Available online at website: https://ejournal.undip.ac.id/index.php/smo
Jurnal Studi Manajemen Organisasi, Volume 22 (1) 2025, pages 19-44
DOI: 10.14710/jsmo.v22i1.72461

Financial Ratios and Stock Return in The Food & Beverage Sector

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Abstract

This study uses a quantitative approach with panel data analysis to examine the effect of financial ratios on stock return and the role of financial distress as a moderating variable. The sample consists of companies in the food and beverage processing sector listed on the Indonesia Stock Exchange (IDX) during the period from 2013 to 2023. The data used were obtained from the annual financial statements published by these companies, as well as stock market data from the IDX. The total sample used in this study consists of 121 data points obtained through purposive sampling from 26 companies that met the research criteria. The dependent variable in this study is stock return, which is calculated based on the annual stock price change divided by the stock price at the beginning of the year. The independent variables include financial ratios, namely Total Asset Turnover (TAT), Price Earnings Ratio (PER), and Times Interest Earned Ratio (TIER). Financial distress is measured using the Altman Z-Score, which serves as the moderating variable in this study. Multiple regression analysis was used to test the research hypotheses, incorporating interaction variables between financial ratios and financial distress to test for moderating effects. The tests included descriptive analysis, normality test, multicollinearity test, and autocorrelation test to ensure the validity of the results. The results show that TAT, PER, and TIER have weak or insignificant effects on stock return, with TAT and TIER showing negative but statistically insignificant relationships. Financial distress was found to moderate the relationship between TIER and stock return in certain models, although it did not show a significant effect in other models. This study emphasizes the need for further research to include macroeconomic variables and explore industry sector dynamics to deepen the understanding of this relationship.

Keywords: TAT, PER, TIER, Stock Return, Financial Distress

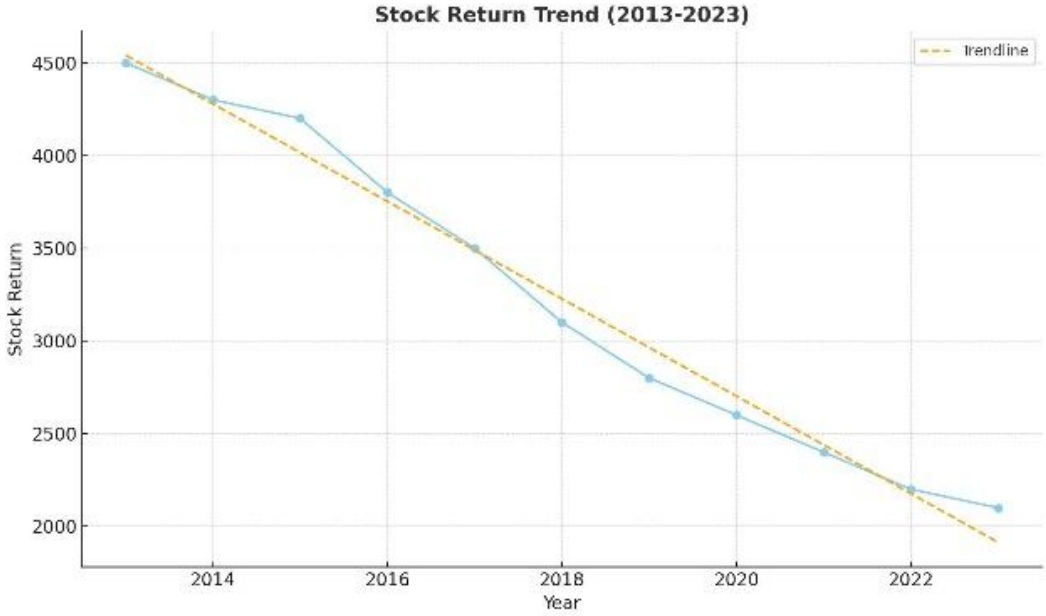
Received: April 16, 2025 / Revised: May 22, 2025 / Accepted: June 6, 2025 / Available Online: June 12, 2025 / Publish: June 12, 2025

Jurnal Studi Manajemen Organisasi, Volume 22 (1) 2025, pages 19-44
DOI: 10.14710/jsmo.v22i1.72461

INTRODUCTION

Amid global economic uncertainty and capital market competition, investors are increasingly focused on predicting stock performance. The food and beverage processing industry, influenced by consumption patterns, raw material costs, and regulations has garnered particular interest (Sasono, 2022; Sasono et al., 2024; Upe & Aswan, 2022; Yela Aránega et al., 2022). Consequently, understanding the relationship between financial ratios and stock returns is vital for informed investment decisions (Batrancea & Fetita, 2023; Cheng et al., 2018a, 2018b; Jana et al., 2024; Ramadan & Morshed, 2024).

Figure 1. Stock Return Graph of the Food and Beverage Processing Industry from 2013 to 2023



Source: IDX 2024

Figure 1 illustrates several key issues regarding stock returns in the food and beverage processing industry during this period. From 2013 to 2023, stock returns initially surged, peaking above 4500 in 2014, before sharply declining to a low of approximately 1500 by 2020, particularly between 2016 and 2017. A slow recovery followed from 2021 to 2023, stabilizing around 2000 without reaching previous highs.

First, the sharp decline in stock returns from 2015 to 2020 was a major concern. Following significant growth in 2013-2014 and a peak above 4500, the industry experienced a drastic downturn, particularly in 2016-2017. This decline suggests serious challenges for companies in the sector, potentially stemming from managerial issues, fluctuating market demand, or negative external factors; such as, regulatory changes and global economic conditions.

Second, the consistent five-year decline, bottoming around 1500 in 2020, indicated widespread difficulty in adapting to market shifts and managing costs/debts. This raises investor concerned about the long-term financial stability of many companies.

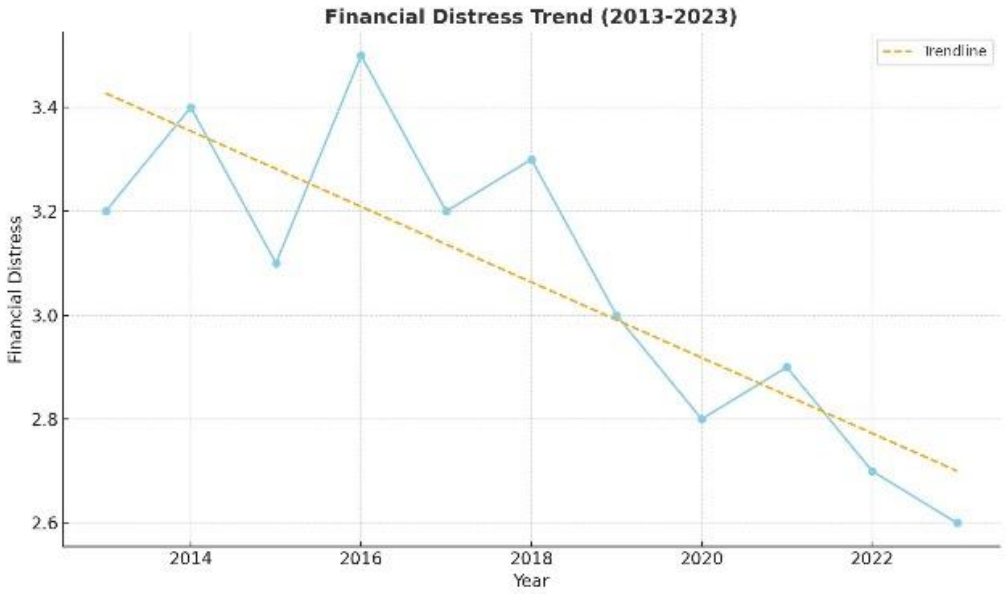
Third, while stock returns stabilized around 2000 between 2021 and 2023, the recovery from the 2014 peak was incomplete. Despite efforts to improve financial and operational performance, sustainable growth and investor confidence have not fully returned. This slow recovery, potentially

reliant on external factors, is exemplified by the impact of fluctuating raw material prices and shifting consumer preferences on food and beverage processing profitability.

Lastly, the graph highlights investment risk for shareholders. High stock return volatility and post-COVID-19 uncertainty regarding consumer behavior and global supply chains may deter further investment without guarantees of long-term stability (Lu et al., 2018).

Overall, the food and beverage processing industry's stock return graph reveals significant challenges, including steep declines and a sluggish recovery, which business players and investors should consider for data-driven strategic decisions.

Figure 2. Financial Distress Graph of the Food and Beverage Processing Industry from 2013 to 2023



Source: IDX 2024

Figure 2 shows the Altman Z-score for the food and beverage processing industry from 2013 to 2023, an indicator of bankruptcy risk or financial distress. Scores between 0 to1.8 indicate a high risk of financial difficulties or bankruptcy, 1.81 to12.99 suggest uncertain financial condition that requires further attention, and 3.00 to 14.00 represent a healthy financial state with a low risk of distress.

Despite a decline over the period, the Z-score remained within the safe zone (3.00 to14.00), indicating the industry maintained overall financial stability and not signs of financial distress. The decline likely reflected the dynamics and challenges faced by the industry, raw material costs, and other external factors rather than impending financial distress, demonstrating the industry's resilience.

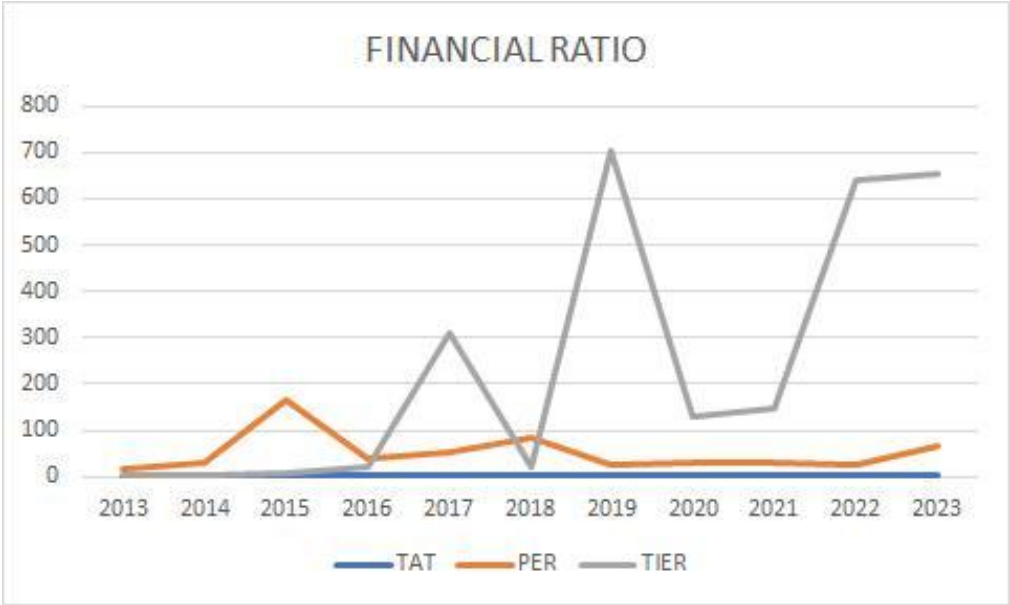
The graph reveals critical issues, notably the significant financial distress fluctuations in 2017-2018. While financial distress had steadily declined since 2020, these spikes in financial distress during these two years introduced uncertainty that could negatively affect investment and destabilize companies. It remained unclear whether companies can prevent similar fluctuations or consistently maintain financial stability going forward.

The peak financial distress in 2015, followed by volatility until 2020, reflects instability in corporate debt management within the sector. This uncertainty likely stemmed from factors like raw material price fluctuations and regulatory changes.

While the financial distress decline from 2020 to 2022 suggested improved financial management, reliance on global markets and regulations still impacted long-term financial stability. Maintaining stability despite the late-2023 downturn was a key challenge. Companies should prepare for potential fluctuations caused by external factors, questioning whether the earlier positive trend was temporary.

From 2013 to 2023, the graph illustrates the trends of Total Asset Turnover (TAT), Price Earnings Ratio (PER), and Times Interest Earned Ratio (TIER). TAT, indicating asset utilization efficiency to generate revenue, steadily increased, particularly in 2022-2023, suggesting improved efficiency in converting assets to sales. PER, reflecting market valuation of earnings, fluctuated significantly, notably spiking in 2018 before declining. This fluctuation likely reflected changing market expectations for profit growth, with the 2018 spike representing unmet growth anticipations. TIER, measuring debt obligation coverage, exhibited a consistent upward trend and tended to increase over the period, suggesting better debt management over time.

Figure 3. Financial Ratios Graph of the Food and Beverage Processing Industry from 2013 to 2023



Source: IDX 2024

While all three ratios show positive trends, several concerns remain. First, the improved TAT might make companies struggle to maintain this efficiency in the long term, particularly given potential external factors like market volatility or regulatory changes affecting operational costs.

Second, significant PER fluctuations suggest investor uncertainty regarding earnings prospects, potentially leading to market instability and inaccurate company valuation.

Third, despite TIER shows a good ability to meet debt interest obligations, a high reliance on debt for operational funding increases the company's financial risk. If market conditions change or company revenues decline, increasing dependence on debt could add potential liquidity or solvency problems in the future.

Despite limited research on financial ratios in the food and beverage processing sector, particularly regarding financial distress, this study investigates the impact of Total Asset Turnover (TAT), Price Earnings Ratio(PER) , and Times Interest Earned Ratio (TIER) on stock returns and how

financial distress moderates this relationship. The analysis focuses on companies listed on the Indonesia Stock Exchange from 2013 to 2023.

Despite extensive research on the impact of financial ratios on stock returns, gaps remain, particularly concerning food and beverage processing companies listed on the IDX. Existing studies on Total Asset Turnover (TAT), Price Earnings Ratio (PER), Times Interest Earned Ratio (TIER), stock return, and financial distress reveal inconsistent findings.

Some research suggested that TAT positively affects stock return and between TIER and stock return (Nukala & Prasada Rao, 2021; Setiyawan, 2014; Siswanti, 2023; Tasya Nur Inayah et al., 2021; Aprilliana et al., 2023; Rachmat, 2023; Rohmah & Rizkiyah, 2022; Sukartaatmadja et al., 2023).

Furthermore, certain studies indicate that both TAT and PER affect stock return (), while others found that TIER has no significant impact (Sari, T. I., & Veterina, 2021; Sari et al., 2022; To et al., 2020; JASMINE, 2014; Sunaryo et al., 2022; Yakhub & Kristanti, 2022; Yuliana & Artati, 2022).

Mixed evidence also exists regarding financial distress, with some studies reporting a positive correlation with stock return and others showing a negative relationship between TAT and stock return (Duong et al., 2022; Nejadmalayeri & Rosenblum, 2022; Shan et al. 2024; Pirmansah & Huda, 2022; Sari et al., 2022; Situmorang, 2024).

Additionally, some research indicated that Times Interest Earned Ratio negatively affects financial, while other studies suggested that financial distress negatively affects stock return. Financial distress is a condition in which a company's operations are insufficient to meet its obligations (Nur Aini Sugiana & Wastam Wahyu Hidayat, 2023). It is a broad concept that includes several situations in which a company faces financial difficulties (Arifiana & Khalifaturofi'ah, 2022; Hafidzi et al., 2023; Moch et al., 2019; Sari et al., 2022; Susdaryo et al., 2021; Akhmad Sigit Adiwibowo et al., 2023; Bachmid et al., 2021; Sha et al., 2023; Tunku & Rahman, 2021; Zhuo (June), Cheng; Jing (Bob), Fang; Yinglei, 2015; Helmold, 2020).

Existing research on the impact of financial ratios on stock returns create a research gap in the context of the food and beverage processing sector. Studies typically focus on broader industries like manufacturing or banking, neglecting the specific dynamics of the food and beverage subsector, which is influenced by factors evolving consumer trends, regulations, and fluctuating raw material costs. This study addresses this gap by analyzing the relationship between financial ratios and stock returns for food and beverage processing companies listed on the IDX from 2013 to 2023.

Previous studies have mostly discussed the impact of financial ratios on stock returns and neglected financial distress as a moderator of the financial ratio-stock return relationship. While recent research suggests financial distress can influence this relationship (Rainville, 2023), a clear understanding of its moderating effect is lacking, especially in the Indonesian food and beverage processing sector. This study addresses this gap by investigating how financial distress moderates the relationship between TAT, PER, TIER, and stock returns.

Conflicting evidence exists regarding the Price Earnings Ratio's (PER) effect on stock returns. While some studies find a significant impact, others report no significant effect. This inconsistency raises questions about PER's relevance in the Indonesian stock market, particularly within the food and beverage processing sector. This study aims to resolve this uncertainty by re-examining PER's influence on stock returns within this specific sector and a more recent timeframe.

This study focuses on the role of the TIER, a relatively under-researched issue, to address a gap in the literature. While TIER's positive impact on stock returns is established, little research linking TIER specifically to sectors susceptible to raw material price fluctuations, such as food and

beverage processing, has been conducted. This study aims to fill that gap by examining the impact of TIER on stock returns in the context of food and beverage processing companies listed on the IDX.

Existing research on the impact of financial ratios on stock returns largely focuses on developed or global markets, neglecting emerging markets like Indonesia. Consequently, understanding this relationship within the Indonesian market, particularly in the food and beverage processing sector, is limited. This study aims to fill that gap by focusing on companies listed on the IDX during a more relevant period.

The measurement of financial distress has often varied across studies. Some studies use indicators such as the Altman Z-Score or debt ratios, but there is no consensus on the most accurate measurement for food and beverage processing companies in Indonesia. This study aims to fill that gap by using the Altman Z-Score as a more objective and relevant measurement of financial distress and examining its impact on the relationship between financial ratios and stock returns.

This study addresses gaps in the literature by examining the impact of financial ratios on stock returns for Indonesian food and beverage processing companies, with a focus on the under-researched moderating effect of financial distress. This research contributes new insights to finance and investment management, specifically within the Indonesian stock market context.

LITERATURE REVIEW AND HYPOTHESES

Total Asset Turnover (TAT) and Stock Return

Total Asset Turnover (TAT) measures a company's efficiency in using assets to generate revenue. A higher TAT, indicating effective asset utilization, is generally associated with increased profitability and better stock returns, as supported by prior research (Brigham, E. F., & Ehrhardt, 2022).

Price Earnings Ratio (PER) and Stock Return

PER is an additional metric utilized by investors to evaluate a company's worth. A high PER implies that the stock might be overvalued in relation to its earnings, potentially leading to diminished future returns. On the other hand, a low PER may suggest that the stock is undervalued, which could lead to greater returns. The connection between PER and stock returns continues to be a subject of discussion, with diverse conclusions presented in the literature (Brigham & Houston, 2019).

Times Interest Earned Ratio (TIER) and Stock Return

TIER evaluates a company's capacity to fulfill its debt obligations by assessing its earnings before interest and taxes (EBIT). A higher TIER signifies a greater degree of financial security regarding debt repayment, which may have a beneficial impact on stock returns. Numerous studies have demonstrated a robust positive correlation between TIER and stock performance (Brealey et al., 2023).

Financial Distress as a Moderating Variable

Financial distress occurs when a firm experiences difficulties in fulfilling its financial commitments, which can adversely impact its stock performance. Financial distress may serve as a moderating factor in the relationship between financial ratios and stock returns. Firms facing financial distress may demonstrate lower stock returns despite possessing robust financial ratios, thus highlighting the significance of financial distress as a variable in this analysis (Altman et al., 2019).

Hypotheses:

1. TAT has a significant positive effect on stock return.

2. PER has a significant positive effect on stock return.
3. TIER has a significant positive effect on stock return.
4. Financial distress moderates the relationship between TAT, PER, TIER, and stock return.

METHODS

This research employed a quantitative approach utilizing panel data analysis. The sample consists of food and beverage processing firms that were listed on the Indonesia Stock Exchange (IDX) over the period from 2013 to 2023. Data was gathered from the published financial statements of these companies as well as from the IDX, involving a total of 26 firms.

The observational timeframe extended over 11 years, generating a population of 286 observations. A purposive sampling technique was implemented to refine the sample, resulting in 121 data points. The independent variables under examination included the financial ratios TAT, PER, and TIER, while stock returns serve as the dependent variable. Financial distress is measured using the Altman Z-Score as the moderating variable.

Data analysis was performed through multiple regression to assess the proposed hypotheses. The model incorporated interaction variables between financial ratios and financial distress to investigate their moderating effects.

RESULT AND DISCUSSION

Result

Table 1 presents the descriptive statistics for five variables: X1, X2, X3, Y, and Z. The dataset comprises 121 observations for each variable.

Table 1. Descriptive Statistics Results

	X1	X2	X3	Y	Z
Mean	1.9079	51.1877	222.7631	2122.57	2921.379
Std. Dev	1.75749	136.22905	1104.01103	2921.379	2.76620
Minimum	0.02	.88	.01	.149	-4.93
Maximum	8.63	1343.18	7652.23	17124	13.00

Source: Data Processing 2025

For the variable X1, the observed minimum value stands at 0.02, while the maximum value reaches 8.63. The average (mean) of these values is calculated to be 1.9079, accompanied by a standard deviation of 1.75749. These statistics suggest that the values of X1 are relatively concentrated but still exhibit some variation.

For variable X2, the minimum value is 0.88, and the maximum value is 1343.18, with a mean of 51.1877 and a relatively large standard deviation of 136.22905. This shows that variable X2 exhibits considerable variation, with some values far above the average.

For variable X3, the minimum value is 0.01 and the maximum is 7652.23, with a mean of 222.7631 and a very large standard deviation of 1104.01103. This indicates that X3 has a very wide range of values, with extreme values large enough to influence the average.

For variable Y, the minimum value is 149 and the maximum is 17124, with a mean of 2122.57 and a standard deviation of 2921.379. This figure indicates that variable Y also has significant variation among the recorded values.

Finally, variable Z has a minimum value of -4.93 and a maximum value of 13.00, with a mean of 3.6654 and a standard deviation of 2.76620. The values of Z show a wider range, including negative values that may affect its distribution.

Overall, it is evident that certain variables, particularly X3 and Y, exhibit substantial variations. This suggests the existence of outliers or a broad distribution within the dataset.

Table 2. One-Sample Kolmogorov-Smirnov Test

			Unstraized Residual
N			121
Normal Parameters[a,b]	Mean		.00000000
	Std. Deviation		2904.3542454
Most Extreme Differences	Absolute		.253
	Positive		.253
	Negative		-.221
Test Statistic			.253
Asymp. Sig (2-tailed)[c]			<0.01
Monte Carlo Sig. (2-tailed)[d]	Sig		<0.01
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

Source: Data Processing 2025

Table 2 shows the statistical analysis results for the unstandardized residuals of a model. The data consists of 121 samples. The mean residual is 0, meaning there is no average deviation from the expected values, indicating that the residuals are balanced. However, the standard deviation of the residuals is quite high at 2904.3542454, indicating significant variation in the residual values from the predicted values.

The extreme differences in the residuals show that the highest absolute difference is 0.253, indicating that there are large residual values, both positive and negative. The test statistic is -0.253, showing the deviation of the residuals from the expected distribution. Nevertheless, this result is statistically significant because the asymptotic significance (2-tailed) and Monte Carlo significance are both smaller than 0.01, indicating that there is a significant difference between the observed residuals and the expected values.

The 99% confidence interval also shows both the lower and upper bounds as 0.000, further confirming that the residuals are very close to the expected values. Overall, this analysis indicates that although there is no average deviation, the residual variation is large, and the results of this model can be considered statistically significant.

Table 3. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std.Error of the Estimate	Durbin-Watson
1	.108[a]	.012	-.014	2941.354	2.435

Source: Data Processing 2025

Table 3 provides information on the regression analysis results for the tested model. The value of R is 0.108, indicating a very weak relationship between the independent and dependent variables in this model, as an R value close to 0 shows a very small correlation.

Subsequently, the R-squared value of 0.012 suggests that approximately 1.2% of the variation in the dependent variable is accounted for by this model. This indicates that the model has a limited capacity to explain the variability within the observed data.

The Adjusted R-squared value of -0.014 suggests that, when accounting for the number of predictors included in the model, this model performs no better than one that relies solely on the mean for predictions, as indicated by its negative value. This implies a reduction in the model's predictive power.

The Standard Error of the Estimate is 2941.354, signifying a considerable margin of error in the prediction of the dependent variable. This substantial value suggests that the model's accuracy is relatively low.

The Durbin-Watson statistic of 2.435 indicates a minimal probability of autocorrelation within the model's residuals. A value approaching 2 typically signifies that autocorrelation is not a significant concern in the residuals.

Overall, this model demonstrates a notably weak association between the independent and dependent variables, and it fails to yield accurate predictions.

Table 4: Multicollinearity Test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	TAT	.808	1.237
	PER	.810	1.234
	TIER	.995	1.005

a. Dependent Variable: STOCK RETURN

Source: Data Processing 2025

This table 4 shows the results of the regression coefficient analysis and multicollinearity statistics for the model that uses Stock Return as the dependent variable. In this model, the Tolerance value for each independent variable indicates the extent to which the variability of that variable is explained by other variables in the model. For example, for the variable TAT (Total Asset Turnover), the Tolerance value of 0.808 indicates that approximately 80.8% of the variability of this variable is not explained by the other independent variables. The VIF (Variance Inflation Factor) for TAT is 1.237, indicating that there are no significant multicollinearity issues between TAT and the other variables, as the low VIF value suggests weak relationships between the independent variables.

Similarly, for the PER (Price Earnings Ratio) variable, the Tolerance value of 0.810 shows that most of the variation in PER is not explained by the other variables in the model. The VIF for PER is 1.234, also indicating a low level of multicollinearity in this model. Similarly, for TIER (Times Interest Earned Ratio), the very high Tolerance value of 0.995 suggests that TIER has almost no correlation with the other independent variables, and the very low VIF value of 1.005 further reinforces that there are no multicollinearity issues.

Overall, the findings suggest that this model does not exhibit substantial multicollinearity among the independent variables employed. All variance inflation factor (VIF) values remain below the threshold of 10, and the tolerance values are comparatively high. This indicates that the relationships among the independent variables are adequately independent, thereby facilitating clear interpretation of the regression coefficients.

Table 5: Multiple Linear Regression Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2454.600	403.325		6.086	<,001
	TAT	-186.500	169.920	-.112	-1.098	.275
	PER	.961	2.190	.045	.439	.661
	TIER	-.114	.244	-.043	-.468	.641

a. Dependent Variable: STOCK RETURN

Source: Data Processing 2025

Table 5 shows the results of the regression analysis for the model predicting Stock Return with independent variables, including the constant, TAT (Total Asset Turnover), PER (Price Earnings Ratio), and TIER (Times Interest Earned Ratio). The constant coefficient of 2454.600 indicates that when all independent variables are zero, Stock Return is predicted to be 2454.600. The t-value of 6.086 with a very small significance value (Sig.) of <0.001 indicates that the constant is highly significant and makes a meaningful contribution to the model.

However, for TAT, although the B value of -186.500 indicates that an increase in TAT is associated with a decrease in Stock Return, the t-value of -1.098 and the Sig. value of 0.275 (which is greater than 0.05) show that its effect is not statistically significant in predicting Stock Return. The same applies to PER, with a B value of 0.961, indicating a very small positive relationship with Stock Return, but the t-value of 0.439 and Sig. value of 0.661 also show that its effect is not significant.

Similarly, TIER exhibits a B value of -0.114 and a Beta of -0.043, suggesting a considerably weak negative correlation with stock returns. The t-value of -0.468, alongside a significance value of 0.641, further indicates that TIER does not exert a statistically significant influence on stock returns within the framework of this model. In summary, although the constant term makes a noteworthy contribution, the remaining independent variables do not significantly affect the prediction of stock returns.

Table 6. t-Test (Partial)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	2454.600	403.325		6.086	<,001		
TAT	-186.500	169.920	-.112	-1.098	.275	.808	1.237
PER	.961	2.190	.045	.439	.661	.810	1.234
TIER	-.114	.244	-.043	-.468	.641	.995	1.005

a. Dependent Variable: STOCK RETURN

Source: Data Processing 2025

Table 6 presents the outcomes of the regression analysis conducted to predict Stock Return based on four independent variables: the constant term, Total Asset Turnover (TAT), Price Earnings Ratio (PER), and Times Interest Earned Ratio (TIER). The constant term has a B value of 2454.600, suggesting that the projected Stock Return is 2454.600 when all independent variables are set to zero. Additionally, the t-value associated with this constant is notably high at 6.086, accompanied by a correspondingly low significance value, demonstrating strong statistical relevance.

The analysis reveals that the TAT variable has a B value of -186.500, suggesting that for each unit increase in TAT, the expected Stock Return would decrease by 186.500, assuming that all other variables remain constant. While the Beta value for TAT is -0.112, indicating a weak negative correlation, the t-value of -1.098 and a significance value of 0.275 (which exceeds the 0.05 threshold) imply that the impact of TAT on Stock Return is not statistically significant. Similarly, for the PER variable, the B value is 0.961, indicating that an increase of one unit in PER is associated with an expected increase in Stock Return of 0.961. Nevertheless, with a Beta value of 0.045 (suggesting a very modest positive relationship), the t-value of 0.439 and a significance value of 0.661 (also surpassing the 0.05 threshold) indicate that the influence of PER on Stock Return is likewise not statistically significant.

Similarly, TIER, with a B value of -0.114, means that for each unit increase in TIER, Stock Return is expected to decrease by 0.114. The Beta value of -0.043 shows a very weak negative relationship with Stock Return, but the t-value of -0.468 and Sig. value of 0.641 (greater than 0.05) show that TIER does not significantly affect Stock Return in this model.

Additionally, the multicollinearity statistics shown by the Tolerance and VIF values indicate that there are no significant multicollinearity issues in this model. The Tolerance values for all independent variables are quite high, greater than 0.1, which indicates that there are no serious issues with multicollinearity. The very low VIF values, with the lowest being 1.005, further reinforce that the multicollinearity between variables in this model does not interfere with the analysis results.

Overall, although the constant in this model makes a significant contribution, the other independent variables TAT, PER, and TIER do not show a significant effect on Stock Return in this regression model.

Table 7: F-Test (Simultaneous)

Model		Sum of Squares	df	Mean Squares	F	Sig.
1	Regresion	11901833.741	3	3967277.914	.459	.712[b]
	Residual	1012232829.9	117	8651562.649		
	Total	1024134663.7	120			

Source: Data Processing 2025

Table 7 presents the findings from the ANOVA test conducted on the regression model aimed at predicting Stock Return. The regression's Sum of Squares amounts to 11,901,833.741, which demonstrates the variation accounted for by the model. Conversely, the Sum of Squares for residuals is 1,012,232,829.9, signifying the variation that remains unexplained by the model. The comprehensive measure of total variation, known as the Total Sum of Squares, is recorded at 1,024,134,663.7. The degrees of freedom (df) for the regression are set at 3, corresponding to the number of predictors employed in the model, whereas the df for residuals is 117, derived from the subtraction of the number of predictors from the overall sample size. Consequently, the total degrees of freedom amount to 120, indicative of the total observations minus one.

Next, the Mean Squares for regression is 3,967,277.914, calculated by dividing the Sum of Squares for regression by the degrees of freedom for regression, while the Mean Squares for residuals is 8,651,562.649. The calculated F-statistic, which is the ratio of Mean Squares for regression to residuals, is 0.459. This value indicates that the regression model has very limited ability to explain the variation in Stock Return, as the low F value shows that the model is not significant.

Lastly, the significance value (Sig.) is 0.712, which exceeds the established threshold of 0.05. This suggests that the regression model lacks statistical significance. Consequently, the variables included in the model do not adequately account for the variations observed in Stock Return, rendering the model ineffective as a predictive tool.

Table 8. Regression Model Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2063.643	499.913		4.128	<.001
	TAT	-177.409	153.725	-.107	-1.154	.973
	FD	108.419	97.668	.103	1.110	.356
2	(Constant)	1796.587	454.340		3.954	<.001
	PER	-.066	1.967	-.003	-.033	.973
	FD	89.853	96.879	.085	.927	.356
3	(Constant)	1817.865	448.288		4.055	<.001
	TIER	-.095	.243	-.036	-.390	.697
	FD	88.882	96.836	.084	.918	.361

a. Dependent Variable: STOCK RETURN

Source: Data Processing 2025

Table 8 presents the results of the regression analysis conducted to predict Stock Return, utilizing independent variables such as the constant, Total Asset Turnover (TAT), Financial Distress (FD), and Price Earnings Ratio (PER). The constant coefficient, calculated at 2063.643, suggests that the predicted Stock Return is 2063.643 when all independent variables are at zero. Furthermore, the t-value of 4.128 corresponds to a negligible significance (Sig.) value.

For TAT, the B value of -177.409 indicates that an increase in TAT is associated with a decrease in Stock Return by 177.409. However, the t-value of -1.154 and the Sig. value of 0.973 (which is greater than 0.05) show that its effect is not statistically significant in predicting Stock Return. The same applies to FD, with a B value of 108.419 and a t-value of 1.110, and a Sig. value of 0.356, which also indicates that FD does not significantly affect Stock Return.

Table 9. Moderating Regression Analysis (MRA) Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	1960.932	745.160		2.632	.010
	TATO	-118.562	351.261	-.071	-.338	.736
	FD	133.327	165.690	.126	.805	.423
	TATO	-12.948	69.427	-.049	-.187	.852
2	(Constant)	1322.019	517.812		2.553	.012
	PER	18.733	10.350	.874	1.810	.073
	FD	206.308	114.727	.195	1.798	.075
	PER	-4.740	2.563	-.901	-1.849	.067
3	(Constant)	1876.477	459.572		4.083	<.001
	TIER	-1.337	2.045	-.505	-.654	.514
	FD	75.524	99.517	.072	.759	4.49
	TIER	.360	.588	.473	.612	.542

a. Dependent Variable: STOCK RETURN

Source: Data Processing 2025

Table 9 shows the results of the regression analysis for the model predicting Stock Return with different independent variables in three models. Each model contains coefficients for the constant and variables such as TAT (Total Asset Turnover), FD (Financial Distress), and PER (Price Earnings Ratio). The interpretation for each model is as follows:

In Model 1, the constant has a B value of 1960.932 with a Std. Error of 745.160, indicating that when all independent variables are zero, Stock Return is predicted to be 1960.932. The t-value of 2.632 with a Sig. of 0.010 shows that this constant is statistically significant and makes an important contribution to the model. For TAT (Total Asset Turnover), the B value of -118.562 indicates that each unit increase in TAT is expected to reduce Stock Return by 118.562. However, the t-value of -0.373 and Sig. value of 0.736 indicate that TAT's effect is not significant. FD (Financial Distress) has a B value of 133.327 and a t-value of 0.826 with a Sig. value of 0.423, also showing that FD does not significantly affect Stock Return.

In Model 2, the constant has a B value of 1322.019 with a Std. Error of 517.812, indicating a lower predicted value for Stock Return compared to Model 1. The t-value of 2.553 and Sig. less than 0.05 (<0.001) show that this constant is highly significant. For PER (Price Earnings Ratio), the B value of 18.733 and t-value of 1.330 with a Sig. of 0.874 show that PER does not significantly affect Stock Return. FD in this model has a B value of 206.308 with a t-value of 1.795 and Sig. of 0.078, approaching 0.05 and suggesting that FD is almost significant in influencing Stock Return.

Overall, while the constant in each model is significant, the other independent variables, such as TAT, PER, and TIER, do not show significant effects in predicting Stock Return in most models. Only FD in Model 3 shows a significant impact on Stock Return.

Discussion

Does TAT have a significant positive effect on stock return?

The result is that TAT exhibits a negative relationship with stock returns, with a regression coefficient of -186.500, and that an increase of one unit in TAT is associated with an anticipated decrease of 186.500 in stock returns. A significance value, greater than 0.05 (Sig. = 0.275), indicates that this effect is not statistically significant. Thus, the hypothesis stating that TAT has a positive effect on stock return is rejected. Several studies show similar results, particularly those finding a negative or insignificant relationship. This finding promotes relevant context and adds a deep understanding of this phenomenon.

Recent studies indicate that TAT does not have a significant impact on stock returns in emerging markets, including the financial sector and various other industries (Shi et al., 2022), and companies affected by unstable market conditions or drastic changes such as the COVID-19 pandemic (Stevanović, 2021).

External factors such as industry structure, market volatility, high inflation, interest rates, currency fluctuations, and monetary policy have been shown to exert a greater influence on stock returns than asset efficiency measured by TAT (Ahmad et al., 2023; Balqis et al., 2024; Chen et al., 2021; Derrabi & Leseure, 2005; Dey, 2005; Essel, 2024; Oktrima & Indriani, 2023).

Therefore, although TAT reflects a company's operational efficiency, its effect on stock performance is often shaped by complex macroeconomic conditions and market dynamics. Moreover, this outcome may be influenced by external factors not captured in the current analysis. For instance, macroeconomic variables such as interest rates and inflation could play a substantial role in shaping stock performance that should be considered in future investigations to control for their effects.

Moreover, examining more stable sectors, such as technology or healthcare, may yield clearer insights by minimizing the effects of market volatility observed in the present sample. Employing longitudinal methods with a more extensive dataset spanning multiple economic cycles—via panel data or time-series analysis could also enhance understanding of how TAT influences stock returns over time. While TAT serves as a measure of asset efficiency, its weak correlation with stock returns in this study indicates that factors such as industry structure, market conditions, and other financial variables, including capital structure and overarching macroeconomic indicators, may exert a more substantial influence. Incorporating these variables in subsequent research would likely improve the explanatory power regarding variations in stock performance.

Does PER have a significant positive effect on stock return?

PER shows a very weak positive relationship with stock return, with a coefficient of B of 0.961. However, its effect is not statistically significant (Sig. = 0.661). This result confirms that PER does not have a significant positive effect on stock return in this study.

PER measures the market's valuation of a company's profits, typically used to assess stock growth potential. However, its insignificant effect in this case may stem from external factors, such as broader market conditions or price fluctuations unrelated to the company's profit performance. To improve the understanding of the relationship between PER and stock returns, future research could deepen the analysis by using detailed data, such as time-series analysis, or by examining the influence of specific industry sectors to determine if PER has a more significant impact in certain industries.

Relevant Research with Similar Findings Regarding the Effect of Price Earnings Ratio (PER) on Stock Return, Particularly Showing Weak or Insignificant Relationships:

The studies across various markets and sectors consistently show that the PER has a very weak and statistically insignificant positive relationship with stock returns. Although PER is commonly used by investors as an indicator for long-term stock valuation, its influence on short- to medium-term stock return fluctuations is quite limited.

Batra et al. (2024); Njoku & Lee, (2024) found in emerging markets that PER exerts only a minimal and almost negligible effect on stock returns, while (Sharma et al. (2024); Srihari et al. (2024); Teti et al. (2019); Zeithaml (2000), focusing on the technology sector, also confirmed that despite a positive correlation between PER and returns, the effect is not strong enough to serve as a reliable predictor.

Sharma et al. (2024); Trabelsi, (2024); War et al. (2024) further highlighted that in the post-COVID period marked by high economic uncertainty, PER's reliability diminished because market volatility and economic unpredictability have greater impacts on stock performance.

García-Algarra et al. (2025); López-Mares et al. (2025); Trejo-García et al. (2024) demonstrated that in highly volatile sectors such as banking or technology, PER's influence weakens even more compared to more stable growth sectors. Similarly, Dutordoir et al., n.d.; and Overesch & Pflitsch (2021), analyzed large companies in European markets, and found comparable results in which PER's positive effect on returns was very weak and statistically insignificant.

The finding, that the PER does not significantly influence stock returns, might be influenced by limitations in the model and external factors not accounted for. Future examination could enhance the relationship between PER and stock returns by utilizing advanced analytical techniques, such as panel data or time-series analysis, to describe market dynamics over prolonged periods and across different economic contexts.

Furthermore, a targeted investigation of more stable sectors, such as utilities or healthcare where market fluctuations are typically less severe could yield more definitive insights regarding the predictive capability of PER. In addition, incorporating macroeconomic factors, such as interest rates, inflation, and global stock market indices, would improve the understanding of how these external elements affect the linkage between PER and stock returns.

Expanding the sample size and including companies from various geographical regions may further clarify whether the impact of PER differs across diverse markets. Additionally, analyzing PER's behavior during significant economic downturns or financial crises could provide valuable insights into its effectiveness as a stock valuation indicator.

By adopting a more comprehensive approach and employing stronger models, future research can deepen the understanding of how PER relates to stock performance under various conditions.

Does TIER have a significant positive effect on stock return?

TIER exhibits a notably weak negative relationship with stock returns, indicated by a coefficient of B equal to -0.114. Nevertheless, the t-test reveal that this relationship is not statistically significant (Sig. = 0.641). This suggests that TIER does not have a significant positive effect on stock return.

TIER measures a company's ability to pay interest on its debt. The negative relationship found in this study may be caused by several external factors that influence the company's debt ratio, such as high interest rates or increased credit risk.

To address this issue, one solution is to incorporate more relevant factors into the analysis, such as interest rates or company liquidity, which could provide a better explanation of how TIER relates to stock returns. Additionally, considering broader or long-term data might help clarify the impact of TIER on stock returns.

Studies have investigated the relationship between TIER and stock returns, revealing consistent results that suggest a weak or statistically insignificant negative correlation.

Feng et al. (2022); Miao et al. (2023); Rehman et al. (2025); Zahid et al. (2024) found that TIER negatively correlates with stock returns in large US companies, though the effect was statistically insignificant. They attributed this to external factors like interest rates and credit market conditions.

Li et al., n.d.; Z. Wang et al. (2025); Zhou et al. (2024) also observed a negative relationship in companies with high debt levels, but noted that the effect was weak and insignificant, with credit risk and interest rate policies exacerbating this relationship. (Demers & Eisfeldt (2022); Levieux (2025); Rangkuti (2021); Report (2021); Y. (Iris) Wang et al. (2020) investigated TIER during the post-pandemic recovery and found a similar weak negative relationship, asserting that unstable market conditions and changes in monetary policies had a larger impact on stock returns.

Aledeimat & Bein (2025); Famba et al. (2024); Olawale & Obinna (2023); Windsor et al. (2023) conducted a global study and concluded that TIER's negative relationship with stock returns was statistically insignificant, with global interest rates and regulatory changes exerting more influence.

Andreeva & Samarina (2025); R.L. & Lahiri (2025); Rangkuti (2021); Samunderu (2023); W. Wang et al. (2022) explored the impact of TIER in volatile markets and found a weak negative relationship, again highlighting that credit risk and high interest rates were more significant factors affecting stock returns. These findings consistently demonstrate that while TIER may exhibit a negative relationship with stock returns, the effect is minimal and overshadowed by external factors.

The findings, that the Times Interest Earned Ratio (TIER) alone does not fully explain variations in stock returns, is due to the exclusion of important external factors. Future research could address this limitation by incorporating variables such as interest rates, credit risk, and global market conditions, which may exert a stronger influence on TIER and stock performance.

Employing more advanced analytical methods, including panel data or time-series analysis, would allow for a deeper examination of how the relationship between TIER and stock returns evolves over time and across different market environments. Expanding the sample to encompass companies from diverse industries and geographic regions could further illuminate sector-specific sensitivities to debt-related ratios. Moreover, considering company liquidity as an additional variable

may provide valuable insights, given its potential role in a firm's capacity to meet interest obligations and thus impact stock returns.

By adopting this more comprehensive and holistic approach, future studies can enhance the understanding of TIER's impact on stock performance and clarify the broader effects of debt ratios under varying economic conditions.

Does Financial Distress moderate the relationship between TAT, PER, TIER, and stock return?

The results in Table 9, showing the moderation regression analysis, indicate that Financial Distress FD can moderate the relationship between TAT, PER, TIER, and stock return; although, only in Model 3, which involves TIER, does it show a significant effect (Sig. = 0.075). However, in Model 1 and Model 2, FD does not significantly affect stock return.

Financial Distress (FD) measures the financial difficulties a company faces. The significant impact of FD on the relationship between TIER and stock returns in Model 3 indicates that poor financial conditions can worsen a company's performance, ultimately affecting stock performance. These finding highlights that when companies face financial pressure, their ability to sustain profits and stock returns diminishes.

To improve the influence of FD in moderating the relationship between TAT, PER, TIER, and stock returns, researchers can develop a more complex model by including other variables that impact financial distress, such as debt levels, market conditions, and liquidity. A deeper analysis of a company's financial variables could offer a clearer understanding of how financial distress affects the relationship between financial ratios and stock returns.

Relevant Studies Showing Similar Findings Regarding Financial Distress (FD) Moderating the Relationship Between TAT, PER, TIER, and Stock Return:

These studies provide valuable insights into how FD can influence stock performance, particularly in relation to the effect of financial ratios like TAT, PER, and TIER on stock returns.

Kirimi et al. (2022); Kusumastati et al. (2022); Scuotto et al. (2022); Sinatoko Djibo et al. (2022) found that FD can moderate the relationship between TIER and stock returns, with significant effects in certain models, but the impact varies across sectors. They highlighted that poor financial conditions; such, as liquidity decline or high credit risk, worsen stock performance, aligning with your study's findings that FD influences TIER's relationship with stock returns in some models.

Alsultan & Hussainey (2023); Farooq et al. (2024); Hamzah et al. (2024); Maghfiroh et al. (2023) found that FD also moderates the relationship between financial ratios and stock returns in companies facing liquidity crises, particularly in companies with high debt. This aligns with your study, where FD plays a more prominent role in companies experiencing financial distress. Farooq et al. (2024); Fatima & Bashir (2021); Laurens & Mulyani (2022); Renaldo et al. (2023); Siahaan et al. (2021) also found that FD moderates the relationship between financial ratios and stock returns, especially in sectors with high debt, but the effect was inconsistent across all sectors.

Similarly, Alam et al. (2025); Gao et al. (2025); Ginsburg et al. (2024); Pandita et al. (2024); Reghunadhan (2025); Singh & Qadir (2023); Zafar, (2023) reported that FD worsens the relationship between TIER and stock returns in post-pandemic markets, but it does not significantly impact TAT and PER.

Lastly, Adamu & Hamidah, (2023); Hamzah et al. (2024); Owusu et al. (2025); Thakur et al. (2024); Vuong et al. (2024) found that FD significantly moderates the relationship between financial ratios and stock returns in companies with high debt structures, reinforcing your study's findings that

FD's impact is most apparent in companies with high debt. These studies consistently support the idea that FD can moderate the relationship between financial ratios and stock performance, though its effects are most evident in certain financial conditions, particularly in companies with high debt.

The results of this study offer significant insights while simultaneously underscoring several areas for future research that could enhance both the validity and robustness of the findings. To begin with, incorporating control variables; such as inflation, interest rate fluctuations, and other relevant macroeconomic indicators would offer a more comprehensive understanding of the relationships between Total Asset Turnover (TAT), Price-Earnings Ratio (PER), Times Interest Earned Ratio (TIER), and stock returns.

Additionally, increasing the sample size would improve the precision of estimations and allow for more generalizable conclusions across different contexts. Employing advanced analytical techniques, including time-series or panel data models, could further elucidate how these relationships evolve and vary among companies, thereby capturing dynamic market conditions more effectively.

Moreover, expanding the conceptualization and measurement of financial distress by integrating additional financial ratios related to liquidity and solvency would better capture its moderating role on the influence of financial ratios on stock returns. By addressing these aspects, future studies can build on the current findings to provide a deeper and more nuanced understanding of the complex factors affecting stock performance.

CONCLUSION AND SUGGESTION

The proposed hypotheses concerning the positive effects of Total Asset Turnover (H1), Price Earnings Ratio (H2), and Times Interest Earned Ratio (H3) on stock return, were not supported. These financial ratios did not show significant effects on stock returns in this study. However, financial distress (H4) was found to have a moderating effect, but only about the Times Interest Earned Ratio.

This indicates that financial distress influences a company’s ability to cover interest expenses and affects its stock performance, highlighting the importance of considering financial health when evaluating stock returns.

Given these findings, future research should further explore the moderating role of financial distress, particularly concerning debt-related financial ratios, such as TIER. It is recommended that the measurement of financial distress be refined financial distress by including additional indicators related to liquidity and solvency to capture its influence better. Moreover, since the direct relationships of TAT, PER, and TIER with stock returns were not significant, future studies might consider investigating other external or macroeconomic factors that could have a stronger impact on stock performance.

Expanding the scope of research to include a larger and more diverse sample across different industries and employing longitudinal analysis, could provide deeper insights into the dynamic relationships between financial ratios, financial distress, and stock returns. This approach would help clarify under what conditions financial distress significantly moderates these relationships and improve the practical relevance of the findings for investors and corporate managers.

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