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The Influence of Working Capital Turnover, Liquidity, and Sales Growth on Profitability, with Firm Size as a Moderating Variable, in Food and Beverage Sub-sector Companies Listed on the Indonesia Stock Exchange (IDX)

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Abstract. This research aims to analyze the effect of working capital turnover, liquidity, and sales growth on profitability with firm size as a moderating variable in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) for the 2020–2024 period. This research uses a quantitative associative approach. Through purposive sampling, 51 sample companies were selected from 95 populations, with 163 final observations after outlier elimination. Data analysis utilized multiple linear regression and Moderated Regression Analysis (MRA) via IBM SPSS Statistics 26. The results indicate that working capital turnover, liquidity, and sales growth partially have a positive and significant effect on Return on Assets (ROA). Furthermore, firm size positively and significantly moderates (strengthens) the effect of these three independent variables on profitability.

Keywords: *Working Capital Turnover, Liquidity, Sales Growth, Firm Size, Profitability.*

A. INTRODUCTION

Profitability is one of the indicators used to assess a company's ability to generate earnings through the effective management of its available resources. In food and beverage subsector companies, the ability to generate profits is closely related to the continuity of production processes, inventory management, fulfillment of short-term obligations, and the ability to maintain sales performance. Changes in raw material costs, economic conditions, and consumption patterns may cause companies' financial performance to fluctuate from one period to another.

Empirical evidence from food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period indicates significant differences in profitability across companies. An overview of the trends in Return on Assets (ROA) among five food and beverage subsector companies during the 2020–2024 period is presented in Table 1 below:

Table 1. Return on Assets (ROA) of Food and Beverage Subsector Companies, 2020–2024

Ticker	Company	2020	2021	2022	2023	2024
ICBP	PT Indofood CBP Sukses Makmur Tbk.	0.0716	0.0670	0.0496	0.0710	0.0699
MLBI	PT Multi Bintang Indonesia Tbk.	0.0982	0.2279	0.2741	0.3130	0.3319
MYOR	PT Mayora Indah Tbk.	0.1061	0.0608	0.0884	0.1359	0.1032
ROTI	PT Nippon Indosari Corpindo Tbk.	0.0379	0.0671	0.1047	0.0845	0.0967
ULTJ	PT Ultrajaya Milk Industry & Trading Company Tbk.	0.1268	0.1724	0.1309	0.1577	0.1364

Source: Data processed by the researchers (2026).

The data in Table 1 indicate that Return on Assets (ROA) among the five food and beverage subsector companies experienced considerable fluctuations during the 2020–2024 period. According to financial industry standards, ROA is considered efficient when it exceeds 5% or 0.05. Furthermore, the closer the ROA value approaches 1, the more effectively management utilizes the company's total assets to generate profits (Hery, 2018). As shown in Table 1, PT Nippon Indosari Corpindo Tbk. (ROTI) recorded an ROA of 0.0379 in 2020, while PT Indofood CBP Sukses Makmur Tbk. (ICBP) experienced a decline to 0.0496 in 2022, both of which were below the 0.05 benchmark. In contrast, PT Multi Bintang Indonesia Tbk. (MLBI) recorded a consistent increase in ROA, rising from 0.0982 in 2020 to 0.3319 in 2024. Meanwhile, PT Mayora Indah Tbk. (MYOR) and PT Ultrajaya Milk Industry & Trading Company Tbk. (ULTJ) exhibited annual fluctuations. These profitability fluctuations indicate that management effectiveness in managing working capital, liquidity, and sales growth plays a crucial role in determining an entity's ability to generate profits.

Working capital turnover describes the rate at which funds invested in net working capital circulate to generate sales within a given period (Kasmir, 2019). Ineffective working capital management may result in funds being tied up for excessive periods in inventory and accounts receivable, thereby constraining profit generation (Jastine & Susanto, 2020). Meanwhile, liquidity, as measured by the Current Ratio (CR), reflects a company's ability to meet its short-term obligations using current assets (Hery, 2018). Adequate liquidity ensures the smooth financing of operational activities and raw material purchases without disruptions. Another determining factor is sales growth, which indicates an increase in sales volume from year to year and serves as an indicator of marketing strategy effectiveness and opportunities for higher profitability (Kasmir, 2019).

Previous studies examining the determinants of profitability have reported mixed findings. Syailendra et al. (2024) and Heriyanti and Rambe (2025) found that working capital turnover had a significant effect on profitability, whereas Afriani et al. (2022) and Ummah and Efendi (2022) reported no significant effect. Regarding liquidity, Afriani et al. (2022) and Marpaung et al. (2023) found that liquidity significantly affected profitability, in contrast to the findings of Jastine and Susanto (2020) and Muthohharoh and Pertiwi (2021). With respect to sales growth, Lestari et al. (2022) identified a significant effect on profitability, whereas Farika and Dewi (2023) and Heriyanti and Rambe (2025) found no significant effect.

These differences in previous research findings have motivated the researchers to re-examine the effects of working capital turnover, liquidity, and sales growth on profitability during the 2020–2024 period by incorporating firm size as a moderating variable. Companies with larger asset bases have greater production capacity, broader distribution networks, and higher operational flexibility. Consequently, firm size is expected to strengthen the effects of working capital efficiency, liquidity, and sales growth on profitability (Aprilia, 2024; Ramadhani et al., 2025). Based on this background, the present study is entitled "The Effect of Working Capital Turnover, Liquidity, and Sales Growth on Profitability, with Firm Size as a Moderating Variable, in Food and Beverage Subsector Companies Listed on the Indonesia Stock Exchange."

B. LITERATURE REVIEW

1. Signaling Theory

Signaling Theory explains how management communicates information regarding a company's condition and prospects to external parties through observable signals, including information disclosed in financial statements. Such information enables investors and creditors to assess the company's performance and risks in situations characterized by information asymmetry between internal and external parties (Spence, 1973; Bafera & Kleinert, 2023). In

this study, working capital turnover, liquidity, sales growth, and profitability ratios represent information that may reflect management's ability to manage the company's resources.

2. Pecking Order Theory

Pecking Order Theory explains the hierarchy of corporate financing preferences, whereby companies prioritize internal funds before resorting to external financing. The availability of funds generated from operating activities and efficient working capital management can help companies meet their business needs while reducing their dependence on external financing (Myers & Majluf, 1984). This perspective is employed to explain the importance of working capital management in supporting operational activities and profitability.

3. Profitability

Profitability reflects a company's ability to generate earnings from its available resources. This study uses Return on Assets (ROA), calculated as the ratio of net income after tax to total assets. ROA illustrates the effectiveness of a company in utilizing its total assets to generate profits (Kasmir, 2019).

4. Working Capital Turnover

Working capital turnover indicates the effectiveness of working capital utilization in generating sales over a given period. Efficient turnover of net working capital can support the continuity of operational activities and the revenue-generating process (Kasmir, 2019; Brigham & Houston, 2011).

5. Liquidity

Liquidity represents a company's ability to meet its short-term obligations using its available current assets. In this study, liquidity is measured using the Current Ratio (CR), calculated by dividing current assets by current liabilities (Hery, 2018; Kasmir, 2019).

6. Sales Growth

Sales growth indicates the change in net sales in the current year compared with the previous year. An increase in sales may generate higher revenue; however, its contribution to profitability remains dependent on the company's ability to control costs and manage its operational activities effectively (Kasmir, 2019; Lestari et al., 2022).

7. Firm Size

Firm size represents the scale of a company, which in this study is measured using the natural logarithm of total assets. Companies with larger asset bases may possess greater resource capacities and broader operational activities. However, a larger asset base must be accompanied by effective management to contribute to profit generation (Hartono, 2017; Ramadhani et al., 2025).

The conceptual framework of this study illustrates the direct effects of working capital turnover, liquidity, and sales growth on profitability, as well as the role of firm size in moderating these relationships, as presented in Figure 1.

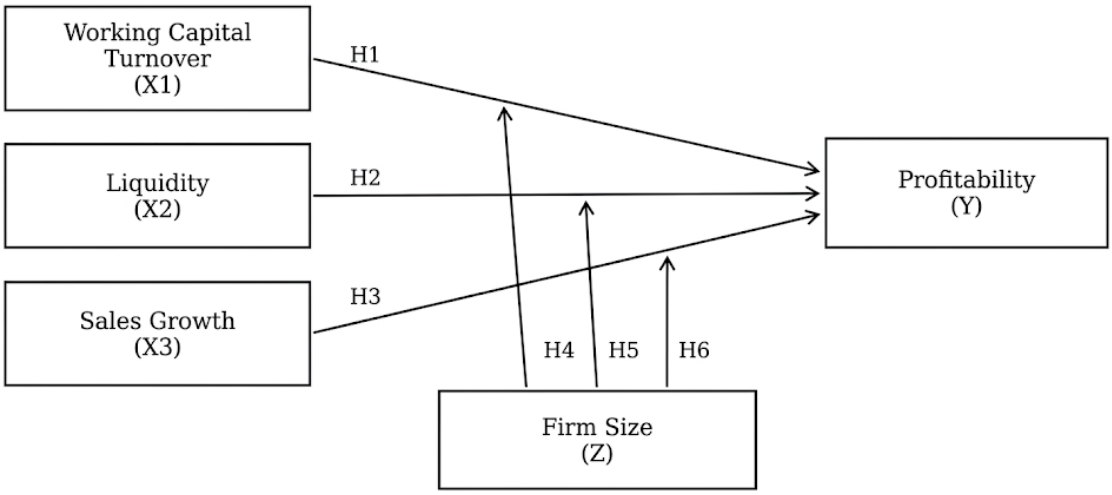


Figure 1. Conceptual Framework

Based on the conceptual framework presented above, the following hypotheses are formulated in this study:

H1: Working capital turnover has a positive effect on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

H2: Liquidity has a positive effect on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

H3: Sales growth has a positive effect on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

H4: Firm size positively moderates (strengthens) the effect of working capital turnover on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

H5: Firm size positively moderates (strengthens) the effect of liquidity on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

H6: Firm size positively moderates (strengthens) the effect of sales growth on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

C. METHOD

This study employs a quantitative approach using secondary data. The research focuses on companies within the food and beverage sub-sector listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. Data were obtained from the annual reports and financial statements of these companies, as published on the Indonesia Stock Exchange website and the respective official websites of each issuer. Data collection was conducted through documentation methods, supplemented by a literature review.

Research Location, Population, and Sample: The study covers manufacturing companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange (IDX) from 2020 to 2024. Data were sourced from the official IDX website (www.idx.co.id) and the official websites of the individual companies using documentation techniques. The research population consists of 95 companies. Applying a purposive sampling technique—based on criteria such as being consistently listed throughout the 2020–2024 period, publishing complete annual financial statements, and presenting audited financial statements in Indonesian Rupiah

as of December 31—a sample of 51 companies was selected, yielding a total of 255 initial observations.

Operational Definitions of Variables: The measurement of each variable used in this study is proxied as follows:

1. **Working Capital Turnover**

In this study, working capital turnover is proxied as follows:

$$\textbf{Working Capital Turnover} = \frac{\textbf{Net sales}}{\textbf{Net Working Capital}}$$

Source: Kasmir, 2019

2. **Liquidity**

In this study, liquidity is proxied as follows:

$$\textbf{CR} = \frac{\textbf{Current assets}}{\textbf{Current Liabilities}}$$

Source: Hery, 2018

3. **Sales Growth**

In this study, sales growth is proxied as follows:

$$\textbf{Sales Growth} = \frac{\textbf{Net Sales}_t - \textbf{Net Sales}_{t-1}}{\textbf{Net Sales}_{t-1}}$$

Source: Kasmir, 2019

4. **Company Size**

In this study, firm size is proxied as follows:

$$\textbf{Company size} = \textbf{Ln}(\textbf{Total Assets})$$

Source: Hartono, 2017

5. **Profitability**

In this study, profitability is proxied as follows:

$$\textbf{ROA} = \frac{\textbf{Net Profit After Tax}}{\textbf{Total Assets}}$$

Source: Kasmir, 2019

Data Analysis Technique: Data processing was conducted using IBM SPSS Statistics version 26, encompassing descriptive statistical tests, classical assumption tests (One-Sample Kolmogorov-Smirnov normality test, multicollinearity test via Tolerance and VIF values, heteroscedasticity test using the Glejser test, and the Durbin-Watson autocorrelation test), the coefficient of determination (Adjusted R-squared), multiple linear regression analysis, and Moderated Regression Analysis (MRA) at a significance level of 0.05 (Ghozali, 2021). The multiple linear regression equation and the MRA equation are formulated as follows:

$$Y = \alpha + \beta1X1 + \beta2X2 + \beta3X3 + e$$

$$Y = \alpha + \beta4(X1.Z) + \beta5(X2.Z) + \beta6(X3.Z) + e$$

D. RESULT AND DISCUSSION

1. Descriptive Statistical Test

The results of the descriptive statistical analysis based on 255 initial observational data points, using IBM SPSS Statistics 26, are presented in Table 2.

Table 2. Descriptive statistical test results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Working Capital Turnover	255	.049	39.821	1.61909	2.530904
Liquidity	255	.002	13.396	2.27676	2.277300
Sales Growth	255	-1.000	14.640	.18580	1.110089
Profitability	255	-.517	.944	.04465	.123543
Firm Size	255	15.334	32.938	28.61016	2.182028
Valid N (listwise)	255				

Source: Output IBM SPSS Statistics 26 (2026)

The working capital turnover variable (X1) has a minimum value of 0.049 (PANI in 2022), a maximum value of 39.821 (WAPO in 2024), a mean of 1.61909, and a standard deviation of 2.530904. The liquidity variable (X2) has a minimum value of 0.002 (PANI in 2020), a maximum value of 13.396 (BISI in 2024), a mean of 2.27676, and a standard deviation of 2.277300. The sales growth variable (X3) has a minimum value of -1.000 (TGKA in 2023), a maximum value of 14.640 (BEEF in 2023), a mean of 0.18580, and a standard deviation of 1.110089. The profitability variable (Y) has a minimum value of -0.517 (BEEF in 2020), a maximum value of 0.944 (PSDN in 2023), a mean of 0.04465, and a standard deviation of 0.123543. The firm size variable (Z) has a minimum value of 15.334 (TGKA in 2023), a maximum value of 32.938 (INDF in 2024), a mean of 28.61016, and a standard deviation of 2.182028.

2. Classical Assumption Tests

a. Normality Test

Data normality testing was conducted using the non-parametric One-Sample Kolmogorov-Smirnov (K-S) statistical test, with a criterion of an Asymp. Sig. (2-tailed) value > 0.05. The initial test was performed on the entire set of 255 observations, as presented in Table 3.

Table 3. Results of the One-Sample Kolmogorov-Smirnov Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		255
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.12017227
Most Extreme Differences	Absolute	.150
	Positive	.149
	Negative	-.150
Test Statistic		.150
Asymp. Sig. (2-tailed)		.000[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Source: Output IBM SPSS Statistics 26 (2026)

Based on Table 3, the normality test results prior to the elimination of outliers (N = 255) show a Test Statistic value of 0.150, with an Asymp. Sig. (2-tailed) value of 0.000 (< 0.05). This indicates that the data residuals are not normally distributed, due to the presence of extreme values (outliers) in the financial statements of the sampled companies. Subsequently, 92 outliers were identified and removed, resulting in a final sample size of N = 163 observations; the results of the re-analysis are presented separately in Table 4.

Table 4. Normality test results after outlier elimination (N = 163)

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		163
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.04669296
Most Extreme Differences	Absolute	.058
	Positive	.052
	Negative	-.058
Test Statistic		.058
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Source: Output IBM SPSS Statistics 26 (2026)

Based on Table 4, after eliminating 92 outliers—resulting in a final sample size of N = 163—the Test Statistic value decreased to 0.058, with an Asymp. Sig. (2-tailed) value of 0.200 (> 0.05). Consequently, the regression model meets the assumption of normality and is suitable for proceeding to the next stage of testing.

b. Multicollinearity Test

Table 5. Multicollinearity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.051	.011		-4.435	.000		
	Working Capital Turnover	.019	.006	.202	2.997	.003	.923	1.083
	Liquidity	.037	.005	.449	6.686	.000	.930	1.075
	Sales Growth	.043	.019	.145	2.202	.029	.975	1.026

a. Dependent Variable: PROFITABILITAS

Source: Output IBM SPSS Statistics 26 (2026)

Based on Table 5, the Tolerance values for all independent variables are above 0.10 (0.923, 0.930, and 0.975), and the VIF values are below 10 (1.083, 1.075, and 1.026); therefore, there is no multicollinearity among the independent variables.

c. Heteroskedasticity Test (Glejser Test)

Table 6. Heteroskedasticity Test Results (Glejser Test)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.030	.007		4.293	.000		
	Working Capital Turnover	.004	.004	.080	.970	.333	.923	1.083
	Liquidity	.001	.003	.018	.215	.830	.930	1.075
	Sales Growth	-.014	.012	-.093	-1.170	.244	.975	1.026

a. Dependent Variable: ABS_RES

Source: Output IBM SPSS Statistics 26 (2026)

Berdasarkan hasil Uji Glejser pada Tabel 6, nilai signifikansi seluruh variabel bebas lebih besar dari 0,05 (0,333; 0,830; dan 0,244), sehingga model regresi terbebas dari gejala heteroskedastisitas.

d. Autocorrelation Test and Coefficient of Determination (Model Summary)

Table 7. Autocorrelation Test Results and Coefficient of Determination

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.576[a]	.332	.320	.047131	1.442

A. Predictors: (Constant). Sales Growth. Liquidity. Working Capital Turnover
B. Dependent Variable: Profitability

Source: Output IBM SPSS Statistics 26 (2026)

Based on Table 7, the Durbin-Watson value of 1.442 falls between -2 and +2 (-2 < 1.442 < +2), indicating that the model is free from autocorrelation issues. The Adjusted R-squared value of 0.320 suggests that the variables of working capital turnover, liquidity, and sales growth account for 32.0% of the variation in profitability, while the remaining 68.0% is explained by variables outside of this research model.

3. Multiple Linear Regression Analysis and Partial Hypothesis Testing (t-test)

Table 8. Results of Multiple Linear Regression Analysis and Partial Tests (t-Test)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.051	.011		-4.435	.000
	Working Capital Turnover	.019	.006	.202	2.997	.003
	Liquidity	.037	.005	.449	6.686	.000
	Sales Growth	.043	.019	.145	2.202	.029

a. Dependent Variable: PROFITABILITY

Source: Output IBM SPSS Statistics 26 (2026)

From Table 8, the multiple linear regression equation is obtained: Y = -0.051 + 0.019X1 + 0.037X2 + 0.043X3 + e. With a t-table value of 1.980 (α = 0.05), the partial hypothesis testing results indicate that: (1) Working capital turnover has a t-calculated value of 2.997 > 1.980 and a Sig. value of 0.003 < 0.05, meaning H1 is accepted; (2) Liquidity has a t-calculated value of 6.686 > 1.980 and a Sig. value of 0.000 < 0.05, meaning H2 is accepted; and (3) Sales growth has a t-calculated value of 2.202 > 1.980 and a Sig. value of 0.029 < 0.05, meaning H3 is accepted.

The results of the multiple linear regression analysis presented in Table 8 indicate that the working capital turnover (WCTO) variable has a positive regression coefficient of 0.019, with a t-statistic of 2.997, which is greater than the critical t-value of 1.980, and a significance level of 0.003, which is below 0.05. Therefore, the first hypothesis (H1) is supported. These findings demonstrate that working capital turnover has a positive and significant effect on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

Conceptually and theoretically, this finding is consistent with Pecking Order Theory (Myers & Majluf, 1984), which emphasizes that efficient management of internal funds can maximize profits without incurring interest expenses associated with external financing. In the food and beverage industry, which is characterized by perishable products and limited shelf lives, accelerating the cash conversion cycle, from raw material procurement and production processes to accounts receivable collection, helps prevent funds from being tied up in excessive inventory. The empirical evidence presented in Table 1 shows that PT Nippon Indosari Corpindo Tbk. (ROTI) improved its ROA from 0.0379 in 2020 to 0.1047 in 2022 and subsequently maintained its ROA above the industry benchmark through efficient working capital management. Furthermore, based on Signaling Theory (Spence, 1973), a high working

capital turnover ratio sends a positive signal to the market that management is capable of optimizing short-term operating assets to generate profits. These findings support the results of Syailendra et al. (2024), Ramadhani et al. (2025), and Heriyanti and Rambe (2025), but contradict those of Afriani et al. (2022) and Ummah and Efendi (2022).

The partial test results presented in Table 8 indicate that the liquidity variable, proxied by the Current Ratio (CR), has the highest positive regression coefficient among the independent variables, amounting to 0.037, with a t-statistic of 6.686, which exceeds the critical t-value of 1.980, and a significance level of 0.000, which is below 0.05. Accordingly, the second hypothesis (H2) is supported. These results confirm that liquidity has a positive and significant effect on profitability.

The availability of adequate current assets to cover short-term liabilities provides operational flexibility for food and beverage manufacturing companies. Maintaining sufficient liquidity ensures that companies do not encounter cash flow constraints when paying suppliers of essential raw materials, taking advantage of cash discounts, and maintaining production continuity without disruptions arising from short-term default risks. This condition is evident in PT BISI International Tbk. (BISI) and PT Ultrajaya Milk Industry & Trading Company Tbk. (ULTJ), which maintained healthy liquidity ratios, thereby supporting the achievement of relatively stable ROA levels above 0.12 throughout the 2020–2024 period. Consistent with Signaling Theory, a sound liquidity position conveys signals of financial credibility and fundamental stability to investors and creditors. These findings are consistent with the studies conducted by Afriani et al. (2022), Farika and Dewi (2023), and Marpaung et al. (2023), although they differ from the findings of Jastine and Susanto (2020) and Muthohharoh and Pertiwi (2021).

Based on Table 8, the sales growth variable has a positive regression coefficient of 0.043, with a t-statistic of 2.202, which is greater than the critical t-value of 1.980, and a significance level of 0.029, which is below 0.05. Therefore, the third hypothesis (H3) is supported. Accordingly, sales growth is demonstrated to have a positive and significant effect on profitability.

An increase in sales volume from year to year reflects the success of market expansion strategies and consumer acceptance of a company's products. Within a manufacturing cost structure, higher sales enable companies to achieve economies of scale, whereby fixed production costs are distributed across a larger output volume, thereby reducing the cost of goods produced per unit and widening net profit margins. The empirical evidence presented in Table 1 demonstrates this condition in PT Multi Bintang Indonesia Tbk. (MLBI), which recorded a consistent increase in ROA from 0.0982 in 2020 to 0.3319 in 2024, alongside the recovery and growth of sales in the post-pandemic period. From the perspective of Signaling Theory, a positive sales growth trend serves as a signal of favorable prospects for sustainable future profit growth. These findings support the studies conducted by Lestari et al. (2022) and Syailendra et al. (2024), but differ from the findings of Farika and Dewi (2023) and Heriyanti and Rambe (2025).

4. Moderated Regression Analysis (MRA) Test

Table 9. Moderated Regression Analysis (MRA) Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.055	.011		-5.040	.000
	X1_Z	.001	.000	.232	3.498	.001
	X2_Z	.001	.000	.461	6.986	.000

	X3_Z	.001	.001	.133	2.082	.039

a. Dependent Variable: PROFITABILITY

Source: Output IBM SPSS Statistics 26 (2026)

From Table 9, the following MRA equation is derived: Y = -0.055 + 0.001(X1.Z) + 0.001(X2.Z) + 0.001(X3.Z) + e. The moderation interaction test results show that all coefficients are positive (0.001), with calculated t-values exceeding the critical t-table value (1.980) and significance levels below 0.05. Consequently, firm size is shown to have a positive and significant moderating effect—specifically, it strengthens the impact of working capital turnover (H4 accepted), liquidity (H5 accepted), and sales growth (H6 accepted) on profitability.

The results of the Moderated Regression Analysis (MRA) presented in Table 9 demonstrate that firm size (Ln Total Assets) acts as a positive moderator, strengthening all relationships between the independent variables and profitability. The detailed findings are as follows. First, the interaction between working capital turnover and firm size (X1_Z) produces a positive coefficient of 0.001, with a t-statistic of 3.498, which exceeds the critical t-value of 1.980, and a significance level of 0.001, which is below 0.05. Therefore, H4 is supported. Companies with larger total assets generally have more integrated supply chain management and inventory control systems. Consequently, improvements in working capital turnover can be converted into profits more effectively than in smaller-scale companies.

Second, the interaction between liquidity and firm size (X2_Z) produces a positive coefficient of 0.001, with a t-statistic of 6.986, which exceeds the critical t-value of 1.980, and a significance level of 0.000, which is below 0.05. Therefore, H5 is supported. Larger companies generally possess stronger bargaining power with suppliers and broader access to financing. Consequently, excess current assets are less likely to remain unproductively idle (idle cash) and can instead be allocated to accelerate operating cycles that generate profits.

Third, the interaction between sales growth and firm size (X3_Z) produces a positive coefficient of 0.001, with a t-statistic of 2.082, which exceeds the critical t-value of 1.980, and a significance level of 0.039, which is below 0.05. Therefore, H6 is supported. The substantial production capacity and extensive domestic and export distribution networks of large publicly listed companies enable them to respond efficiently to increases in market demand without experiencing significant increases in distribution costs per unit. Consequently, increased sales can be directly translated into higher ROA. These moderation findings are consistent with the studies conducted by Prabhasyahrani and Khuzaini (2020), Lestari et al. (2022), Aprilia (2024), and Ramadhani et al. (2025).

E. CONCLUSION

The findings of this study indicate that working capital turnover, liquidity, and sales growth have positive and significant effects on profitability in food and beverage subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. Furthermore, firm size plays a positive and significant moderating role in all three relationships, strengthening the effects of working capital turnover, liquidity, and sales growth on profitability. These results suggest that larger companies are better positioned to optimize working capital management, maintain adequate liquidity, and capitalize on sales growth to improve profitability. This study confirms the importance of effective financial management and firm size in enhancing the profitability of food and beverage subsector companies.

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