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The Effect of Logarithmic Total Assets and Liabilities on Log Net Income in Trading Companies Listed on the Indonesia Stock Exchange

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ABSTRACT
In an increasingly competitive business world, information about a company's financial position is crucial to analyze, particularly for stakeholders. A company's financial condition and structure can be reflected through two key components in its financial statements: total assets and total liabilities. This study examines how these two variables affect net income, by transforming all data into natural logarithmic form. The data was obtained from eight trading companies listed on the Indonesia Stock Exchange (IDX), for the period 2021-2024. Multiple linear regression was used to assess the influence of log total assets and log total liabilities on log net income. The results suggest that, within the observed sample, both variables significantly affect log net income. However, when examined individually, only log total liabilities have a significant effect on log net income, while log total assets show no significant effect. These findings indicate that a firm's financing structure through liabilities plays an important role in influencing net income, more so than the size of its assets.
Keywords: logarithm of total assets, logarithm of liabilities, net income, trading companies, BEI

1. Introduction

A company's financial condition can be assessed from different perspectives, one of which is through the financial statements released each period. These statements provide key information that can be used to assess the company's performance and financial position, including total assets, liabilities, and net income. Those three elements are closely linked and help illustrate how effective the company manages its resources and obligations to generate profits.

Total assets represent all the resources a company owns and uses in its operations. According to (Kieso et al., 2019), total assets are all the resources owned by a company, including both tangible and intangible, that support business operations. The concept of total assets is utilized in accounting and finance to measure and evaluate a company's performance based on its overall assets. Total assets reflect the economic resources under the company and play a significant role in generating future economic benefits. In most cases, companies with larger assets have more opportunities to expand their operations and thus increase their revenue.

On the other hand, liabilities indicate the extent of a company's obligations within a certain period. According to PSAK and IFRS, liabilities are a company's existing obligations resulting from past events and are expected to lead to an outflow of the company's resources. (Hendriksen and Van Breda, 2011) state that liabilities represent claims on a company's assets by creditors, in contrast to equity, which represents the owners' claims. The concept of liabilities focuses on a company's obligations to third parties that arise from past transactions and must be settled through the outflow of economic resources, typically in cash or other assets. High liabilities for a company do not necessarily indicate a negative condition, assuming that the company can manage its debt effectively and use them to support production and generate more profit.

The last element, net income, represents the overall outcome of a company's operations, investment, and

financing activities in a single period. (Harnanto, 2019) defines revenue as the increase in assets and the decrease in liabilities of a company resulting from operations or the provision of goods and services to consumers. This revenue eventually increases the owner's equity, apart from any capital contributions. Thus, it is important to understand the factors that contribute to shaping net income, particularly for investors, managers, and other relevant stakeholders. Exploring how assets and liabilities relate to net income can be done by using a statistical method, specifically the multiple linear regression.

Therefore, this study aims to examine the effect of log total assets on log net income in trading companies listed in IDX. By understanding this correlation, the findings are expected to provide useful insights for companies in making strategic decisions, as well as for investors and analysts in assessing the potential profit of a trading company based on its asset and liability structure.

2. Methode

This study uses a quantitative approach with an associative research design aimed at analyzing the cause–effect links between variables. The secondary data was collected in the form of financial reports, specifically the income statement and statements of financial position from trading companies that are listed on the Indonesian Stock Exchange over the 2021–2024 period. All data was accessed from the official IDX website. (Sugiyono, 2017)

The population in this study consists of the financial statements of trading companies listed under the Indonesia Stock Exchange. With 60 to 80 trading companies listed over five periods, the total population is approximately 120-400 data points. Subsequently, sampling is required as not all elements in the population can be used as the research object. The sample in this study consists of the financial statements of trading companies listed on the Indonesia Stock Exchange. This study uses non-probability sampling, specifically purposive sampling, to select samples that meet the predetermined criteria. Out of the listed companies, only a total of eight companies met the sampling criteria. With a four-year observation period, the study collected a total of 32 data points.

This study employs seven data analysis techniques: the normality test, product moment correlation analysis, multiple correlation analysis, multiple linear regression analysis, coefficient of determination analysis, t-test, and F-test. The data were processed using IBM SPSS Statistics Version 30.0.0.0 (172).

3. Result and Discussion

3.1 Data Normality Test Results

Table 1. Normality test result

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			32
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		.24880649
Most Extreme Differences	Absolute		.127
	Positive		.124
	Negative		-.127
Test Statistic			.127
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.204
	99% Confidence Interval	Lower Bound	.194
		Upper Bound	.215

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

The first step in the data analysis is the normality test to determine whether the data distribution follows a normal pattern and to ensure that the data are suitable for a regression test. Based on the results of the normality test, the Asymptotic Significance (2-tailed) value is 0.200 and the Monte Carlo Significance (2-tailed) value is 0.204. Both values are greater than the significance level of 0.05, indicating that the residual data in this study are normally distributed. (Sugiyono, 2017) claims that "if the significance value is greater than 0.05, the data are normally distributed." Therefore, it can be concluded that the residual data in this study meet the normality assumption and are suitable for further regression analysis.

3.2 Product Moment Correlation Analysis Results

Table 2. Results of the Pearson product–moment correlation

Correlations

		Total Asset	Total Liabilities	Net Income
Total Asset	Pearson Correlation	1	.973**	.894**
	Sig. (2-tailed)		<,001	<,001
	N	32	32	32
Total Liabilities	Pearson Correlation	.973**	1	.922**
	Sig. (2-tailed)	<,001		<,001
	N	32	32	32
Net Income	Pearson Correlation	.894**	.922**	1
	Sig. (2-tailed)	<,001	<,001	
	N	32	32	32

**. Correlation is significant at the 0.01 level (2-*tailed*).

Based on the results of the Pearson correlation analysis processed using IBM SPSS 30.0 (172), Total Assets (X_1) show a positive relationship with Net Income (Y) of 0.894, indicating a very strong correlation as it falls within the 0.80–1.000 range. Total Liabilities (X_2) also display a positive relationship with Net Income (Y) of 0.922, which also reflects a very strong correlation within the same range. In addition, Total Assets (X_1) exhibit a positive relationship with Total Liabilities (X_2) of 0.973, which is categorized as very strong. All relationships among the variables have significance values (Sig. 2-tailed) < 0.001, indicating statistical significance at the 99% confidence level ($\alpha = 0.01$).

3.3 Multiple Correlation Analysis

Table 3. Multiple correlation analysis result

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.922[a]	.850	.840	.25724

a. Predictors: (Constant), Total Liabilities, Total Asset

b. Dependent Variable: Net Income

The results show the R value of 0.922 indicates that Total Assets (X_1) and Total Liabilities (X_2) simultaneously have a very strong relationship with Net Income (Y), as the value falls within the 0.80–1.00 range. The R Square value of 0.850 indicates that 85% of the variation in Net Income can be explained by Total Liabilities and Total Assets, while the remaining 15% is influenced by factors outside this model. The Adjusted R Square value of 0.840 accounts for the number of predictor variables in the model and confirms that the model still has a high explanatory contribution.

This finding supports previous studies which emphasized that internal company factors such as leverage, size, and capital structure are important determinants of profitability and financial performance. The significant simultaneous effect of assets and liabilities on net income reflects the importance of financial structure in determining profitability (Stierwald, 2010).

3.4 Multiple Linear Regression Analysis

Table 4. Multiple linear regression analysis result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.461	.512		.900	.375
	Total Asset	-.046	.290	-.050	-.160	.874
	Total Liabilities	.859	.276	.970	3.107	.004

Based on the data processed using SPSS, the constant (a) is 0.461, the regression coefficient for Total Assets (X_1) is -0.046, and the regression coefficient for Total Liabilities (X_2) is 0.859. When these values are inserted into the multiple linear regression equation, the model becomes:

$$Y = a + b_1X_1 |+ b_2X_2Y = 0{,}461 - 0{,}046X_1 + 0{,}859X_2$$

Based on the equation:

1. Constant (a = 0.461) This means that when the log of total assets and the log of total liabilities are both 0, the estimated log net income is 0.461. However, because the constant is not statistically significant, its practical interpretation is limited.

2. Coefficient of Total Assets (X_1) (b_1 = -0.046) This indicates that if Total Liabilities remain constant and Total Assets increase by 1 unit, Net Income (Y) will decrease by 0.046 units. Since the coefficient is negative and not statistically significant (p = 0.874), Total Assets do not have a significant effect on Net Income.

3. Coefficient of Total Liabilities (X_2) (b_2 = 0.859) This means that if Total Assets remain constant and Total Liabilities increase by 1 unit, Net Income (Y) will increase by 0.859 units. Because this coefficient is positive and statistically significant (p = 0.004), Total Liabilities have a positive and significant effect on Net Income. In other words, higher liabilities (for example, productive loans) are associated with a higher likelihood of increased net income.

The positive relationship between liabilities and net income indicates that debt financing can support productive business activities and improve profitability when managed effectively. This result aligns with the (findings of Bastian et al., 2024) and is also supported by (Dietrich and Wanzenried, 2011), who stated that well-managed liabilities and capital structures may strengthen profitability performance.

3.5 Coefficient of Determination

Table 5. Coefficient of determination result

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.922[a]	.850	.840	.25724

a. Predictors: (Constant), Total Liabilities, Total Asset

b. Dependent Variable: Net Income

From the table above, the R Square value is 0.850. This value represents the coefficient of determination (Kd), which can be calculated as follows:

$$Kd{=}R2{\times}100\%Kd{=}0{,}850{\times}100\%Kd{=}85\%$$

The coefficient of determination (R Square) of 0.850 indicates that 85% of the variation in Net Income can be

explained by the variation in Total Assets and Total Liabilities, while the remaining 15% is explained by factors outside the model. After adjusting the number of independent variables, the Adjusted R Square value of 0.840 shows that the model remains strong and suitable for prediction. The Standard Error of the Estimate of 0.25724 reflects the standard error of the model, which is relatively small, indicating that the model's predictions can be considered fairly accurate. Furthermore, the F Change value of 82.080 with a significance level < 0.001 demonstrates that the regression model is statistically significant at the 1% level (α = 0.01). This means that Total Assets and Total Liabilities simultaneously have a significant effect on Net Income.

3.6 T-Test Result

Table 6. T-test result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.461	.512		.900	.375
	Total Asset	-.046	.290	-.050	-.160	.874
	Total Liabilities	.859	.276	.970	3.107	.004

a. Dependent Variable: Net Income

Based on the table above, the t-value for Total Assets (X_1) in relation to Net Income (Y) is -0.160. Referring to the t-table with n = 32 and degrees of freedom (df) = n − k − 1 = 32 − 2 − 1 = 29 at a significance level of α = 0.05 (two-tailed), the t-table is 2.045. Because the calculated t-value is smaller than the t-table (−0.160 < 2.045), Ha is rejected and Ho is accepted. Thus, it can be concluded that Total Assets (X_1) do not have a significant partial effect on Net Income (Y) in trading sector companies listed on the Indonesia Stock Exchange.

For the Total Liabilities variable (X_2), the calculated t-value is 3.107. With the same df = 29, α = 0.05 (two-tailed) and t-table with n = 32, the t-table remains 2.045. Since the calculated t-value is greater than the t-table (3.107 > 2.045), Ha is accepted and Ho is rejected. This indicates that Total Liabilities (X_2) have a significant partial effect on Net Income (Y). In other words, the higher a company's total liabilities, the more likely it is to experience an increase in net income.

3.7 F-Test Result

Table 7. F-Test result

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.863	2	5.432	82.080	<,001[b]
	Residual	1.919	29	.066		
	Total	12.782	31			

a. Dependent Variable: Net Income

b. Predictors: (Constant), Total Liabilities, Total Asset

Based on the output, the calculated F-value is 82.080 with a significance value of < 0.001. Using the degrees of freedom (df) = n − k − 1, so 32 − 2 − 1 = 29, and a 5% significance level, the F-table is 3.33. Since F-value > F-table (82.080 > 3.33) and the significance value is < 0.05 (< 0.001 < 0.05), H_a is accepted and H_0 is rejected. Therefore, it can be concluded that Total Assets (X_1) and Total Liabilities (X_2) have a significant simultaneous effect on Net Income (Y) in trading companies listed on the Indonesia Stock Exchange.

The Effect of Total Assets on Net Income

Based on the regression analysis results, the total assets variable has a regression coefficient of -0.046 with a significance value of 0.874. Since the significance value is greater than 0.05, this indicates that total assets do not have a statistically significant effect on net income in the trading companies included in this study. This suggests that the size of a company's assets does not necessarily guarantee an increase in net income, especially when those assets are not utilized efficiently in operational activities. In other words, owning large amounts of

assets does not always correlate positively with profitability, particularly if those assets are unproductive or do not directly generate cash flows.

This finding is consistent with (Sinaga, 2022), which states that total assets do not always correspond proportionally to net income since not all assets contribute directly to revenue. He also explains that many companies own fixed or non-productive assets (such as buildings or land) that merely support general operations and do not directly and significantly generate income.

This finding also supports previous studies which found that firm size measured through total assets does not always have a significant effect on profitability in several industries. Large asset ownership may become inefficient when companies fail to maximize the productive utilization of those assets (Sivathaasan et al., 2013).

Furthermore, profitability is closely related to how efficiently a company utilizes its assets. Return on assets reflects a company's ability to convert assets into net profit efficiently. Therefore, large assets alone are insufficient without productive asset management (Tan, 2016).

In many financial studies, total assets are commonly used as a proxy for firm size. Firm size measured using the natural logarithm of total assets is frequently employed to analyze profitability and financial performance (Bologna, 2025).

The Effect of Total Liabilities on Net Income

The regression results show that the total liabilities variable has a regression coefficient of 0.859 with a significance value of 0.004. Since the significance value is less than 0.05, it can be concluded that total liabilities have a positive and significant effect on net income. This means that an increase in liabilities tends to be followed by an increase in net income. These findings suggest that liabilities used by companies, for example, in the form of loans or productive debt, can be utilized to support operational activities that generate profit. Thus, a financing structure that relies on liabilities can enhance a company's financial performance when managed efficiently and directed toward productive purposes.

This result is supported by (Bastian et al., 2024), which states that liabilities are an important source of financing. Liabilities that are properly managed can expand operational scale and increase profitability. (Bastian et al., 2024) emphasizes that liabilities utilized for investment purposes or for increasing inventory can accelerate capital turnover and directly contribute to higher company revenues.

The Effect of Total Assets and Total Liabilities on Net Income.

Liabilities may contribute positively to profitability because external financing enables companies to expand operational activities and accelerate capital turnover. Liabilities are essential financing sources that support revenue-generating activities (Tan, 2016).

Companies with efficient debt management and balanced capital structures tend to achieve stronger profitability performance compared to firms that rely solely on internal financing (Dietrich and Wanzenried, 2011).

Simultaneously, the F-test results indicate that total assets and total liabilities together have a significant effect on net income, with a significance value of < 0.001 and an R Square of 0.850. This means that 85% of the variation in net income can be explained by the combination of total assets and total liabilities. This finding shows that even though total assets do not have a significant partial effect, they still play an important role in the regression model when combined with the liability variable. Thus, the overall financial structure of a company, which includes asset management and financing through liabilities, contributes significantly to shaping its financial performance, particularly in achieving net income. (Mahendra et al., 2025)

This interpretation reinforces the perspective of capital structure theory, which states that the appropriate combination of assets and liabilities, whether in the form of debt or equity, can determine a company's level of profitability. When assets and liabilities are managed efficiently, the company can maximize its operational and financial potential. (Sukma et al., 2025)

Balance sheet components such as assets and liabilities contain important information regarding future financial performance. Balance-sheet-related variables significantly influence profitability and future firm performance (Hirshleifer et al., 2011).

The findings also confirm that profitability is not determined solely by the amount of assets owned by a company, but also by how those assets are financed and utilized. Earnings performance is strongly linked to the structure of company resources and financing decisions (Ball & Brown, 2015).

4. Conclusion

Based on the analysis, it is concluded that total assets and total liabilities simultaneously have a significant effect on the net income of trading companies listed on the IDX. However, the partial test reveals that only total liabilities have a significant effect, while total assets do not. These findings indicate that, within the context of the trading companies examined, the financing structure through liabilities plays a more crucial role in driving income performance than the mere ownership of assets.

Therefore, there are several suggestions based on the findings. Considering the significant influence of total liabilities on net income, trading companies are advised to focus on managing productive and efficient liabilities by directing them toward operational activities that can generate profits. Even though total assets do not significantly influence net income individually, its utilization still should be improved through more effective asset management strategies. Thus, assets can also contribute directly to financial performance rather than becoming a burden. For future research, it is recommended to include additional variables such as equity or profitability ratios, and to expand the sample size and industry sectors to produce more comprehensive results that can be better generalized.

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6. Conflict of Interest

The author declares that this research was conducted independently and that there are no financial or personal conflicts of interest that could have affected the analysis or conclusions of this study.

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