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Liquidity Impact on Profitability through Capital Structure Mediation and Firm Size Moderation in Plastics and Packaging

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ABSTRACT

The objective of this study is to examine how liquidity influences profitability, with capital structure acting as a mediating variable and firm size serving as a moderating variable in the relationship. The research strategy applied is a causal study. The study population consists of seven companies in the plastics and packaging subsector listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period, selected based on predetermined criteria. These seven companies were chosen using a saturated sampling method. The analytical method used in this study was panel data regression. The findings reveal that liquidity has a positive and significant effect on firm size, while it has a negative and significant effect on capital structure. However, capital structure does not significantly influence profitability, and firm size likewise shows no significant effect on profitability. In addition, liquidity does not directly affect profitability. Nevertheless, liquidity has a positive and significant indirect effect on profitability through capital structure as a mediating variable, but it does not exert an indirect effect on profitability through firm size as a moderating variable.

Keywords: Liquidity; Profitability; Capital Structure; Firm Size.

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RESEARCH BACKGROUND

The plastic and packaging subsector plays a crucial role in the manufacturing industry by supplying a wide variety of plastic-based products, such as bottles, films, and other forms of packaging. These products support multiple industries, including food and beverages, pharmaceuticals, cosmetics, and electronics, which rely heavily on efficient and practical packaging solutions. As the demand for processed food and beverages and the rapid growth of e-commerce continue to rise, the plastic and packaging subsector becomes increasingly vital for both domestic and global markets.

In Indonesia, plastic consumption reached 22.5 kilograms per capita in 2022, equivalent to approximately 10 million tons annually (Bisnis Indonesia, 2023). This consumption is projected to grow by 7% each year. From an international trade perspective, Indonesia's plastic product exports have also shown positive trends, achieving USD 1.68 billion in early 2023 (Indonesia, 2023; Li et al., 2023). The subsector currently consists of 925 active companies employing 37,327 workers (Rima Sekar Ayu Cahyani, 2023). On a global scale, the packaging market is expected to reach USD 552.10 billion by 2028, growing at a compound annual growth rate (CAGR) of 8.04% between 2023 and 2028. Despite these promising developments, the subsector continues to face serious challenges, particularly environmental concerns related to plastic waste, limited raw material supply, and strict import regulations (Tempo, 2023).

From a financial performance standpoint, data from the Indonesia Stock Exchange IDX (2023) show that the profitability of companies in the plastic and packaging subsector fluctuated and tended to decline during the 2019–2023 period. Return on Assets (ROA), for example, increased from 0.042 in 2019 to 0.065 in 2021 but fell again to 0.054 in 2023. Interestingly, this decline occurred even as Indonesia's national Gross Domestic Product (GDP) growth improved from –4.10% in 2022 to –3.63% in 2023. This phenomenon suggests an imbalance between asset growth and the earnings generated, highlighting profitability as a pressing issue requiring further investigation.

Several financial factors are considered to influence profitability. Liquidity, measured by the Current Ratio (CR), decreased from 5.682 in 2022 to 5.035 in 2023, signaling potential inefficiencies in managing current assets and possible limitations in fulfilling short-term obligations. Capital structure, reflected in the Debt to Equity Ratio (DER), also declined from 0.446 in 2022 to 0.410 in 2023, indicating reduced reliance on debt. While this trend lowers financial risk, it simultaneously diminishes the potential benefits of positive leverage in enhancing profitability. Moreover, firm size has shown stable growth, from 25.408 in 2019 to 25.766 in 2023. However, larger firm size does not necessarily guarantee higher profitability, as inefficiencies and uncontrolled expansion may offset the benefits of scale.

The novelty of this research lies in the simultaneous inclusion of capital structure as a mediating variable and firm size as a moderating variable within the plastic and packaging subsector in Indonesia. Previous studies provide mixed results regarding the effects of liquidity on capital structure, firm size, and profitability, both directly and indirectly through mediation and moderation. This gap underscores the importance of conducting further research in this area.

Accordingly, the aim of this study is to analyze the effect of liquidity on profitability, with capital structure acting as a mediator and firm size serving as a moderator, in plastic and packaging companies listed on the Indonesia Stock Exchange between 2019 and 2023. The study is expected to provide both practical contributions—helping company managers and

investors make better financial decisions—and theoretical contributions by serving as a reference for future research examining the interaction of liquidity, capital structure, firm size, and profitability.

LITERATURE REVIEW

Signalling Theory

Proposed by Jensen & Meckling (1976), this theory explains that management possesses information that is not fully known by external parties such as investors or creditors. To reduce this information asymmetry, companies need to send signals through financial reports or strategic actions (Nugraha et al., 2022). High profitability, such as net income, ROA, or ROE, serves as a positive signal to the market, indicating sound financial conditions and promising growth prospects, whereas declining profitability is viewed as a negative signal (Ayem & Pratama, 2018). Stable and increasing profitability demonstrates the company's ability to cope with raw material price fluctuations and industry competition, while maintaining investor confidence.

Trade-Off Theory

Developed by Tokatly Latzer et al. (2021), this theory emphasizes the balance between the benefits of debt and the risk of bankruptcy (Turrohma & Sudiyatno, 2023). The optimal capital structure is achieved when the combination of debt and equity maximizes firm value (Brigham & Houtsen, 2019). High profitability encourages companies to use debt prudently for expansion and investment (Hariyanto et al., 2022). In capital-intensive industries, firms must balance funding to remain both liquid and cost-efficient; excessive debt may reduce profitability, while measured use of debt can enhance competitiveness.

Agency Theory

Introduced by Jensen & Meckling (1976), this theory explains the contractual relationship between principals (capital owners) and agents (managers) (Charisma & Suryandari, 2021). Conflicts of interest, or agency problems, may arise due to information asymmetry and personal interests of the agents (Ayem & Pratama, 2018). Implementing monitoring mechanisms, performance-based incentives, and financial transparency is crucial to maintaining profitability. Efficient supply chain management, inventory control, and capital-intensive investment decisions demand transparent management and strong corporate governance to align profit growth with risk control (Dinagra, 2023).

Liquidity

Liquidity is a company's ability to meet short-term obligations, measured by the Current Ratio (CR) (Kusumo & Digidowiseiso, 2023). A low CR indicates financial difficulties, while a high CR is not always favorable as it may suggest inefficient cash management (Ihwanudin et al., 2020). High CR levels may reflect excessive unproductive cash or inventory. Therefore, liquidity analysis must consider industry context, where efficient management of cash and inventory is critical for profitability.

Capital Structure

Capital structure is the financial framework of a company that considers the proportion of debt and equity, serving as a guideline in determining sources of funding, both external and

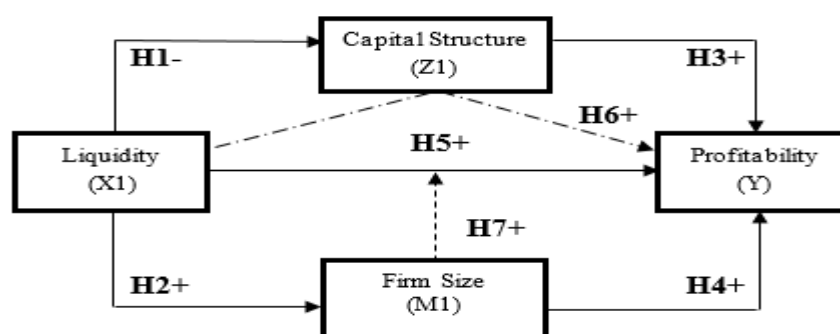
internal (Fionasari et al., 2020). The indicator used is the Debt to Equity Ratio (DER). A high DER poses risks for creditors, but it may also be advantageous for the company (Fauzi & Digdowiseiso, 2024). A declining DER reflects prudence in facing uncertainties, although such a conservative approach may hinder growth. Therefore, an optimal capital structure must balance financial risks with opportunities for expansion and is crucial in assessing the relationship between liquidity and profitability.

Firm Size

Firm size refers to the dimension or scale of a business entity used to evaluate its capacity to manage debt (Pratama & Mulyani, 2024). Small firms tend to face difficulties in obtaining loans due to higher bankruptcy risks, while larger firms generally have greater debt capacity with significant returns (Setiawati & Veronica, 2020). However, a larger scale does not always guarantee better financial performance, as inefficiencies in asset utilization and uncontrolled expansion often occur.

Conceptual Framework

Figure 1. Conceptual Framework



Hypotheses:

H1: Liquidity has a negative effect on Capital Structure.

H2: Liquidity has a positive effect on Firm Size.

H3: Capital Structure has a positive effect on Profitability.

H4: Firm Size has a positive effect on Profitability.

H5: Liquidity has a positive effect on Profitability.

H6: Liquidity has a positive indirect effect on Profitability through Capital Structure as a mediating variable.

H7: Liquidity has a positive indirect effect on Profitability through Firm Size as a moderating variable.

METHOD

The research was conducted from March 2024 to June 2025. Data were obtained secondarily from the annual reports of plastic and packaging subsector companies listed on the Indonesia Stock Exchange (www.idx.co.id) and the Investment Gallery of Universitas Mercu Buana, Jakarta. The research population consisted of 14 companies in the plastic and packaging subsector listed on the IDX during the 2019–2023 period. A sample of 7 companies was

selected using the saturated sampling method, with the criteria of having complete reports and not incurring losses. Data collection employed secondary data obtained from company annual reports and the IDX for the 2019–2023 period. The data collection technique was carried out through triangulation and the download of annual reports. The analysis was performed using panel data regression with Eviews 12, covering both Descriptive and Inferential Statistics (CEM, FEM, REM). Model selection was determined through the Chow Test, Hausman Test, and Lagrange Multiplier Test, while model accuracy was tested using the F-Test, Adjusted R², and t-Test. Mediation testing was conducted using the Sobel Test to measure the indirect effect of independent variables through the mediating variable.

RESULTS AND DISCUSSION

Results

Panel Data Regression Analysis

This study applies panel data regression analysis to examine the relationship between liquidity (CR) and profitability (ROA), with capital structure (DER) as a mediating variable and firm size (FZ) as a moderating variable. Model selection for Structural I, II, and III was conducted using the Chow Test, Hausman Test, and Lagrange Multiplier Test, with the results indicating that the Random Effect Model (REM) is the most appropriate specification.

Table 1. Panel Data Regression Results – Structural I

Dependent Variable: DER
Method: Panel EGLS (Cross-section random effects)
Date: 05/06/25 Time: 01:50
Sample: 2019 2023
Periods included: 5
Cross-sections included: 7
Total panel (balanced) observations: 35
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.661487	0.109144	6.060678	0.0000
CR	-0.035708	0.006778	-5.268576	0.0000

Effects Specification		S.D.	Rho
Cross-section random		0.276601	0.8794
Idiosyncratic random		0.102427	0.1206

Weighted Statistics			
Root MSE	0.100269	R-squared	0.452830
Mean dependent var	0.085579	Adjusted R-squared	0.436249
S.D. dependent var	0.137531	S.E. of regression	0.103263
Sum squared resid	0.351885	F-statistic	27.31030
Durbin-Watson stat	0.806853	Prob(F-statistic)	0.000009

Unweighted Statistics			
R-squared	0.378498	Mean dependent var	0.523800
Sum squared resid	2.829734	Durbin-Watson stat	0.100334

Source: Data processed using Eviews 12, 2025.

As shown in Table 1, the random effect model equation for capital structure (DER) is as follows:

$$\text{DER} = 0.661487 - 0.035708\text{CR}$$

The constant coefficient is 0.661487 with a significance level of 0.0000, indicating that when CR equals zero, DER is 0.661487. The regression output shows that CR has a coefficient of -0.035708 with a significance value of 0.0000, which is lower than 0.05 ($0.0000 < 0.05$). This implies that liquidity (CR) has a significant negative effect on capital structure (DER).

Table 2. Panel Data Regression Results – Structural II

Table 2: Panel Data Regression Results

Structural 11

Dependent Variable: FIRM_SIZE

Method: Panel EGLS (Cross-section random effects)

Date: 05/06/25 Time: 02:16

Sample: 2019 2023

Periods included: 5

Cross-sections included: 7

Total panel (balanced) observations: 35

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.46039	1.485370	17.14077	0.0000
CR	0.021203	0.007623	2.781428	0.0089
Effects Specification			S.D.	Rho
Cross-section random			3.928625	0.9992
Idiosyncratic random			0.112822	0.0008
Weighted Statistics				
Root MSE	0.108006	R-squared	0.194323	
Mean dependent var	0.327995	Adjusted R-squared	0.169908	
S.D. dependent var	0.122084	S.E. of regression	0.111230	
Sum squared resid	0.406283	F-statistic	7.959329	
Durbin-Watson stat	0.806474	Prob(F-statistic)	0.008037	
Unweighted Statistics				
R-squared	0.005525	Mean dependent var	25.54214	
Sum squared resid	392.1234	Durbin-Watson stat	0.000840	

Source: Data processed using Eviews 12, 2025.

As presented in Table 2, the random effect model equation for firm size (FZ) is:

$$\text{FIRMSIZE} = 25.46039 + 0.021203\text{CR}$$

The constant is 25.46039 with a significance level of 0.0000, suggesting that Firm Size will be 25.46039 when CR equals zero. The coefficient of CR is 0.021203 with a significance value of 0.0089, which is lower than the 0.05 threshold. Thus, liquidity (CR) has a positive and significant effect on firm size (FZ).

Table 3. Panel Data Regression Results – Structural III

Table 3: Panel Data Regression Results

Structural III

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 05/06/25 Time: 02:37
Sample: 2019 2023
Periods included: 5
Cross-sections included: 7
Total panel (balanced) observations: 35
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.026239	0.206675	-0.126955	0.8998
DER	-0.114591	0.031584	-3.628192	0.0010
FIRM_SIZE	0.006259	0.007973	0.784976	0.4386
CR	0.004194	0.030390	0.138019	0.8911
CR*FIRM_SIZE	-0.000352	0.001168	-0.301048	0.7655

Effects Specification	S.D.	Rho
Cross-section random	0.066149	0.9407
Idiosyncratic random	0.017103	0.0593

Weighted Statistics			
Root MSE	0.015502	R-squared	0.352471
Mean dependent var	0.006057	Adjusted R-squared	0.266134
S.D. dependent var	0.019545	S.E. of regression	0.016744
Sum squared resid	0.008411	F-statistic	4.082490
Durbin-Watson stat	1.762707	Prob(F-statistic)	0.009276

Unweighted Statistics			
R-squared	0.028215	Mean dependent var	0.054571
Sum squared resid	0.071780	Durbin-Watson stat	0.206539

Source: Data processed using Eviews 12, 2025.

As shown in Table 3, the random effect model equation for profitability (ROA) is expressed as:

$$\text{ROA} = -0.026239 - 0.114591\text{DER} + 0.006259\text{FIRM_SIZE} + 0.004194\text{CR} - 0.000352(\text{CR} \times \text{FIRM_SIZE})$$

The constant coefficient is -0.026239 with a significance level of 0.8998 (> 0.05), indicating that when CR, DER, FZ, and the interaction term are zero, ROA will be -0.026239. The coefficient for DER is -0.114591 with a significance level of 0.0010 (< 0.05), showing that capital structure (DER) has a negative and significant effect on profitability (ROA). An increase

in debt proportion within the capital structure reduces profitability. The coefficient for Firm Size is 0.006259 with a significance level of 0.4386 (> 0.05), indicating that firm size does not significantly affect ROA. The coefficient for CR is 0.004194 with a significance level of 0.8911 (> 0.05), implying that liquidity (CR) has no significant effect on ROA. The interaction variable CR*Firm Size has a coefficient of -0.000352 with a significance level of 0.7655 (> 0.05). This means that firm size does not moderate the relationship between liquidity (CR) and profitability (ROA).

Coefficient of Determination (R^2)

Table 4. Results of the Coefficient of Determination Test

Structure I	
R-squared	0.452830
Adjusted R-squared	0.436249
Structure II	
R-squared	0.194323
Adjusted R-squared	0.169908
Structure III	
R-squared	0.352471
Adjusted R-squared	0.266134

Source: Data processed using Eviews 12, 2025.

Based on Table 4, the Adjusted R-squared value in Structure I is 0.436249 (43.62%), indicating that DER is explained by CR, while the remaining 56.38% is attributed to other factors outside the model. In Structure II, the Adjusted R-squared is 0.169908 (16.99%), suggesting that Firm Size is explained by CR, with 83.01% accounted for by external factors. In Structure III, the Adjusted R-squared is 0.266134 (26.61%), meaning that ROA is explained by the combination of CR, DER, Firm Size, and the interaction term (CR*Firm Size), while the remaining 73.39% is influenced by other variables not included in this study.

F-Test

Table 5. F-Test Results

Structure I	
F-statistic	27.31030
Prob(F-statistic)	0.000009
Structure II	
F-statistic	7.959329
Prob(F-statistic)	0.008037
Structure III	
F-statistic	4.082490
Prob(F-statistic)	0.009276

Source: Data processed using Eviews 12, 2025.

The F-test results indicate that all three structural models meet the significance criteria (< 0.05). In Structure I, CR affects DER as a mediating variable. In Structure II, CR influences Firm Size as a moderating variable. In Structure III, CR, DER, Firm Size, and the interaction term (CR*FZ) jointly affect ROA. Thus, the regression models are considered adequate and suitable for further analysis.

Hypothesis Testing (t-Test)

Table 6. t-Test Results

Struktural I				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.661487	0.109144	6.060678	0.0000
CR	-0.035708	0.006778	-5.268576	0.0000
Struktural II				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.46039	1.485370	17.14077	0.0000
CR	0.021203	0.007623	2.781428	0.0089
Struktural III				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.026239	0.206675	-0.126955	0.8998
DER	-0.114591	0.031584	-3.628192	0.0010
FIRM_SIZE	0.006259	0.007973	0.784976	0.4386
CR	0.004194	0.030390	0.138019	0.8911
CR*FIRM_SIZE	-0.000352	0.001168	-0.301048	0.7655

Source: Data processed using Eviews 12, 2025.

1. The statistical test results show that the t-value for CR is -5.268576 with a significance level of 0.0000, which is below 0.05. Thus, H1 is accepted, and H0 is rejected. This indicates that liquidity (CR) has a negative effect on capital structure (DER) in plastic and packaging companies listed on the IDX during 2019–2023.
2. Further analysis reveals that CR has a t-value of 2.781428 with a probability of 0.0089, also below 0.05. Therefore, H1 is accepted, and H0 is rejected, meaning that liquidity (CR) has a positive effect on firm size (FZ).
3. For DER, the t-value is -3.628192 with a probability of 0.0010, which is below 0.05. Hence, H1 is accepted, and H0 is rejected. This result indicates that capital structure (DER) has a negative effect on profitability (ROA). However, this relationship is contrary to the initial hypothesis, which predicted a positive effect. Therefore, the initial hypothesis is rejected despite the significant relationship found.
4. The t-value for Firm Size is 0.784976 with a probability of 0.4386, higher than 0.05. Thus, H0 is accepted, and H1 is rejected. This indicates that Firm Size does not significantly affect profitability (ROA) in plastic and packaging companies during 2019–2023.
5. The t-value for CR on ROA is 0.138019 with a probability of 0.8911, which is far above 0.05. Accordingly, H0 is accepted, and H1 is rejected. This confirms that liquidity (CR) has no significant effect on profitability (ROA).

Mediation Test (Sobel Test)

Table 7. Sobel Test Results of CR on ROA through DER

a	b	Sa	Sb
-0.035708	-0.114591	0.006778	0.031584
Sobel Test	Test Statistic	Std.Error	P-Value
	2.9880836	0.00136938	0.00280733

Source: Sobel Test Calculator for the Significance of Mediation, 2025.

The results show that the direct effect of CR on DER is -0.035708 (a) with a standard error of 0.006778 (Sa) (see Table 2). Meanwhile, the direct effect of DER on ROA is -0.114591 (b) with a standard error of 0.031584 (Sb) (see Table 4). The Sobel test results indicate a p-value of 0.00280733, which is lower than the 0.05 significance level, with a test statistic of 2.9880836. Hence, H1 is accepted, and H0 is rejected. This means that CR has a positive and

significant indirect effect on ROA through DER, or in other words, DER mediates the effect of CR on ROA.

Moderation Test (Eviews 12)

Referring to Table 6 of the t-test results, the interaction variable CR*Firm Size shows a probability value of $0.7655 > 0.05$, thus H_0 is accepted and H_1 is rejected. This indicates that firm size does not moderate the effect of current ratio (CR) on ROA in the plastic and packaging sector for the 2019–2023 period.

Discussion

The Effect of Liquidity (Current Ratio) on Capital Structure (Debt to Equity Ratio)

The study on plastic and packaging companies listed on the IDX (2019–2023) found that liquidity has a significant negative effect on capital structure. Higher liquidity (CR) reduces reliance on debt (DER), consistent with the Trade-Off Theory, as sufficient internal funds encourage equity financing to lower financial risk. Strong liquidity also reflects efficient cash management, enabling a more conservative and sustainable capital structure. For firms facing rising raw material and energy costs, such a conservative funding strategy helps reduce interest expenses while maintaining long-term financial stability. These results are consistent with Setiawati & Veronica (2020) and Fauzi & Digdowiseiso (2024), who found that liquidity negatively affects capital structure.

The Effect of Liquidity (Current Ratio) on Firm Size

The research finds that liquidity contributes positively and significantly to firm size. Companies that maintain high liquidity tend to experience faster growth, reflecting their ability to meet short-term obligations and maintain good financial health. This finding aligns with Signalling Theory, as liquid companies are perceived as financially healthy, making it easier to secure financing, partnerships, and expansion opportunities, which in turn increases assets, operational scale, and market capitalization. High liquidity provides plastic and packaging companies with the capacity to expand production, grow operations, and increase market share. These results are consistent with Pratama & Mulyani (2024), who found that liquidity has a positive and significant effect on firm size.

The Effect of Capital Structure (Debt to Equity Ratio) on Profitability (Return on Assets)

The findings indicate that capital structure does not have a significant effect on profitability. Changes in the proportion of debt and equity do not directly influence a company's ability to generate profits from its assets. Both highly leveraged companies and equity-based companies are able to maintain profitability. This result calls for a reevaluation of the Trade-Off Theory, as sample firms may have already reached a balance point where additional debt or equity changes have little effect. Although insignificant, plastic and packaging companies still need to exercise caution in using debt to avoid reducing net income. This finding is consistent with previous studies by Hertina et al. (2021), Damayanti & Chaerudin (2021), Inrawan et al. (2022), Jania & Hernawan (2022), and Siregar et al. (2023), which also found no significant effect of capital structure on profitability.

The Effect of Firm Size on Profitability (Return on Assets)

Firm size does not have a significant effect on profitability. Large companies are not necessarily more profitable, as assets, sales, or operational scale do not guarantee efficiency. Bureaucracy and managerial complexity in large firms can reduce performance, while smaller firms are more adaptable. Profitability in the plastic and packaging industry is more influenced by operational efficiency, cost management, and adaptability. These findings support studies by Nainggolan et al. (2022), and Soewarso (2022), which concluded that firm size does not affect profitability.

The Effect of Liquidity (Current Ratio) on Profitability (Return on Assets)

The research findings show that Liquidity (CR) does not have a significant direct effect on profitability. Although it reflects financial health and the ability to pay debts, high liquidity does not guarantee high profits. This contradicts Signalling Theory. Profitability is more influenced by operational efficiency, product innovation, and cost management. Companies need to manage cash strategically, for example through short-term investments or debt repayment, to prevent unproductive cash accumulation. These findings are consistent with Pertiwi et al. (2020), Hertina et al. (2021), Sampurnaningsih & Ikhsyan (2022), Gunawan et al. (2022), Mahardini et al. (2020), Kusumo & Digdowiseiso (2023), Pratama & Mulyani (2024), and Azhary et al. (2024), which all reported that liquidity does not significantly affect profitability.

The Effect of Liquidity (Current Ratio) on Profitability (Return on Assets) through Capital Structure (Debt to Equity Ratio) as a Mediating Variable

Liquidity has a significant positive effect on profitability when capital structure is used as a mediating variable. An efficient capital structure links the company's ability to meet short-term obligations with profit achievement, consistent with Trade-Off Theory. High liquidity allows for reduced interest-bearing debt, lowers financial risk, and increases ROA. Plastic and packaging companies should rely on internal funds rather than interest-bearing debt to finance operations, reduce financial burdens, and manage cost fluctuations. These findings align with Sahputri et al. (2023), who found that liquidity positively affects profitability indirectly through capital structure as a mediating variable.

The Effect of Liquidity on Profitability through Firm Size as a Moderator

Firm size does not moderate the relationship between liquidity and profitability. For both large and small companies, changes in liquidity do not directly impact profits, which contradicts Agency Theory. To achieve optimal profitability, companies need to integrate cash management, operational efficiency, and marketing strategies. Large firms should reduce bureaucracy and improve coordination, while small firms should focus on efficiency, innovation, and flexibility. This is in line with Zurriah & Prayogi (2023), which found that liquidity does not indirectly affect profitability through firm size as a moderating variable.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the research findings, the following conclusions can be drawn:

1. Liquidity has a negative effect on capital structure in the plastic and packaging sub-sector listed on the Indonesia Stock Exchange (IDX) during 2019–2023.

2. Liquidity has a positive effect on firm size in the plastic and packaging sub-sector listed on the IDX during 2019–2023.
3. Capital structure has no effect on profitability in the plastic and packaging sub-sector listed on the IDX during 2019–2023.
4. Firm size has no effect on profitability in the plastic and packaging sub-sector listed on the IDX during 2019–2023.
5. Liquidity has no effect on profitability in the plastic and packaging sub-sector listed on the IDX during 2019–2023.
6. Liquidity has a positive effect on profitability through capital structure as a mediating variable in the plastic and packaging sub-sector listed on the IDX during 2019–2023.
7. Liquidity has no effect on profitability, even when moderated by firm size, in the plastic and packaging sub-sector listed on the IDX during 2019–2023.

Suggestions

1. For Companies

High liquidity should be managed productively through strategic investments, not merely held in cash or current assets. Strong liquidity reduces reliance on debt, creating a healthier capital structure and increasing investor confidence. Although DER does not directly affect profitability, regular evaluations remain important, ideally kept below 1.0 for capital-intensive companies. Large firms must focus on cost efficiency, supply chain management, and product innovation. For example, PT Indopoly Swakarsa Industry Tbk could review asset efficiency, diversify products, and strengthen customer relationships.

2. For Investors

CR can be used to assess a company's financial condition, but it should be analyzed alongside DER and ROA. High CR without efficient management does not guarantee profitability. Company size is not a determinant of success; smaller, adaptive firms may be more profitable. Investors should evaluate growth strategies, operational efficiency, and debt management through annual reports. For instance, PT Sinergi Inti Plastindo Tbk shows strong liquidity and a sound growth strategy, making it a viable investment choice.

3. For Future Researchers

It is recommended to include additional variables such as sales growth, operational efficiency, or dividend policy to strengthen the model. Extending the observation period to up to ten years may reveal long-term trends and the impact of economic cycles. Research can also be expanded to other sectors, such as food and beverages, consumer goods, or pharmaceuticals, to examine the consistency of relationships across industries.

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