

ARE PROFITABILITY AND LEVERAGE ABLE TO PREDICT THE RISK OF FINANCIAL DISTRESS?

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Abstract: The performance of the organization from a financial perspective plays a crucial role in attracting investment. Whenever this profitability indicator is put in the context of making an investment, the signaling theory arises where information about the firm's activities is provided to affect an investment decision. The goal of this study is to observe profitability and leverage affect financial distress. The population is manufacturing enterprises registered on the Indonesia Stock Exchange between 2018 and 2022. Testing uses the SPSS statistical test tool with logistic regression. Profitability can predict the risk of financial distress. The risk of financial distress can be reduced by increasing profitability. Meanwhile, Leverage does not yet provide a definite reflection for predicting the risk of financial distress. Optimizing profits is the main thing in reducing the risk of financial distress. This will also have an impact on business continuity and not experiencing bankruptcy. The novelty of this study is that the indicator of financial distress is estimated by six consecutive years of negative earnings per share.

Keywords: Profitability, Leverage, Financial Distress

INTRODUCTION

The development of the business community is evidenced by the annual increase in the number of corporations listed on the Indonesia Stock Exchange. In the year 2022, the number of corporates listed for trading in the Indonesia Stock Exchange was 825, and among these, 59 were new. In addition to the increment in the number of companies quoted in the IDX data also shows that the number of capital market and stock market participants has grown by 37.68% and 28.64% respectively compared to the year 2021. A total of 1,719,478 active investors were registered which is a rise of 2.6% as compared to 2021. There was a total of 1,719,478 active investors, up 2.6% compared to 2021. Another interesting point is that the total fund raised for stock IPOs reached the highest value of IDR 33.14 trillion since the Stock Exchange was privatized in 1992. Corporations that can take advantage of this will benefit greatly, especially from the amount of capital obtained. The corporate ability to present financial statement data is a key factor in winning the hearts and minds of potential investors. The information portfolio of the corporation also has some negative or positive signals with regard to the earned profits for the corporation. When the profits of the corporation expand, it is categorized as good signal information and when the profits plummet, it is regarded as bad signal information (Mariani & Suryani, 2018). Any bad signal a corporation sends to potential investors will affect their investment decisions.

Signaling theory states that much better information owned by corporate executives will encourage executives to provide information to investors in the hope that the share price in their corporation will continue to increase. Managers and other

executives want to provide information from the financial reports they issue and provide information about the corporate ability to generate optimal profits or profits. Corporate companies that can generate profits with significant increases in their financial reports will be included in the good signals. Signal theory explains how information owned by one party can be communicated to another party through various signals to overcome asymmetric information. The signal is sent in the hope of influencing the decisions of other parties, both investors and creditors (Dang et al., 2019).

Prasetya Margono & Gantino (2021) say investors' assessment of a corporate success is often tied to its share price: the higher the share price, the more wealth investors will earn as shareholders. A high share value reflects good corporate performance and can give investors confidence that the achieved return on the investment obtained will greatly benefit shareholders. This can increase investor confidence to continue investing or increase investment. A corporate performance can be measured by its financial performance as shown in the financial statements (Susan et al., 2022).

Financial performance can be used to describe investor perceptions of corporate value and is an assessment of the corporate past achievements and prospects (Purbawangsa et al., 2020). Financial performance can be an important factor in influencing investment decision making such as the performance of sales growth, cash flow, profitability, and liquidity. All these financial performances can be reflected in the financial statements presented by the corporation by conducting a financial analysis. Financial analysis serves to help corporates evaluate the corporate financial condition to see an increase or decrease in corporate performance over a certain period. Evaluation and control of financial conditions is a very important step to take as an effort to predict the occurrence of financial distress which can ultimately have an impact on bankruptcy (Agustini & Wirawati, 2019). The results of the evaluation and control of financial performance will be very useful information for corporations to prepare and take corrective action. Financial distress that occurs and is experienced by corporations can be avoided by monitoring financial performance through financial statement analysis. Financial ratios that can be used to forecast financial distress emerge include profitability, leverage, activity, liquidity, and growth (Agustini & Wirawati, 2019; Bukhori et al., 2022; Hidayat & Meiranto, 2014; Sumani, 2020).

Susan et al. (2022) profitability is an important indicator of financial performance. High profitability will increase investor interest in investing their capital. The higher the profitability, the higher the corporate value. Profitability has a significant effect on corporate value. High profitability tends to have better corporate value (Amponsah-Kwatiah & Asiamah, 2021; Dang et al., 2019; Prasetya Margono & Gantino, 2021; Purbawangsa et al., 2020). Profitability as one of the benchmarks to assess how much the corporate is able to make a profit is considered an important factor in maintaining business sustainability so a high profitability ratio indicates that the corporate financial condition is strong and stable and is easy to obtain capital from investors and vice versa, a low profitability ratio indicates that the corporate financial condition is weak and if there is no appropriate action, the corporate is in danger of experiencing financial distress (Finishtya, 2019). Profitability can be measured by the ROA (Return on Asset) ratio by comparing total assets with net profit after tax as carried out by previous researchers (Agustini & Wirawati, 2019; Amaroh, 2023; Erwan et al., 2023; Safitri & Yuliana, 2021). The use of ROA as an indicator of profitability is based on the consideration that ROA

can describe the efficiency of the corporation in managing its assets to generate profits. ROA is considered more comprehensive in measuring the corporate financial performance compared to other profitability ratios (Novia & Meythi, 2022).

Another indicator that can predict the occurrence of financial distress is leverage. Whited & Wu (2006) leverage is the extent to which a corporate uses funding through debt (debt) in its capital structure, compared to the use of its own capital (equity). Leverage measures the quantity to which a corporation can satisfy all its responsibilities if someday it is going into liquidation. The leverage ratio is one of the financial ratios that shows the level of corporate debt compared to own capital. An excessive leverage ratio suggests that the corporation has a massive dependence on debt as compared to its equity capital. This can increase vulnerability to liquidity risks that lead to financial distress. Corporations with excessive leverage tend to be more at risk in the event of economic shocks, when the corporate is experiencing difficulties, a large dependence on debt will worsen the financial condition, thereby increasing the occurrence of financial distress. Thus, a high leverage ratio is associated with a greater likelihood of financial distress (Asutay & Othman, 2020). The leverage ratio is a ratio that may be used to determine how a good deal of the belongings owned through the corporation are financed from debt. The excessive stage of debt will have an effect of financial distress borne by the corporation (Dirman, 2020; Whited & Wu, 2006). Leverage is measured by DER (debt-to-equity ratio) by comparing debt to the total equity of the corporate (Giarto & Fachrurrozie, 2020).

Poston et al. (2011) state that the criteria for financial distress include experiencing losses for at least two consecutive years. Financial distress is a situation where the corporate is unable to fulfill its financial obligations when due. The profit earned from the corporation's operations is not able to cover its obligations. A large amount of debt will lead to higher debt costs, financial distress can occur if the high cost of debt is not offset by the profits the corporate gets. In addition, the increasing amount of debt can also potentially reduce profits to a negative. This can have a negative impact on the corporation because it will be very difficult to obtain funding sources which will ultimately increase financial distress (Bukhori et al., 2022). Financial distress is intended to be a condition that shows that the results of the corporate operational activities are unable to meet the corporate obligations (Maulida et al., 2018). Financial distress can also occur if the corporation fails to manage and maintain stable financial performance as a result of declining sales value (Sumani, 2020). Financial distress is measured by negative EPS (earnings per share) (Bukhori et al., 2022; Dwiantari et al., 2021; Masdupi et al., 2018; Maulida et al., 2018; Sumani, 2020).

Previous studies used the ROA (Return on Assets) ratio as an indicator of profitability (Agustini & Wirawati, 2019; Amaro, 2023; Dirman, 2020; Dwiantari et al., 2021; Erwan et al., 2023; Finishtya, 2019; Sumani, 2020) with the outcomes of studies that profitability has a terrible impact on financial distress, while (Hidayat & Meiranto, 2014; Maulida et al., 2018) stated that profitability has no impact on financial distress, in addition to the outcomes of studies (Amaro, 2023; Erwan et al., 2023) which country that during a pandemic profitability has no impact on financial distress. Leverage with the proxy ratio DER (Debt-to-Equity) has a positive effect on financial distress (Agustini & Wirawati, 2019; Giarto & Fachrurrozie, 2020; Masdupi et al., 2018) while the outcomes of studies Dirman (2020) leverage has no impact on financial distress. Bukhori et al. (2022) and Gunawan et al. (2020) show the outcomes of studies at the impact of leverage

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on financial distress however with extraordinary indicators, specifically DAR. This study makes use of the ROA ratio as an indicator of profitability, the DER ratio as an indicator of leverage, and for financial distress proxied by negative earnings per share for six consecutive years.

Hypothesis

Profitability refers to a corporate ability to generate profits or earnings. A corporate with high profitability or in other words, the ability to generate high profits or profits is considered successful. With the successful performance of generating high profits, it will attract investors to invest so that the corporation can avoid financial distress (Hidayat & Meiranto, 2014). Profitability is a crucial factor in sustaining a business's ongoing operations. A profitable business is more likely to ensure the continuity of their business compared to those with lower profitability. Conversely, a low level of profitability will negatively impact a corporate ability to maintain business continuity and will increase its tendency to experience financial distress. High profitability helps enterprises better safeguard their long-term viability, while low profitability renders them more vulnerable to disruptions in their operations and potential financial distress (Maulida et al., 2018).

H₁: Profitability has a negative impact on financial distress

Leverage is the extent to which corporate liabilities have financed the assets of the corporation. It implies that as a corporation takes more debt in order to finance itself, there are higher borrowing costs that are incurred. In order to reduce these extra costs, the performance in terms of profits by the corporations should be improved. A corporation would, however, wish to earn some additional return less than the additional debt's return above a certain amount in order to make less borrowing than the net profits earned. A study by Bukhori et al. (2022) points out that if a corporation earns less in excess of additional returns after leveraging up, it goes into trouble and risks financial distress. A study by Whited & Wu (2006) argues that excessive levels of corporate leverage are likely to create cost-effective financing hierarchies that owe more than they own for argument's sake and therefore tend to be over-leveraged. There are new sources that a corporate may be able to tap into because of the additional level of debt that is not so much the case and new levels of financial obligations in increasing the debt obligation of corporates. Corporations that are overly indebted are normally endangered or likely to be in bankruptcy. When the company's liabilities are in excess of its available assets, it leads to distress in the company. Paraguayan has, however, emphasized that there is indeed a have correlation between tail of the dependency of net earnings towards financial liabilities and the risk of financial distress (Gunawan et al., 2020).

H₂: Leverage has a positive effect on financial distress

METHODS

This article examines profitability, leverage and financial distress as the main issues to be addressed in the study. The population of this study is the manufacturing companies listed on the Indonesia Stock Exchange from 2018 to 2022. This study adopts the quantitative research design in order to test the hypothesis using percentages scales that show the possibility of financial distress with regards to profitability and leverage.

The study also employs secondary data through the use of the companies' audited financial statements (KAP).

The population for this study encompasses all corporations listed on the Indonesia Stock Exchange during the 2018-2022 period. The research sample was selected using a purposive sampling technique, which was tailored to the study's specific needs, particularly in terms of the criteria and characteristics of the required data.

Table 1. Sample Selection Criteria Indicating Financial Distress

The corporation is anticipated to encounter financial distress

- 1 Manufacturing corporations traded on the Indonesia Stock Exchange, have made available their full financial statements that have been audited by Public Accounting Firm (KAP)
- 2 Corporate with negative earnings per share for 6 consecutive years

Source: processed by the author (2024)

Table 2. Sample Selection Criteria Not Indicating Financial Distress

The corporation is not expected to encounter financial distress

- 1 Manufacturing corporations traded on the Indonesia Stock Exchange, have made available their full financial statements that have been audited by Public Accounting Firm (KAP)
- 2 Corporate with positive earnings per share for 6 consecutive years
- 3 Corporates with a total asset value almost the same as corporate identified as financially distressed and in a similar subsector to corporations identified as financially distressed

Source: processed by the author (2024)

Data Analysis

The study utilizes ROA to measure profitability, DER to assess leverage, and earnings per share as a proxy for financial distress. This study employs logit regression, treating financial distress as a categorical variable, where a score of 1 is assigned to corporations experiencing financial distress and a score of 0 is given to those not facing financial distress. The suitability of the empirical data with the model used is evaluated through the Hosmer and Lemeshow Goodness of Fit test. Hypothesis testing is conducted to determine the extent to which profitability and leverage influence the condition of financial distress.

$$L_n = L_n \left(\frac{p}{1-p} \right) = \beta_0 + \beta_1 \text{Profit} + \beta_2 \text{Lev} + U_i$$

Description:

p = 1: Corporate is anticipated to encounter financial distress

p = 0: Corporate is not expected to encounter financial distress

Profit: Profitability

Lev: Leverage

β_0 : Constant

β_{1-2} : Regression coefficient of each variable

McFadden R-squared

The coefficient of determination indicates the strength of the relationship between two or more variables. The range of the coefficient of determination lies between 0 and 1. The closer the value is to 0, the smaller the influence of the variable, and conversely, the closer the value is to 1, the greater or stronger the influence between the variables.

Wald test

The financial distress condition is evaluated using the Wald test within the logit model framework. The logit model's Wald test is examined through the z-statistic value or the p-value under the "Sig." column. The Wald test is conducted with an error rate (α) of 5% ($\alpha = 0.05$), and a degree of freedom (df) of 1.

RESULTS AND DISCUSSION

Descriptive statistics are performed to provide an overview or description of the data, based on the maximum, minimum, average (mean), and standard deviation values of each variable. The data analysis is conducted for the variables of profitability, leverage, and financial distress. The results of the descriptive statistics for the research variables are presented in the following table:

Table 3. Descriptive Analysis

Var	N	Minimum	Maximum	Mean	Std. Deviation
Profitability	107	-29.30	22.55	-0.7472	8.84881
Leverage	107	0.19	30.60	2.9023	5.45894
Financial Distress	107	0.00	1.00	0.4299	0.49739

Source: Results of SPSS Data Processing (2024)

Table 3 helps the reader appreciate that the profitability variable has maximum – 22.55, minimum – 29.30, mean –0.74 and standard deviation – 8.84. This means that the profitability of the company is normally low and negative. Debt also has the maximum value of 30.60, minimum value of 0.19, mean value of 2.90 and standard deviation of 5.45. This indicates that the relative amount of debt taken out in bonds is fairly high and that there is significant use of leverage in the company. With regards to the financial distress variable, the descriptive analysis provides mean values of maximum – 1.00, minimum – 0.00, average – 0.43 and standard deviation – 0.49. Most of these businesses are operating in unfavorable economic conditions, and as such, are in trouble.

In addition, a goodness-of-fit test was also conducted in this study to evaluate the feasibility of the model. The results of this test are as follows:

Table 4. Constant -2 Likelihood Value

Iteration	-2 Log likelihood	Coefficients Constant
1	146.224	-0.280
Step 0 2	146.224	-0.282
3	146.224	-0.282

Source: Results of SPSS Data Processing (2024)

The model feasibility test is calculated by comparing the -2 Log Likelihood value in the Beginning Block or model that only consists of constants, with the estimated -2 Log Likelihood value that includes both constants and independent variables. This comparison follows the chi-square distribution.

Table 5. The -2 Likelihood Value of Constants and Independent Variables

Iteration		-2 Log likelihood	Coefficients		
			Constant	Profitabilitas	Leverage
Step 1	1	88.329	-0.531	-0.143	0.049
	2	66.529	-0.746	-0.303	0.044
	3	57.652	-0.951	-0.478	0.035
	4	56.081	-1.081	-0.588	0.033
	5	56.007	-1.117	-0.619	0.033
	6	56.007	-1.119	-0.621	0.033
	7	56.007	-1.119	-0.621	0.033

Source: Results of SPSS Data Processing (2024)

Based on the information provided, Table 5 presents the -2 Log Likelihood value that includes both constants and independent variables. The -2 Log Likelihood value when considering only the constants is 146.224. When including both constants and independent variables, the -2 Log Likelihood value is 56.007. The difference between the two -2 Log Likelihood values is $146.224 - 56.007 = 90.217$. This difference follows a chi-square distribution. The study found that the -2 Log Likelihood value with constants and independent variables (56.007) is less than the chi-square table value ($56.007 < 128.80$). This indicates that the model, including the independent variables, is a good fit for the data.

Table 6. Omnibus Test

		Chi-square	df	Sig.
Step 1	Step	90.217	2	0.000
	Block	90.217	2	0.000
	Model	90.217	2	0.000

Source: Results of SPSS Data Processing (2024)

According to the information provided, Table 6 shows that the Chi-square value is 90.217 with a significance level of 0.000. The significance value of less than 0.05 indicates that profitability and leverage have a statistically significant effect on financial distress. The next step is to conduct hypothesis testing to determine the extent to which profitability and leverage influence financial distress.

Table 7. Model Summary

Step	-2 Log likelihood	Cox & Snell R	Nagelkerke R
		Square	Square
1	56.007 ^a	.570	.765

Source: Results of SPSS Data Processing (2024)

The above discussion is supported by the evidence presented in Table 7 where the coefficient of determination as measured by the Nagelkerke R Square value is 0.765 which indicates that profitability and leverage has 76.5% effect on financial distress while the remaining 23.5% is accounted for by other factors not specified in this research model.

Table 8. Wald Test

		B	SE	Wald	df	Sig	Exp(B)	95% CI for EXP(B) Lower
Step 1 ^a	Profitability	-0.621	0.122	25.865	1	0.000	0.538	0.423
	Leverage	0.033	0.055	0.358	1	0.550	1.033	0.928
	Constant	-1.119	0.413	7.342	1	0.007	0.327	

Source: Results of SPSS Data Processing (2024)

According to the information provided, Table 7 presents the results of the logit regression analysis for the variables of profitability and leverage. From this analysis, the following regression equation was obtained:

$$\text{Financial distress} = -1.119 - 0.621 \text{ Profitability} + 0.033 \text{ Leverage} + e$$

According to the information provided in Table 7, the Wald value for the profitability variable is 25.865 with a significance value of 0.000. The significance value of 0.000 is less than the 0.05 significance level, it can be concluded that the Ho hypothesis is rejected, which means profitability has a statistically significant effect on financial distress. The negative sign (-) of the profitability regression coefficient indicates that an increase in profitability leads to a lower likelihood of the corporation experiencing financial distress. The profitability regression coefficient value of 0.621 suggests that if the leverage variable remains constant and profitability increases by 1%, financial distress will decrease by 0.621%. This means that the corporation seeks to make the optimal decision configuration since it seeks to maximize itself so that it does not fall into financial hardship that may impact its survival and avoid bankruptcy.

The outcome of the current study was as similar to the results of earlier studies (Asutay & Othman, 2020; Finishtya, 2019; Masdupi et al., 2018; Safitri & Yuliana, 2021) as such concluding profitability has and negative impact in the level of corporate financial distress. However a more empirical observation of the business distress shows that the higher the earnings made on the corporate investment the lower the chances corporate undergoing a financial distress. This means that the more profits a corporation is capable of making, the lesser the risks of the corporation undergoing financial troubles and even bankruptcy. Their studies show that the Return on Assets (ROA) ratio is the key ratio which applied in the evaluation of corporate financial distress situation. This means that the utility of return on assets ratio, which is measuring how profitable the assets of the corporation are, being at high or low is a very significant determinant of financial distress. Self evident from the results of the current study and other studies is that a critical measure of genting corporation financial distress status is the level of profitability of the business and most specifically the ROA measure, which corroborates the previous

studies. This is a clear affirmation to the involvement of profits in the firms' operations strategically addressing the most critical areas of enhancing its financial health.

In the next test, the extent of the level of leverage was studied as a distress factor. The values show the Wald value equal at 0.358 with the significance value of 0.550. Since the significance value of 0.550 is greater than the 0.05 significance level, the H_0 hypothesis is accepted which leads to the conclusion that the level of leverage has no relationship in regards to financial distress. Leverage includes the potential of a corporation to meet short and long term debt repayments. Leverage is important if at all there is any intention of gauging any corporation paying off its debts in case of liquidation. Nevertheless, the proportion of debt to total assets cannot sufficiently be interpreted to mean that the corporation is in a financial crisis. It has been undisputed that leverage on its own is not a good predictor of corporate financial distress. This correlates with the view that factors other than the level of leverage, such as profitability, are likely to be more important to corporate financial health and the chances of financial distress being suffered.

The results of this study are not in line with the study conducted by Agustini & Wirawati (2019), Bukhori et al. (2022), Giarto & Fachrurrozie (2020), Gunawan et al. (2020), Hidayat & Meiranto (2014), and Masdupi et al. (2018) who states that the leverage has a significant impact on the state of financial distress with a negative sign in the regression equation. However, the results of this study support the studies conducted by Dirman (2020) and Finishtya (2019) who state that leverage have no significant impact on financial distress.

CONCLUSION

Corporate performance remains largely dependent on the ability of the company to earn profit rather than on debt with their claim being that the most profitable companies usually have low levels of debt. It is envisaged that the above expected study results will be useful to the corporations with a view to averting the supervision of the corporate profitability over a reasonable length of time. Also provided as is the rationale that leverage is a poor predictor of financial distress relative to profitability. This information helps corporations in taking corrective actions at an opportune point in time in order to prevent and protect the company from suffering such circumstances. There is also the need for aggressive increase of profit in the corporate, so as to place the cash position of the corporation to withstand or lessen the degree of the onset of financial trouble. The study recommends important steps that need to be undertaken by the corporations if they wish to avoid risks of suffering from financial distress in the future. As shocking as it may sound, during periods of economic crisis corporations are unable to repay all outstanding debts they owe, and so it may be more focused on improving profits than in how much debt vs equity there is in the measuring system. Corporations can only benefit on this issue when they accept the fact that monitoring the levels of leverage against a background of lack of positive operational performance indicators is an incomplete risk prevention strategy. This approach can enable corporations to recognize and address financial challenges more effectively, ultimately improving their long-term financial stability and resilience.

The top management or appropriate policymakers must undertake strategic measures aimed at avoiding exposure to financial distress by enhancing profitability first and controlling leverage better. To enhance profitability, it is important to do cost optimization by eliminating non-value-additive costs and enhance operational effectiveness by application of technology as well as process re-engineering. Lend also needs to be controlled too reduce the reliance on borrowings, pick appropriate financing sources and observe proper debt-equity ratios. So also, it is important to fortify the financial reserves by hastening the cash cycle through efficient management of receivables.

Despite significant contributions of the present study, some relevant limitations exist. The foremost limitation is that the sample size is rather small, comprising only 110 manufacturing companies. To improve the external validity of the results, further research in this area should look at the sample size more broadly, either by extending the timeframe of research or by surveying more companies from different industries than just the manufacturing one. Furthermore, the EPS minus value was employed as the measure that depicts financial distress. This rationale has merit, however, it may be better to use other measures of financial distress besides employing the EPS-Solvent measure, for instance, the Altman Z-Score, in an alternative study. The Altman Z-Score has been developed with relevance for factors that influence the corporate domain financial distress situation and revenues rather than the overall EPS. Further studies may elaborate on the said interrelations and present a more complete view of the influence leverage, profitability, and distress on each other. Choosing a larger sample and examining the use of other problems in the financial distress measure will help to close these gaps to a larger extent and further advance the corporate decision making and financial management processes and principles.

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