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Determinants of Financial Distress: The Moderating Role of Company Size in Food and Beverage Manufacturing Companies Listed on the Indonesia Stock Exchange

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ABSTRACT

The development of the manufacturing sector plays a crucial role in supporting national economic growth. As a major contributor to Gross Domestic Product (GDP), the manufacturing sector—specifically the food and beverage industry—accounted for 39.10% of the non-oil and gas processing industry's GDP and approximately 6.55% of the national GDP in 2023. Furthermore, the sector grew by 4.47% in 2023, having successfully recovered from the impact of the COVID-19 pandemic. Consequently, this study aims to analyze the factors influencing financial distress among food and beverage manufacturing companies listed on the Indonesia Stock Exchange (IDX). Financial ratios serve as vital tools for objectively assessing a company's condition, covering aspects such as liquidity, solvency, profitability, and operational efficiency. This research examines the impact of solvency, company growth, inflation, and corporate governance on financial distress, with company size acting as a moderating variable, using data from manufacturing companies listed on the IDX between 2020 and 2024. A purposive sampling method was employed, resulting in a sample of 23 companies. The study's findings indicate that: (1) solvency has a significant negative effect on financial distress; (2) company growth, inflation, and corporate governance do not affect financial distress; and (3) company size does not moderate the relationship between the independent variables and financial distress.

Keywords: *Financial Distress, Solvency, Growth, Inflation, GCG, Firm Size*

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1. INTRODUCTION

The manufacturing sector plays an important role in supporting Indonesia's economic development. As one of the main contributors to national economic activity, the manufacturing sector contributes substantially to gross domestic product (GDP), employment generation, industrial production, and export activities. The ability of manufacturing companies to transform raw materials into products with higher economic value makes this sector an important driver of economic growth and national development. Consequently, the financial condition and sustainability of manufacturing companies have become important concerns for various stakeholders, including investors, creditors, government institutions, management, and other interested parties. A company's ability to maintain financial stability is particularly important because financial difficulties may affect not only the continuity of individual companies but also employment, investment, supply chains, and broader economic activity.

One of the important subsectors within the Indonesian manufacturing industry is the food and beverage industry. The food and beverage industry has a relatively strategic position because it produces goods that are closely related to the daily needs of society. The demand

for food and beverage products tends to remain relatively stable compared with other types of consumer goods, making this industry one of the sectors with significant potential for continued growth. The Ministry of Industry reported that in 2023, the food and beverage industry contributed 39.10% to the GDP of the non-oil and gas processing industry and approximately 6.55% to national GDP. Furthermore, the industry recorded growth of 4.47% in 2023 after recovering from the economic pressures caused by the COVID-19 pandemic. These developments demonstrate the strategic role of the food and beverage industry in maintaining economic activity and supporting Indonesia's manufacturing sector.

The positive performance of the food and beverage industry continued into 2024. According to the Ministry of Industry, the food and beverage industry grew by 5.53% in the second quarter of 2024 and accounted for 40.33% of the GDP of the non-oil and gas processing industry. This performance positioned the food and beverage industry as one of the leading subsectors supporting Indonesia's economic growth. The increasing contribution of the industry indicates that the sector has considerable economic potential and remains attractive for business development and investment. Nevertheless, positive aggregate industry performance does not necessarily mean that all companies within the sector experience sound financial conditions. Differences in financial structure, operational efficiency, cost management, business strategies, and corporate governance may result in different levels of financial performance and financial risk among companies operating within the same industry.

2. METHODS

This research examines the impact of solvency, company growth, inflation, and corporate governance on financial distress, with company size acting as a moderating variable, using data from manufacturing companies listed on the IDX between 2020 and 2024. A purposive sampling method was employed, resulting in a sample of 23 companies.

3. RESULTS AND DISCUSSION

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
X1	115	.04	8.74	1.0648	1.41687
X2	115	-.64	3.16	.1319	.36667
X3	115	-.24	.06	-.0420	.11010
X4	115	.00	.91	.0879	.19375
Z	115	13.62	31.02	21.7335	5.84506
Y	115	-2.97	29.87	6.0667	5.32927
Valid N (listwise)	115				

Source: Processed Secondary Data (2026)

a. The Solvency variable has a mean value of 1.0648, with a minimum value of 0.04 (PT Akasha Wira International Tbk, 2022) and a maximum of 8.74 (PT Sariguna Primatama Tbk, 2021). The standard deviation of 1.41687 indicates relatively high data variation and a tendency for the data to be heterogeneous.
b. The Company Growth variable has a mean value of 0.1319, with a minimum value of -0.64 (PT Dua Putra Utama Makmur Tbk, 2020) and a maximum of 3.16 (the same company, 2022). The standard deviation of 0.36667 indicates relatively high data variation and a tendency for the data to be heterogeneous.
c. The Inflation variable has a mean value of -0.0420, with a minimum value of -0.24 (2020) and a maximum of 0.06 (2022). The standard deviation of 0.11010 indicates relatively high data variation and a tendency for the data to be heterogeneous.

d. The Corporate Governance variable has a mean value of 0.0879, with a minimum value of 0.00 (PT Salim Ivonas Pratama Tbk, 2024) and a maximum of 0.91 (PT Akasha Wira International Tbk, 2024). The standard deviation of 0.19375 indicates relatively high data variation and a tendency for the data to be heterogeneous.
e. The Firm Size variable has a mean value of 21.7335, with a minimum value of 13.62 (PT Akasha Wira International Tbk, 2024) and a maximum value of 31.02 (PT Mayora Indah Tbk, 2024). The standard deviation of 5.84506 indicates that the data exhibits relatively high variation and tends to be heterogeneous.
f. The Financial Distress variable has a mean value of 6.0667, with a minimum value of -2.97 (PT Central Proteina Prima Tbk, 2020) and a maximum value of 29.87 (PT Akasha Wira International Tbk, 2022). The standard deviation of 5.32927 indicates that the data exhibits relatively high variation and tends to be heterogeneous.

Table 2. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		115
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	4.44631486
Most Extreme Differences	Absolute	.155
	Positive	.155
	Negative	-.116
Test Statistic		.155
Asymp. Sig. (2-tailed)		.000[c]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: Processed secondary data (2026)

Based on Table 2, the Kolmogorov-Smirnov significance value is 0.000, which is lower than 0.05; therefore, the data are not normally distributed.

Table 3. One-Sample Kolmogorov-Smirnov Test
(Test After Removing Outliers)

		Unstandardized Residual
N		103
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	3.30512478
Most Extreme Differences	Absolute	.085
	Positive	.085
	Negative	-.043
Test Statistic		.085
Asymp. Sig. (2-tailed)		.065[c]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: Processed secondary data (2026)

Based on Table 3, the Asymp. Sig. (2-tailed) value is 0.065, which is greater than 0.05; therefore, the regression model is normally distributed, as 0.065 > 0.05.

Table 4. Multiple Linear Regression Analysis Test Results

Coefficients[a]

Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	11,678	1,403
	X1	-5,439	0,582
	X2	-1,735	1,656
	X3	2,190	3,151
	X4	-3,877	2,352
	Z	-0,043	0,059

a. Dependent Variabel: Y

Source: Processed secondary data (2026)

Based on Table 4, the following regression equation is obtained:

$Y = 11.678 - 5.439X_1 - 1.735X_2 + 2.190X_3 - 3.877X_4$

The regression equation can be explained as follows:

a. The constant value of 11.678 indicates that if the variables of Solvency, Company Growth, Inflation, and Corporate Governance are held constant, the Financial Distress value—measured using the Altman Z-Score—is 11.678.
b. The Solvency coefficient of -5.439 indicates a negative relationship between Solvency and Financial Distress. This means that a one-unit increase in Solvency will decrease the Altman Z-Score by 5.439, assuming other variables remain constant.
c. The Company Growth coefficient of -1.735 indicates a negative relationship between Company Growth and Financial Distress. This means that a one-unit increase in Company Growth will decrease the Altman Z-Score by 1.735, assuming other variables remain constant.
d. The Inflation coefficient of 2.190 indicates a positive relationship between Inflation and Financial Distress. This means that a one-unit increase in Inflation will increase the Altman Z-Score by 2.190, assuming other variables remain constant.
e. The Corporate Governance coefficient of -3.877 indicates a negative relationship between Corporate Governance and Financial Distress. This means that a one-unit increase in Corporate Governance will decrease the Altman Z-Score by 3.877, assuming other variables remain constant.

Table 5. Results of Moderated Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	13,345	2,357
	X1_Z	0,106	0,104
	X2_Z	0,358	0,306
	X3_Z	0,603	0,572
	X4_Z	-0,053	0,401
	X1	-7,781	2,327
	X2	-10,170	6,957
	X3	-11,694	12,590
	X4	-3,763	7,609
	Z	-0,113	0,108

a. Dependent Variabel: Y

Source: Processed secondary data (2026)

Based on Table 5, the following moderated regression equation model is obtained:

$Y = 13.345 - 7.781X_1 - 10.170X_2 - 11.694X_3 - 3.763X_4 - 0.113Z + 0.106X_1Z + 0.358X_2Z + 0.603X_3Z - 0.053X_4Z$

The equation can be explained as follows:

a. The constant value of 13.345 indicates that if all independent variables and the moderating variable are held constant, the Financial Distress value—measured using the Altman Z-Score—is 13.345.
b. The interaction coefficient for X_1Z (Solvency × Firm Size) of 0.106 indicates that Firm Size potentially moderates the effect of Solvency on Financial Distress.
c. The interaction coefficient for X_2Z (Firm Growth × Firm Size) of 0.358 indicates that Firm Size potentially moderates the effect of Firm Growth on Financial Distress.
d. The interaction coefficient for X_3Z (Inflation × Firm Size) of 0.603 indicates that Firm Size potentially moderates the effect of Inflation on Financial Distress.
e. The interaction coefficient for X_4Z (Corporate Governance × Firm Size) of -0.053 indicates that Firm Size potentially moderates the effect of Corporate Governance on Financial Distress.

Table 6. Partial Test Results

Coefficients[a]

Model		t	Sig.	Keterangan
				Nilai sig <0,05 H1 diterima
				Nilai sig >0,05 H1 ditolak
1	(Constant)	8,326	0,000	
	X1	-9,343	0,000	H1 diterima
	X2	-1,048	0,297	H2 ditolak
	X3	0,695	0,489	H3 ditolak
	X4	-1,648	0,103	H4 ditolak
	Z	-0,728	0,469	H5 ditolak

a. Dependent Variabel: Y

Source: Processed secondary data (2026)

Based on Table 4.6, the hypothesis testing results for the first model indicate that Solvency (X1) has a significant negative effect on Financial Distress, with a calculated t-value of -9.343 and a significance level of 0.000 (< 0.05). Thus, H1 is accepted.

Meanwhile, Company Growth (X2) does not have a significant effect on Financial Distress, with a calculated t-value of -1.048 and a significance level of 0.297 (> 0.05); therefore, H2 is rejected. Inflation (X3) also shows no significant effect, with a calculated t-value of 0.695 and a significance level of 0.489 (> 0.05); thus, H3 is rejected.

Furthermore, Corporate Governance (X4) does not demonstrate a significant effect on Financial Distress, with a calculated t-value of -1.648 and a significance level of 0.103 (> 0.05); therefore, H4 is rejected. Company Size (Z) also does not have a significant effect on Financial Distress, with a calculated t-value of -0.728 and a significance level of 0.469 (> 0.05). Consequently, the hypothesis stating that Company Size affects Financial Distress is rejected.

Overall, the test results for the first model indicate that only Solvency has a significant effect on Financial Distress, whereas Company Growth, Inflation, Corporate Governance, and Company Size do not show a significant effect.

Table 7. Regression Moderation Analysis

Coefficients[a]			
Model		t	Sig.
1	(Constant)	5,662	0,000
	X1_Z	1,021	0,310
	X2_Z	1,169	0,246
	X3_Z	1,053	0,295
	X4_Z	-0,131	0,896
	X1	-3,344	0,001
	X2	-1,462	0,147
	X3	-0,929	0,355
	X4	-0,495	0,622
	Z	-1,047	0,298
a. Dependent Variabel: Y			

Based on Table 7, the hypothesis testing results for the second model indicate that Firm Size does not moderate the effect of Solvency on Financial Distress. This is evidenced by a t-statistic of 1.021 and a significance level of 0.310 (> 0.05); consequently, the moderation hypothesis X1_Z is rejected.

Furthermore, Firm Size does not moderate the effect of Firm Growth on Financial Distress, with a t-statistic of 1.169 and a significance level of 0.246 (> 0.05). Thus, the moderation hypothesis X2_Z is rejected.

Regarding the relationship between Inflation and Financial Distress, Firm Size was also not proven to act as a moderating variable. A t-statistic of 1.053 and a significance level of 0.295 (> 0.05) indicate that the moderation hypothesis X3_Z is rejected.

Similarly, Firm Size does not moderate the effect of Corporate Governance on Financial Distress. This is shown by a t-statistic of -0.131 and a significance level of 0.896 (> 0.05); therefore, the moderation hypothesis X4_Z is rejected.

Overall, the results of the second model test indicate that Firm Size does not moderate the effects of Solvency, Firm Growth, Inflation, or Corporate Governance on Financial Distress.

Table 8. Simultan Test Results

ANOVA[a]			
Model		F	Sig.
1	Regression	11,113	.000[b]
	Residual		
	Total		
a. Dependent Variabel: Y			
b. Predictors: (Constant), Z, X3, X1, X4, X2, X4_Z, X3_Z, X1_Z, X2_Z			

Source: Processed secondary data from 2026

Based on Table 8, it can be seen that the calculated F-value (11.113) exceeds the F-table value (2.02), with a significance value of 0.000; since the calculated F-value (11.113) is greater than the F-table value (2.03) and the significance level of 0.000 is less than 0.05, H9 is accepted. These results indicate that solvency, firm growth, inflation, corporate governance, firm size, and the interaction variables—solvency with firm size, firm growth with firm size, inflation with firm size, and corporate governance with firm size—collectively and simultaneously have a significant effect on financial distress.

4. CONCLUSION

This study investigates the effect of solvency, company growth, inflation, and corporate governance on financial distress, with company size serving as a moderating variable in food and beverage manufacturing companies listed on the Indonesia Stock Exchange (IDX). Using a quantitative approach and Moderated Regression Analysis (MRA), the study analyzed 23 companies selected through purposive sampling. The empirical findings indicate that solvency has a significant partial effect on financial distress. This finding suggests that a higher level of debt relative to the company's capital structure may increase financial pressure through greater financial obligations and interest expenses, thereby increasing the likelihood of financial distress. Meanwhile, company growth does not have a significant partial effect on financial distress, indicating that an increase in sales or company activity does not necessarily reflect an improvement in financial performance, particularly when growth is accompanied by higher operating costs and cash flow requirements.

Inflation is also found to have no significant partial effect on financial distress. This finding indicates that the impact of inflation on financial conditions may vary among companies depending on their ability to adjust selling prices, control costs, and formulate appropriate business strategies in response to changing macroeconomic conditions. Similarly, corporate governance does not have a significant partial effect on financial distress. This result may indicate that the implementation of Good Corporate Governance (GCG) mechanisms in the observed companies has not been sufficiently effective in influencing financial distress directly. The implementation of governance mechanisms may still emphasize compliance with formal requirements rather than strengthening managerial oversight and financial decision-making.

Furthermore, company size does not significantly moderate the relationships between solvency, company growth, inflation, and corporate governance and financial distress. Thus, the scale of a company neither strengthens nor weakens the effects of these variables on financial distress. The simultaneous results show that solvency, company growth, inflation, corporate governance, company size, and the interaction variables between company size and the independent variables collectively explain 1.13% of the variation in financial distress. The remaining 98.87% is attributable to other factors outside the research model. Overall, these findings suggest that financial distress among food and beverage manufacturing companies listed on the IDX cannot be adequately explained by the variables examined in this study alone, highlighting the importance of considering other financial, operational, and macroeconomic factors in future research.

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