al 2024).

Financial Distress

Financial distress is a critical condition that indicates that a company is facing serious financial difficulties and is potentially heading towards bankruptcy. Signs include an inability to pay short-term debts, prolonged negative profit margins, and difficulties in maintaining financial health. This condition is often caused by ineffective financial management, such as inappropriate use of capital, lack of cash reserves, and low operational efficiency (Masita & Purwohandoko, 2020).

Financial distress is measured using Earning Per Share (EPS). Financial distress is defined as a condition in which a company experiences a decline in EPS. In this study, financial distress is expressed as a dummy variable, where companies with negative EPS are given a value of 1, and companies with positive EPS are given a value of 0 (Kristanti & Pancawitri, 2024).

Environmental Performance

Environmental performance refers to the extent to which a company conducts environmentally sustainable operations and complies with applicable environmental regulations. In Indonesia, the Ministry of Environment and Forestry has introduced the PROPER system to assess environmental performance (Lestari & Narindra, 2022).

In general, companies with good environmental performance tend to experience fewer financial distress conditions. This is consistent with the view that sustainability practices can strengthen a company's reputation and operational efficiency (Siwela & Ngwakwe, 2024). Previous studies, such as those conducted by Jia & Li, (2022), Safitri et al., (2024), and Yao & Bao, (2024) found a negative correlation between environmental performance and financial distress.

This suggests that investments in environmental activities may incur additional costs that could potentially worsen a company's financial condition.
H1 : Environmental Performance has a Negative Effect on Financial Distress

Institutional Ownership

Like banks, pension funds, and investment companies, institutional ownership shows how much an institution is involved in owning shares in a company. This ownership is considered to strengthen managerial oversight and improve rational decision making (Moon et al., 2020).

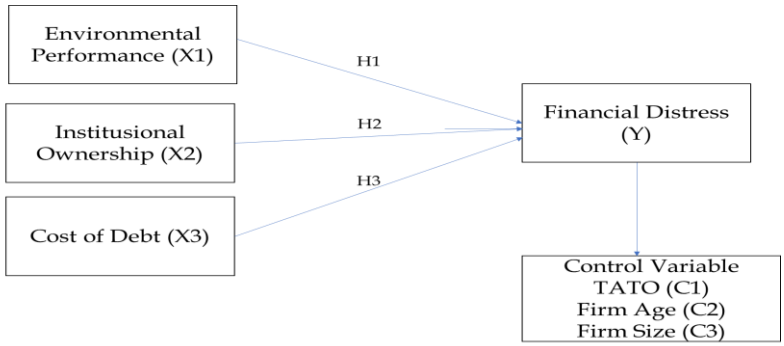
Several studies show that institutional shareholders can reduce the potential for financial distress. This is due to the ability of institutions to provide oversight and encourage more efficient company operations. Research by Maghfiroh & Isbanah, (2020), Yuliandriani et al., (2023), and Karjono, (2022) found that institutional ownership has a negative relationship with financial distress, as companies are forced to achieve high short-term profits, which can increase risk.
H2 : Institutional ownership has a negative effect on financial distress

Debt Cost

Debt costs are an important part of the Company's financing structure, but excessive use can increase the risk of financial distress. On the positive side, debt can be used as a leverage tool to drive the Company's growth (Chen, 2024).

If debt costs are excessive, debt can have a negative impact by increasing the risk of financial distress. Chen, (2024). P. Sari et al., (2023) and Farooq et al., (2023) found a positive relationship between debt costs and financial distress. The higher the level of debt experienced by a company, the greater the risk of the company experiencing financial distress.
H3 :Debt Costs have a positive effect on Financial Distress

Figure 2. Research Framework



METHODS

The quantitative method with logistic regression analysis used in this study aims to evaluate how debt costs, institutional ownership, and environmental performance impact financial crises. During the period 2020–2024, this study covers all companies working in the energy, raw materials, and industrial sectors listed on the Indonesia Stock Exchange.

To collect data, we used purposive sampling. The criteria required for companies to publish annual reports were that they had received PROPER certification from the Ministry of Environment and Forestry and had institutional share ownership structures. Company annual reports and the official website of the Indonesia Stock Exchange were used as data sources. In addition, total asset turnover (TATO), company size, and company age were used as control variables.

Table 1. Formula For Measuring Variabel

Variabel	Formula	Source
Environmental Performance	*Information* / *Score*: *Gold* 5; *Green* 4; *Blue* 3; *Red* 2; *Black* 1	(Lestari and Narindra 2022)
Institutional Ownership	$\frac{\text{Total Institution Shares}}{\text{total shares}}$	(Annisa et al., 2022)
Cost of Debt	$\frac{\text{Debt Interest}}{(\text{Short term debt} + \text{Long term debt})}$	(P. Sari et al., 2023)
Financial Distress	Earning Per Share (EPS) EPS negative given a value 1 = distress EPS positive given a value 0 = undistress	(Kristanti & Pancawitri, 2024).
Total Asset Turnover (TATO)	Sales/(TA beginning of year + TA end of year)/2	(P. Sari et al., 2023)
Firm Age	Research year - year of establishment	(Annisa et al., 2022)
Firm Size	Firm Size= Ln(total asset)	(Annisa et al., 2022)

RESULTS

This table presents the sample selection stages used in this study. Samples were taken from companies in the energy, raw materials, and industrial sectors listed on the IDX during the period 2020-2024. The selection process excluded companies that did not have PROPER certification and those that did not provide institutional ownership information in their annual reports. The final result of this process showed the number of companies that all selection criteria and were included as research samples.

Table 2. Criteria and Sample Size

No	Criteria	2020	2021	2022	2023	2024
1.	Companies listed on the IDX in the energy, raw materials, and industry sectors from 2020 - 2024	197	217	226	252	269
2.	Companies that do not have PROPER certification	(162)	(184)	(193)	(202)	(249)
3.	Companies that do not have institutional ownership	(5)	(3)	(2)	(3)	(3)
4.	Sample according to criteria	30	30	31	47	17

The analysis was conducted using logistic regression to test the performance of the environment, institutional ownership, and debt costs on financial distress with control variables, namely TATO, Firm Age, and Firm Size. The results of the purposive sample had the criteria of having a PROPER certificate to assess environmental performance and having institutional ownership in the company's annual report, totaling 155 companies. This number became the sample for the study.

Descriptive Statistic Result

Descriptive statistical analysis is used to examine the variable data. The data consists of the minimum, maximum, mean, and standard deviation of the variables of environmental performance, institutional ownership, debt costs, financial distress, TATO, firm age, and firm size.

Table 3. Descriptive Statistics Result

Variable	Minimum	Maximum	Mean	Std. Deviation
Environmental Performance (EP)	2,00	5,00	3,2323	0,57907
Institusional Ownership (IO)	0,02	1,00	0,7572	0,24142
Cost Of Debt (CD)	0,00	0,15	0,0313	0,02830
Financial Distress (FD)	0,00	1,00	0,1806	0,38597
Total Asse Turnove (TATO)	0,04	3,41	0,8370	0,57441
Firm Age (Age)	12,00	72,00	42,1484	13,31964
Firm Size (Size)	25,69	32,67	29,4017	1,43001

Source : data Processed SPSS 26

The descriptive statistics in the table above provide a preliminary overview of the data characteristics. The variations in mean, standard deviation, maximum and minimum across each variable reflect the diversity within the data. This overview is essential to understand the general trends and distributions prior to conducting hypothesis test or statistic analysis.

Estimation Fit Model

Table 4. Estimation Result of the Eligibility of the Regression Model

Information	-2 Log Likelihood
Step 0	147,761
Step 1	113,707

Source : data processed SPSS 26

This table shows that the value of -2 Log Likelihood decreased from an initial value of -2Log L (Step 0) of 147.761 to a final value of -2LogL (Step 1) of 113.707. This decrease indicates that the hypothesized model fits the data. This indicates that the model used is adequate and suitable for explaining the relationship between variables.

Coefficient of Determination

The Nagelkerke R Square value of 0.311 in the logistic regression model shows that 31.1% of the variation in the financial distress variable can be explained by the environmental performance, institutional ownership, debt costs, TATO, firm age, and firm size variables.

Prediction Accuracy

Table 5. Estimation Result of Prediction Accuracy

Observed	Predicted		
	Does no experience Financial Distress	Experience Financial Distress	Percentage (%)
Step 1-FD			
Does Not Experience Financial Distress	121	6	95,3%
Experience Financial Distress	18	10	35,7%
Overall Percentage			84,5%

Note : The cut value is 0,500

Source : data di proses SPSS 26

Based on the results of classification in logistic regression, this model has an overall accuracy rate of 84.5%. The model's accuracy in predicting companies that did not experience

financial distress was 95.3%, or 131 out of 155 cases that did not experience financial distress. Meanwhile, 28 out of 155 cases experienced financial distress, with an accuracy rate of 35.7%.

Significance Test

Table 6. Result of Signicance Test of Logistic Regression Model

Hypothesis	Variable	Regression Coefficient	Significance(p-value)	Conclusion
H1	Environmental Performance (EP)	-0,606	0,258	Not supported
H2	Institusional Ownership (IO)	1,122	0,335	Not supported
H3	Cost of Debt (CD)	21,040	0,025**	Supported
	Total Asset Turnover (TATO)	-1,454	0,032**	Supported
	Firm Age (AGE)	0,050	0,017**	Supported
	Firm Size (SIZE)	-0,850	0,000***	Supported

***p<0,01. **p<0,05.

Source : data processed SPSS 26

The logistic regression results show that environmental performance has a negative coefficient (-0.606) on financial distress, but it is not statistically significant (p = 0.258). Thus, H1, the effect of environmental performance on financial distress, is not significantly proven. Hypothesis H2 is rejected because the coefficient for institutional ownership (1.122) is not statistically significant (p = 0.335). The results indicate that high institutional ownership does not directly increase oversight functions and reduce the risk of financial crisis. With a coefficient value of (21.040) and a significance level of (p = 0.025), the debt cost variable has a significant effect on financial distress. This indicates that the more debt a company uses, the greater the risk of experiencing financial distress.

The three control variables show a significant effect. TATO has a significant negative effect with a p-value of 0.032, indicating that the company's efficiency in managing its assets to generate income plays a role in reducing the risk of financial distress. Company age has a significant positive effect with a p-value of 0.017, indicating that older companies tend to have a higher potential for financial distress. Older companies have a fixed and large financing structure. Meanwhile, company size with a p-value of 0.000 confirms that the risk of financial crisis is lower in larger companies in terms of assets and has better financial resilience.

DISCUSSION

The Effect of Environmental Performance on Financial Distress

These findings identify that environmental performance does not play a direct role in determining a company's financial distress, as measured using PROPER in the energy, raw materials, and industrial sectors, and does not contribute directly to reducing risk. These results are consistent with the findings of Jia & Li (2022) who found that a company's success in environmental responsibility does not necessarily have a direct impact on its financial health, as environmental impacts tend to be long-term Yao & Bao,(2024) also stated that a company's involvement in environmental programs does not show significance in terms of financial distress, particularly for companies with high debt levels. This aligns with Nguyen et al., (2023) who state that companies with high ESG scores do not automatically have financial performance stability, especially when external factors such as market fluctuations and debt burdens are more dominant, thereby influencing the company's financial condition.

However, these results contradict the findings of Benlemlih & Cai (2020), Kaakeh & Gokmenoglu (2022) which show that good performance has a positive impact on corporate

financial stability and can reduce the risk of financial distress. Companies that implement environmentally friendly practices are considered more responsible, have a better reputation in the eyes of investors, and find it easier to obtain financing.

The Effect of Institutional Ownership on Financial Distress

Descriptive statistics show that the average institutional ownership is high at 75.72%, but the results of logistic regression do not have a significant effect on the likelihood of financial distress. This discrepancy indicates that institutional ownership has not made a real contribution to reducing the risk of financial pressure on companies. One of the reasons for this is that although institutional shares are proportionally larger, not all institutions actively perform their supervisory functions or are directly involved in decision-making (Aisyah & Afriyenti, 2022). This condition may occur because some institutional investors are passive and place more emphasis on investment returns than on the long-term stability of the company (Anjani & Taswan, 2023).

These findings support the research of Maghfiroh & Isbanah (2020), and Yuliandriani et al., (2023), which states that institutional ownership does not always have a significant impact on financial distress, especially if the supervision carried out is ineffective. Conversely, these results are inconsistent with the research of (Ferreras et al., 2024), (Mohamed Hosny.F. & El-Deeeb, 2024) , and (Aisyah & Afriyenti, 2022) which state that the presence of institutions as shareholders can improve the quality of supervision and efficiency in decision-making. Therefore, these results indicate that high institutional ownership cannot yet be considered a strong indicator in reducing financial risk.

The Effect of Debt Costs on Financial Distress

Excessive debt can cause significant financial problems for companies, especially when they face external pressures such as declining revenues or rising interest rate (P. Sari et al., 2023). These results are consistent with trade-off theory, which states that companies will try to offset the use of debt with agency costs and bankruptcy risk.

When the proportion of debt in the capital structure is too high, the risk of bankruptcy increases, thereby increasing the likelihood of the Company experiencing financial distress. Limited debt can increase the value of the Company, but excessive debt increases the risk of reducing financial stability (Asai, 2020).

This study is in line with (Chen, 2024) that companies with capital structures that are overly dependent on debt are more vulnerable to financial pressure, especially in industries that face income fluctuations, such as ASII, AKRA, KRAS, and VOKS, which experienced significant income fluctuations during the 2020-2024 period. Research by (P. Sari et al., 2023) also indicates that high interest expenses on large companies are likely to cause companies to experience difficulties in paying short-term obligations, thereby increasing the potential for financial distress. The findings of (Farooq et al., 2023) show that debt costs have a significant positive relationship with the level of financial distress. Global economic uncertainty has led to higher financing costs and default risks.

CONCLUSION

The results of the study indicate that debt costs, TATO, company age, and company size have a significant influence on the likelihood of financial distress. This shows that financing structure and internal company factors are crucial in mitigating the risk of financial distress. On the other hand, environmental performance and institutional ownership do not have a significant influence on the occurrence of financial distress. The role of governance and environmental aspects has not yet fully impacted the company's financial context directly. These findings suggest that a sustainability approach is important in the long term, and internal factors such as debt costs can determine a company's financial resilience. Therefore, company

management needs to review debt policies and improve operational efficiency to maintain financial stability.

LIMITATION

This study has limitations in terms of variable coverage and sample selection. The variables analyzed do not cover all potential factors that may influence financial distress, such as liquidity, profitability, and external market conditions. In addition, data was only collected from companies with proper certification, so the results cannot be generalized to all companies in the energy, raw materials, and industrial sectors. The limited research period from 2020 to 2024 may also be influenced by extraordinary conditions resulting from the pandemic, which could affect the validity of the findings in the long term.

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