

The Effect of Multinational Status and Industry Cyclicity on Corporate Leverage: A Study of Consumer Companies on the Indonesian Stock Exchange

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GIRL;
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two-way fixed effect.

ABSTRACT

This research aims to analyze the effect of multinational status and industry cyclicity on the leverage of consumer companies listed on the Indonesia Stock Exchange. Multinational status is proxied by Foreign Sales to Total Sales (FSTS) and Foreign Assets to Total Assets (FATA), while leverage is measured using LEV and LOGDER. This study used quarterly panel data of consumer cyclical and consumer non-cyclical companies during the 2020–2024 period. The analysis method used is two-way fixed effect panel regression with firm fixed effects, time fixed effects, and clustered standard errors at the firm level. The results show that FATA has a positive and significant effect on leverage, while FSTS does not have a significant effect. This indicates that multinationalism reflected through foreign assets is more relevant in explaining corporate financing decisions than foreign sales. In addition, ROA and current ratio have a negative effect on leverage, while growth asset has a positive effect on leverage. Additional analysis shows that FSTS lagged from one to four quarters does not have a significant effect, and the effect of FATA is more evident among consumer non-cyclical companies. This study concludes that leverage decisions among consumer companies in Indonesia are influenced by international involvement, profitability, liquidity, and asset growth.

INTRODUCTION

In the realm of corporate financial management, funding policy is a strategic decision because it relates to how the company obtains and allocates sources of funds to support operational and investment needs. Funding sources can be provided through internal accumulation as well as external debt, and each funding option carries different consequences for the company's risk, financial flexibility, and capital costs (Shyam-Sunder & Myers, 1999). Thus, determining the optimal funding structure is important so that the company is able to minimize capital costs and maximize the company's value in a sustainable manner for shareholders (Vo, 2021).

In practice, funding decisions are not only determined by the company's internal financial condition, but also by industry characteristics, ownership structure, access to capital markets, and economic and regulatory environment (Li & Islam, 2019). Errors in determining funding structures can increase the risk of bankruptcy, decrease financial flexibility, and give rise to a conflict of agency interests between management and shareholders (Jensen & Meckling, 1976).

Therefore, the study of the factors that determine funding decisions is crucial to be carried out because the company's funding decisions are currently faced with increasingly challenging financial environmental conditions. Based on the IMF Global Financial Stability Report for the April 2025 period, tightening global financial conditions, increasing economic uncertainty, and slowing credit growth indicate that companies are no longer in the same loose funding situation as before. In the context of emerging markets, this condition is becoming increasingly relevant because the real cost of financing is at a high level, so companies need to be more careful in determining the source of funding and the composition of the capital structure used. Thus, the decision to use loans can no longer be seen as a routine decision, but rather as a strategic decision that needs to consider the cost of funds, financing risks, and the company's ability to maintain its financial flexibility.

Numerous studies have examined the relationship between multinationality and capital structure, establishing that multinational corporations tend to exhibit higher leverage than domestic firms due to greater access to international capital markets, internal capital networks, and geographical diversification that reduces bankruptcy risk (Burgman, 1996; Lee & Kwok, 1988; Kwok & Reeb, 2000). Mittoo and Zhang (2008) and Park, Suh, and Yeung (2013) further demonstrated that institutional environments and regulatory frameworks moderate this relationship, while Chowdhry and Coval (1998) and Aggarwal and Kyaw (2008) highlighted the role of internal capital markets in optimizing funding structures across subsidiaries. Recent studies in emerging markets by Duran and Stephen (2020), Jones, Kwansa, and Li (2020), and Vithessonthi (2016) have shown that the impact of multinationality on leverage varies across economic cycles and depends on the type of international involvement, with foreign assets having stronger effects than foreign sales. In the Indonesian context, Nababan and Lee (2025) identified that firm-specific characteristics such as profitability significantly influence leverage decisions. Industry cyclicalities have also emerged as an important factor, with Ngene (2021) and Andrade, Guimarães, and Figueira (2021) demonstrating that sector-level demand stability affects corporate risk profiles and financing strategies. Research on internal determinants has extensively supported pecking order theory (Shyam-Sunder & Myers, 1999; Myers & Majluf, 1984), with studies consistently finding negative relationships between profitability and leverage (Oino & Ukaegbu, 2015; Zeidan, Galil, & Shapir, 2018), while agency theory perspectives have emphasized debt's role as a governance mechanism (D'Mello & Miranda, 2010; Stulz, 1990; Sun, Ding, Guo, & Li, 2016).

Despite extensive literature on capital structure determinants and multinationality, several important gaps remain unaddressed, particularly regarding the Indonesian context where limited empirical evidence exists on how multinational status affects leverage in the consumer goods sector, which exhibits unique characteristics including high foreign ownership concentration and significant domestic market orientation. Previous studies have failed to distinguish between consumer cyclical and non-cyclical sectors or analyze the specific channels through which multinationality influences leverage, while also inadequately examining how different dimensions of multinationality foreign sales versus foreign assets separately influence leverage decisions despite their distinct implications for revenue volatility and resource commitment. The interaction between industry cyclicalities and multinational status remains under-explored in emerging markets, and research examining dynamic effects through lag structures is notably lacking, with most previous studies relying on cross-sectional

or fixed effects models without adequately addressing heteroscedasticity and autocorrelation issues. The novelty of this research lies in providing the first comprehensive analysis of multinational status effects on leverage in Indonesian consumer sector companies, explicitly decomposing multinationality into FSTS and FATA dimensions and comparing their relative explanatory power, while further examining the moderating effect of industry cyclicity through subsample analyses and incorporating dynamic analysis through lag structures from one to four quarters. By employing a robust two-way fixed effect panel regression methodology with clustered standard errors and integrating multiple theoretical perspectives trade-off theory, pecking order theory, agency theory, and risk-access trade-off this research provides empirical evidence on capital structure determinants in the Indonesian context, offering practical implications for corporate financial managers, policymakers, and investors in emerging markets facing tightening global financial conditions.

In this context, research on consumer cyclical and consumer non-cyclical companies is important because the two sectors have different characteristics of demand and cash flow stability. Consumer cyclical companies generally have high sensitivity to changes in economic trends, public consumption levels, and fluctuations in demand, while non-cyclical consumer companies often have more stable demand because they are related to daily needs. These differences in characteristics can affect a company's ability to access loans, face credit tightening, and determine the level of debt use in its funding structure. Therefore, this study is significant to be conducted in order to provide empirical evidence regarding whether the differences in the characteristics of the consumer cyclical and consumer non-cyclical sectors also influence the company's funding decisions, especially in the use of loans, in the midst of increasingly tight financing conditions.

Global financial conditions in recent years have shown an increasing tightening. Data from the International Monetary Fund (IMF) in the Global Financial Stability Report 2025 shows that financial conditions in some regions have even been at a tighter level than the historical average. This situation causes companies to face greater challenges in obtaining funding, making the decision to use debt even more important. Companies need to consider funding costs, financing risks, and the ability to maintain financial flexibility more carefully in determining their capital structure. In this context, the consumer cyclical and consumer non-cyclical sectors are interesting to study because the two sectors have different risk characteristics, economic sensitivity, and cash flow stability.

Consumer cyclical companies tend to be more sensitive to changes in economic conditions because the demand for their products is discretionary, while non-cyclical consumer companies are relatively more stable because they are related to the basic needs of the community. In addition, companies in these two sectors have diverse ownership characteristics, ranging from national companies to multinational corporations. Multinational companies generally have wider access to funding through global networks, internal capital markets, and parent company support, but also face more complex risks such as exchange rate risk, cash flow volatility, and agency costs. In contrast, national companies rely more on domestic banking and local capital markets as their primary source of funding. These differences in characteristics are expected to affect the company's leverage decision pattern.

This research aims to analyze funding decisions in consumer cyclical and consumer non-cyclical companies listed on the Indonesia Stock Exchange by comparing multinational

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companies and national companies. This research examines the influence of multinational status on a company's leverage and identifies other factors that influence funding decisions, such as profitability, company size, asset growth, liquidity, and industry risk. Using secondary company data for the 2020–2024 period, this research is expected to contribute to understanding the relationship between capital structure, multinationalism, and industrial cyclicity in the context of emerging markets such as Indonesia.

METHOD

Research Design

This research applied the quantitative method of panel data which refers to the collection and processing of data in the form of numbers. The purpose of this quantitative method is to analyze funding decisions in Consumer Cyclical & Non-Cyclical companies listed on the Indonesia Stock Exchange. The quantitative approach method is used because the research is focused on objectively examining the differences and influences between variables based on numerical data obtained from the company's financial statements. The research will be carried out by collecting public data contained on the Indonesia Stock Exchange website and the type of quantitative method to be applied is comparative causal.

The population in this study is Consumer Cyclical and Consumer Non-Cyclical sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period. The research sample was selected using several criteria, namely the company has been registered at least since 2020, is on the IDX's main listing board, publishes complete quarterly financial statements during the research period, and does not experience delisting, mergers, liquidations, or entity changes during the 2020–2024 period. The conceptual framework of the research is prepared based on capital structure theories such as trade-off theory, pecking order theory, agency theory, and risk–access trade-offs which explain that the company's leverage is influenced by the level of multinationalism, industrial cyclicity, and internal characteristics of the company. Multinationals proxied through Foreign Sales to Total Sales (FSTS) and Foreign Assets to Total Assets (FATA) can provide wider access to funding, but also increase operational risk and complexity. In addition, the difference in characteristics between consumer cyclical and non-cyclical companies also affects the stability of cash flows and the company's leverage decisions. Control variables such as SIZE, ROA, COLLATERAL, GROWTHASSET, and CURRENTRATIO are used to describe the company's internal conditions related to the capital structure, so that leverage decisions are understood as the result of the interaction between risk, access to funding, and the company's internal conditions.

Data Collection Techniques

The data collection technique in this study is to download and transform the information available in the year's financial statements on the Indonesia Stock Exchange website. For ratios or comparisons that are indirectly contained in the financial statements, it will be calculated from the information available in the financial statements

Quantitative Data Analysis Techniques

The analysis technique taken is correlation analysis and panel regression to see if there is a relationship between variables and whether the nature of the relationship between variables is directly proportional, inversely proportional, or not related at all.

Analyzes

In this study, several stages of analysis were carried out to test the influence of the multinationalism level on the leverage of Consumer Cyclical and Consumer Non-Cyclical companies listed on the Indonesia Stock Exchange. The test begins with the determination of a hypothesis, namely H0 which states that the level of multinationalism of the company does not have a significant effect on the company's leverage, and H1 which states that the level of multinationalism has a significant effect on the company's leverage. Next, a panel data regression model was tested using the Hausman Test to determine the best model between the Random Effect Model and the Fixed Effect Model. After the model is selected, significance testing is carried out using the F-test to test the influence of independent variables simultaneously and the t-test to test the influence of each variable partially on the company's leverage. In addition, the interpretation of the regression coefficient was carried out to determine the direction and magnitude of the influence of independent variables on the dependent variables, while the goodness-of-fit test through the R-Squared value was used to assess the model's ability to explain the variation in the firm's leverage.

In addition to testing the regression model, this study also conducts a classical assumption test to ensure that the results of regression estimates are valid and unbiased. The multicollinearity test was performed to determine whether or not there is a strong linear relationship between independent variables that can cause instability in the estimation of regression parameters. The heteroscedasticity test is used to test whether residual variance is constant across observations, as heteroscedasticity can cause parameter estimation to be inefficient. Furthermore, an autocorrelation test was carried out to detect the presence of residual correlation between observation periods, especially because the study used panel data with a time dimension. All of these tests are carried out so that the regression model used is able to produce estimates that are accurate, consistent, and can be interpreted appropriately according to the research objectives.

RESULT AND DISCUSSION

Panel Data Regression Model Selection

Within the scope of panel data analysis, there are three common approach options that can be applied, namely Pooled Ordinary Least Squares (Pooled OLS), Fixed Effect Model (FEM), and Random Effect Model (REM). To determine the most appropriate model, this study first compared the estimated results of the three models, then used the Hausman test to choose between FEM and REM.

Table 1. F Test Results

Variable	Model 1LEV-FSTS	Model 2LEV-FATA	Model 3LOGDER-FSTS	Model 4LOGDER-FATA
Approach	Pooled OLS/FEM	Pooled OLS/FEM	Pooled OLS/FEM	Pooled OLS/FEM
Prob > F	0,0000	0,0000	0,0000	0,0000
Results	FEM	FEM	FEM	FEM

Source: Researcher, 2026

Based on the results of the F test in table 1, the results of the F test show that all models have a Prob > F value of 0.0000, so the Pooled OLS is rejected and the Fixed Effect Model is selected. This indicates a significant individual effect of the firm, so the difference in fixed characteristics between firms needs to be controlled in the panel regression model.

Cyclical variables show a positive influence on DER in the pooled OLS model. These findings indicate that consumer cyclical companies tend to have a higher debt-to-equity ratio than non-cyclical consumer companies. Theoretically, this can be explained through the mechanism of cash flow volatility. Consumer cyclical companies are more sensitive to changes in economic conditions, people's purchasing power, and market demand, so the company's cash flow tends to fluctuate more than non-cyclical companies.

In more volatile cash flow conditions, cyclical companies may face greater external funding needs to maintain working capital, inventory, operational capacity, and business continuity of activities. Therefore, cyclical companies can have a higher reliance on debt-based funding, which is reflected in higher DERs. Thus, these results show that industrial cyclical companies can influence corporate funding decisions through cash flow volatility and debt reliance mechanisms.

Table 2. Hausman Test Results

Variable	Model FSTS	1LEV- FATA	Model 2LEV- FATA	Model 3LOGDER-FSTS	Model 4LOGDER- FATA
Approach	REM / FEM	REM / FEM	REM / FEM	REM / FEM	REM / FEM
Prob > Chi2	0,0000	0,0000	0,0001	0,0001	0,0001
Results	FEM	FEM	FEM	FEM	FEM

Source: Researcher, 2026

Based on the results of the Hausman test on the four research models, all Prob > chi2 values were below the significance level of 5%, which was 0.0000 in Model 1 and Model 2, and 0.0001 in Model 3 and Model 4. Thus, the null hypothesis that the difference in coefficients between fixed effect and random effect models is not systematically rejected in all models. These results show that the Fixed Effect Model is more appropriate than the Random Effect Model for all research specifications. Therefore, the main analysis of this study is further based on the Fixed Effect Model, with the use of clustered standard errors at the company level to obtain more reliable inferential results.

Table 3. Summary of Panel Regression Model Selection

Model	F Test	Hausman Test	Heteroskedasticities	Autocorrelated	Final Model
Model 1LEV = FSTS + control	FE is better	Selected FE	Ada	Ada	FE with clustered SE
Model 2LEV = FATA + control	FE is better	Selected FE	Ada	Ada	FE with clustered SE
Model 3LOGDER = FSTS + control	FE is better	Selected FE	Ada	Ada	FE with clustered SE

Model 4Logs =	FE	is	Selected	Ada	Ada	FE with
Crack + Control	better		FE			clustered
						SE

Source: Researcher's data processing (2026)

Based on the results of the model selection test, all models show that the Fixed Effect Model is more appropriate than pooled OLS, which is reflected in the results of the F test with a probability value of less than 5% in all models. Furthermore, the results of Hausman's test also showed that all models had a probability value of below 5%, so the Fixed Effect Model was chosen over the Random Effect Model. In addition, the results of the diagnostic test showed that all models experienced heteroscedasticity and autocorrelation. Therefore, the final model used in this study is a Fixed Effect Model with clustered standard errors at the company level for all regression specifications.

The difference in results between pooled OLS and fixed effect models suggests that the specific characteristics of the company that are not observed have an important role in explaining leverage. Pooled OLS assumes that the entire company is homogeneous and does not explicitly control the difference in fixed characteristics between companies. In fact, in practice, each company has different characteristics, such as funding strategy, management quality, ownership structure, risk profile, relationship with creditors, and business group policies.

When a fixed effect model is used, the specific characteristics of the firm that are fixed over time can be controlled, so that the estimated coefficient better reflects changes within the firm over time. Therefore, changes in significance and direction of the coefficient between pooled OLS and FEM can be interpreted as an indication of unobserved heterogeneity. Thus, the FEM results are more suitable to be used as the basis for the main interpretation because they are able to reduce the bias arising from the differences in fixed characteristics between companies.

Regression Analysis

Table 4. Regression Results

Final Regression Results with Firm Fixed Effects and Time Fixed Effects				
	(1)	(2)	(3)	(4)
	LEV-FSTS	LEV-FATA	LOGDER-FSTS	LOGDER FATA
FSTS	0.0466 (0.0656)		0.1111 (0.1340)	
FAIRY		0.2341*** (0.0817)		0.4554** (0.1739)
SIZE	0.0419 (0.0382)	0.0290 (0.0393)	0.0611 (0.0801)	0.0372 (0.0829)
LENGTH	-0.4972** (0.2127)	-0.4993** (0.2078)	-0.8821* (0.4600)	-0.8841* (0.4514)
COLLATERAL	-0.0728 (0.1059)	-0.0566 (0.1053)	-0.2808 (0.2458)	-0.2487 (0.2483)

GROWTHASSET	0.0587** (0.0270)	0.0789*** (0.0271)	0.1336** (0.0601)	0.1725*** (0.0579)
CURRENTRATIO	-0.0180*** (0.0058)	-0.0181*** (0.0058)	-0.0463*** (0.0142)	-0.0465*** (0.0141)
2020q1	0.0000 (.)	0.0000 (.)	0.0000 (.)	0.0000 (.)
2020q2	-0.0039 (0.0054)	-0.0020 (0.0050)	-0.0050 (0.0124)	-0.0011 (0.0117)
2020q3	0.0076 (0.0058)	0.0093 (0.0061)	0.0202 (0.0129)	0.0237* (0.0130)
2020q4	0.0093 (0.0105)	0.0077 (0.0104)	0.0236 (0.0223)	0.0207 (0.0222)
2021q1	-0.0019 (0.0111)	-0.0030 (0.0110)	0.0005 (0.0236)	-0.0013 (0.0234)
2021q2	0.0006 (0.0112)	0.0005 (0.0109)	0.0056 (0.0242)	0.0059 (0.0237)
2021q3	-0.0042 (0.0115)	-0.0047 (0.0112)	-0.0063 (0.0243)	-0.0068 (0.0238)
2021q4	-0.0125 (0.0129)	-0.0130 (0.0127)	-0.0245 (0.0287)	-0.0252 (0.0283)
2022q1	-0.0081 (0.0132)	-0.0086 (0.0130)	-0.0173 (0.0298)	-0.0181 (0.0294)
2022q2	-0.0035 (0.0142)	-0.0030 (0.0139)	-0.0050 (0.0320)	-0.0039 (0.0315)
2022q3	-0.0098 (0.0140)	-0.0090 (0.0136)	-0.0176 (0.0319)	-0.0160 (0.0313)
2022q4	-0.0129 (0.0148)	-0.0119 (0.0145)	-0.0258 (0.0333)	-0.0236 (0.0329)
2023q1	-0.0353** (0.0134)	-0.0346** (0.0131)	-0.0748** (0.0294)	-0.0734** (0.0289)
2023q2	-0.0277* (0.0148)	-0.0265* (0.0145)	-0.0576* (0.0324)	-0.0553* (0.0319)
2023q3	-0.0422*** (0.0145)	-0.0410*** (0.0141)	-0.0853*** (0.0306)	-0.0828*** (0.0300)
2023q4	-0.0465***	-0.0460***	-0.0943***	-0.0932***

	(0.0165)	(0.0162)	(0.0351)	(0.0346)
2024q1	-0.0489*** (0.0169)	-0.0481*** (0.0166)	-0.1008*** (0.0361)	-0.0992*** (0.0357)
2024q2	-0.0413** (0.0175)	-0.0398** (0.0173)	-0.0790** (0.0365)	-0.0760** (0.0361)
2024q3	-0.0525*** (0.0165)	-0.0513*** (0.0162)	-0.1080*** (0.0339)	-0.1058*** (0.0335)
2024q4	-0.0557*** (0.0182)	-0.0540*** (0.0180)	-0.1088*** (0.0380)	-0.1055*** (0.0376)
Constant	-0.7166 (1.1398)	-0.3349 (1.1712)	-1.6959 (2.3811)	-0.9898 (2.4622)
Observations	1080	1080	1080	1080
R-squared	0.9338	0.9346	0.9345	0.9351
Adjusted R-squared	0.9287	0.9295	0.9293	0.9300
F-statistic	7.9564	7.4530	9.3715	9.8178
Prob > F	0.0000	0.0000	0.0000	0.0000

Standard errors in parentheses

Firm fixed effects: Yes

Time fixed effects: Yes, displayed as quarter coefficients

Standard errors clustered at firm level

p<0.01, p<0.05, p<0.10

* p < 0.10, ** p < 0.05, p < 0.01

Source : Researcher's data processing (2026) using Stata/EViews panel data regression with two-way fixed effects and clustered standard errors

Regression Interpretation

The main analysis in this study uses a Fixed Effect Model with firm fixed effects and time fixed effects, as well as clustered standard errors at the company level. The selection of this model is based on the results of previous tests which show that fixed effects is the most suitable model for all research specifications. In addition, the results of the residual test showed the presence of heteroscedasticity and autocorrelation in the panel data, so that the final estimate was carried out using a clustered standard errors approach so that the inferential results became more reliable.

In the final model, the study tested the influence of the level of multinationalism on the firm's leverage using two proxies, namely FSTS and FATA. Leverage is measured using two proxies, namely LEV and LOGDER. Model 1 tests the effect of FSTS on LEV, Model 2 tests the effect of FATA on LEV, Model 3 tests the effect of FSTS on LOGDER, and Model 4 tests the effect of FATA on LOGDER. The entire model also controls the variables SIZE, ROA, COLLATERAL, GROWTHASSET, and CURRENTRATIO, and includes the company's fixed effects and time fixed effects.

In general, the entire model shows a Prob > F value of 0.0000, which means that the independent variables and control variables are together significant in explaining the variation

in the firm's leverage. The R-squared value on all models is in the range of 0.9338 to 0.9351. This high R-squared value needs to be understood in the context of using firm fixed effects and time fixed effects, because the model has controlled for differences in fixed characteristics between firms and differences between time periods.

Final Regression Results Conclusion

The final regression results show that the influence of multinationalism on leverage is more visible through FATA than through FSTS. FATA has a positive and significant effect on both leverage proxies, namely LEV and LOGDER, while FSTS is not significant in both models. These findings suggest that overseas asset ownership reflects more of the level of internationalization relevant to corporate funding decisions than the proportion of overseas sales. Thus, multinational status does not automatically affect leverage, but its effect depends on the multinational proxy used.

In addition, the regression results show that the company's internal variables have an important role in explaining leverage. ROA has a negative effect on leverage, which indicates that companies with higher profitability tend to rely more on internal funding. GROWTHASSET has a positive and significant effect on the entire model, suggesting that companies with higher asset growth tend to need additional funding. Meanwhile, CURRENTRATIO has a consistently negative and significant effect, suggesting that companies with higher levels of liquidity have a lower reliance on debt-based funding.

These findings can be explained through a risk–access trade-off framework. Companies with asset-based international exposure have the potential to have wider access to funding, either through group networking, parent company support, international reputation, and cross-border funding flexibility. However, the benefits of such access still need to be balanced with the risks inherent in international activities, such as the complexity of operations, exchange rate risk, cash flow uncertainty, and agency costs. Therefore, a company's leverage can be understood as a result of considerations between access to funding and risk.

Thus, the results of this study support the view that the decision on the capital structure of consumer companies on the Indonesia Stock Exchange is not only determined by the size of the company or tangible assets, but also by the profitability, liquidity, asset growth, and the form of international involvement of the company. In the context of this study, foreign asset-based multinationalism is a more relevant factor in explaining leverage than foreign sales-based multinationalism.

Regression Alternatives

Table 6. Regression Results with a subsample of Cyclical companies

Two-way Fixed Effect Regression - Cyclical Firms Only				
	(1)	(2)	(3)	(4)
	LEV-FSTS	LEV-FATA	LOGDER-FSTS	LOGDER FATA
fsts	0.0050		0.0477	
	(0.1229)		(0.2657)	
Girl		0.3295		0.8181
		(0.2721)		(0.5838)
size	0.0627	0.0535	0.1240	0.1036

	(0.0479)	(0.0489)	(0.1105)	(0.1103)
tall	-0.2950 (0.2664)	-0.3462 (0.2625)	-0.2884 (0.6324)	-0.4009 (0.6174)
collateral	-0.0017 (0.1196)	-0.0181 (0.1202)	-0.2697 (0.3415)	-0.3090 (0.3440)
growth asset	0.0595 (0.0420)	0.0642 (0.0420)	0.1992 (0.1197)	0.2110* (0.1202)
current ratio	-0.0145* (0.0071)	-0.0146** (0.0069)	-0.0352** (0.0165)	-0.0355** (0.0162)
Observations	420.0000	420.0000	420.0000	420.0000
R-squared	0.9351	0.9355	0.9333	0.9338
Adjusted R-squared	0.9273	0.9278	0.9253	0.9258
F-statistic	9.7413	13.7243	8.2437	12.1050
Prob > F	0.0000	0.0000	0.0001	0.0000

Standard errors in parentheses

Sample: Consumer cyclical firms only

Firm fixed effects: Yes

Time fixed effects: Yes

Standard errors clustered at firm level,

$p < 0.01$, $p < 0.05$, $p < 0.10$

* $p < 0.10$, ** $p < 0.05$, $p < 0.01$

Source: Researcher's data processing (2026) using Stata/EViews panel data regression on cyclical subsample

The regression results in a subsample of consumer cyclical companies showed that the main variables of the study, both FSTS and FATA, did not have a significant effect on leverage, either when leverage was measured using LEV or LOGDER. In Model 1 and Model 3, FSTS had positive coefficients of 0.0050 and 0.0477, respectively, but were not statistically significant. Similarly, the FATA on the Model 2 and Model 4 has a positive coefficient of 0.3295 and 0.8181, respectively, but it is also insignificant. Thus, in the cyclical group of companies, the level of multinationalism proxied through foreign sales and foreign assets has not been empirically proven to influence the company's leverage decision.

The CURRENTRATIO variable showed a consistently significant negative influence on the entire model. The CURRENTRATIO coefficients are -0.0145, -0.0146, -0.0352, and -0.0355, respectively. These results suggest that cyclical companies with higher levels of liquidity tend to have lower leverage. These findings are in line with pecking order theory, which states that companies with current asset availability or greater in-house funding tend to have a lower reliance on debt-based funding.

Meanwhile, the ROA, SIZE, and COLLATERAL variables did not show a significant effect on the entire model. This suggests that profitability, company size, and proportion of tangible assets have not been statistically proven to be determinants of leverage in a subsample of cyclical companies after firm fixed effects and time fixed effects are controlled. The

GROWTHASSET variable is also not significant in most models, except in Model 4, which is the LOGDER-FATA model, with a coefficient of 0.2110 and significant at the level of 10%. These results indicate that asset growth has only a limited influence on leverage in the cyclical group of companies.

In general, the results of the cyclical subsample regression showed that the funding decisions of consumer cyclical companies were more strongly explained by liquidity factors than by the dimension of multinationalism. The insignificance of FSTS and FATA suggests that international engagement, both through sales and foreign assets, has not been strong enough to explain the variation in leverage in cyclical companies. These findings also support the results of the main model that the influence of multinationalism on leverage does not become stronger in groups of firms that are more sensitive to economic cycles.

Table 7. Regression Results with a subsample of Non-Cyclical companies

Two-way Fixed Effect Regression - Non-Cyclical Firms Only

	(1)	(2)	(3)	(4)
	LEV-FSTS	LEV-FATA	LOGDER-FSTS	LOGDER FATA
fsts	0.0502 (0.0856)		0.0937 (0.1675)	
Girl		0.2414** (0.1147)		0.4378* (0.2257)
size	0.0161 (0.0593)	-0.0105 (0.0621)	0.0223 (0.1132)	-0.0257 (0.1208)
tall	-0.5722* (0.3046)	-0.5436* (0.2934)	-1.0543 (0.6230)	-1.0026 (0.6020)
collateral	-0.2146 (0.1804)	-0.1783 (0.1848)	-0.4524 (0.3405)	-0.3865 (0.3523)
growthasset	0.0435 (0.0357)	0.0811** (0.0330)	0.0642 (0.0692)	0.1325* (0.0652)
currentratio	-0.0280*** (0.0075)	-0.0277*** (0.0077)	-0.0765*** (0.0136)	-0.0760*** (0.0141)
Observations	660.0000	660.0000	660.0000	660.0000
R-squared	0.9309	0.9322	0.9354	0.9364
Adjusted R-squared	0.9244	0.9257	0.9292	0.9303
F-statistic	3.6877	6.9056	6.4017	10.5910
Prob > F	0.0067	0.0001	0.0002	0.0000

Standard errors in parentheses

Sample: Consumer non-cyclical firms only

Firm fixed effects: Yes

Time fixed effects: Yes

Standard errors clustered at firm level

p<0.01, p<0.05, p<0.10

* p < 0.10, ** p < 0.05, p < 0.01

Source: Researcher's data processing (2026) using Stata/EViews panel data regression on non-cyclical subsample

The regression results in a subsample of non-cyclical consumer companies show that FATA has a more consistent influence than FSTS in explaining company leverage. In Model 1 and Model 3, FSTS had positive coefficients of 0.0502 and 0.0937, respectively, but were not statistically significant. This shows that the proportion of foreign sales to total sales has not been shown to have a significant influence on leverage in non-cyclical companies, both when leverage is measured using LEV and LOGDER.

On the contrary, FATA showed a positive and significant influence. In Model 2, which is a model with LEV as a dependent variable, FATA has a coefficient of 0.2414 and is significant at the level of 5%. In Model 4, which is a model with LOGDER as a dependent variable, FATA has a coefficient of 0.4378 and is significant at the level of 10%. These results show that in non-cyclical companies, the higher the proportion of foreign assets to total assets, the higher the level of leverage of the company. Thus, the dimension of foreign asset-based multinationalism is more relevant in explaining funding decisions than the dimension of foreign sales.

The ROA variable shows a negative coefficient in the entire model. In Model 1 and Model 2, the ROA has a coefficient of -0.5722 and -0.5436, respectively, and is significant at the level of 10%. However, in the Model 3 and Model 4, the ROA is not statistically significant. These results suggest that in non-cyclical companies, profitability tends to be related to lower leverage, especially when leverage is measured using LEV. This finding is in line with pecking order theory, because companies with higher profitability have greater internal funding capacity so that the need for debt use is lower.

The GROWTHASSET variable shows results that vary between models. In Model 2, GROWTHASSET has a coefficient of 0.0811 and is significant at the level of 5%, while in Model 4 the coefficient is 0.1325 and significant at the level of 10%. However, on Model 1 and Model 3, the GROWTHASSET is not significant. These results suggest that asset growth has the potential to drive increased leverage in non-cyclical companies, especially in models that use FATA as a proxy for multinationals. Conceptually, companies with higher asset growth need additional funding to support expansion, investment, and working capital.

The CURRENTRATIO variable showed a consistently significant negative influence on the entire model. The CURRENTRATIO coefficients are -0.0280, -0.0277, -0.0765, and -0.0760, respectively, with all significant at the 1% level. These results suggest that non-cyclical companies with higher levels of liquidity tend to have lower leverage. These findings are consistent with pecking order theory, as higher liquidity reflects greater availability of internal funds, so companies have a lower reliance on debt-based funding.

Meanwhile, the SIZE and COLLATERAL variables did not show a significant effect on the entire model. SIZE has a directionally inconsistent coefficient, which is positive on the Model 1 and Model 3, but negative on the Model 2 and Model 4. COLLATERAL has a negative coefficient on the entire model, but it is not statistically significant. Thus, firm size and the proportion of tangible assets have not been proven to be the main determinants of leverage in a subsample of non-cyclical firms after firm fixed effects and time fixed effects are controlled.

Overall, regression results on a subsample of non-cyclical companies show that funding decisions are more responsive to multinational status as measured through FATA than FSTS. These findings are consistent with the main regression results that show that the asset-based

dimension of multinationalism is more relevant in explaining leverage than the dimension of foreign sales. In addition, the results in the non-cyclical subsample also show that liquidity is the most consistent factor in lowering leverage, while asset growth tends to increase leverage in FATA-based models.

When compared to a subsample of cyclical companies, the results in non-cyclical companies provide stronger empirical evidence that foreign assets are associated with increased leverage. In the cyclical subsample, FSTS and FATA were not significant, while in the non-cyclical subsample, FATA was significantly positive for LEV and LOGDER. This difference in pattern indicates that non-cyclical companies, which generally have more stable demand and cash flows, are likely to be better able to optimize their exposure to foreign assets in debt-based funding strategies. Nevertheless, since the results of previous interaction models do not show significant interaction coefficients, these differences need to be understood as additional empirical patterns, rather than as formal evidence that industrial cyclicity moderates the relationship between multinationalism and leverage.

Table 8. LEV Regression Results with FSTS variable lag
Two-way Fixed Effect Regression: LEV with FSTS Lag 1 to Lag 4

	(1)	(2)	(3)	(4)
	LEV-FSTS Lag 1	LEV-FSTS Lag 2	LEV-FSTS Lag 3	LEV-FSTS Lag 4
fstst1	0.0421 (0.0565)			
fstst2		0.0069 (0.0314)		
fstst3			-0.0134 (0.0327)	
fstst4				-0.0179 (0.0316)
size	0.0423 (0.0378)	0.0443 (0.0375)	0.0457 (0.0379)	0.0461 (0.0378)
tall	-0.4979** (0.2125)	-0.4929** (0.2108)	-0.4952** (0.2105)	-0.4964** (0.2108)
collateral	-0.0722 (0.1059)	-0.0715 (0.1062)	-0.0717 (0.1064)	-0.0724 (0.1064)
growthasset	0.0597** (0.0269)	0.0580** (0.0272)	0.0574** (0.0274)	0.0564** (0.0271)
currentratio	-0.0180*** (0.0058)	-0.0180*** (0.0058)	-0.0178*** (0.0059)	-0.0178*** (0.0059)
Observations	1080.0000	1080.0000	1080.0000	1080.0000
R-squared	0.9338	0.9338	0.9338	0.9338

Adjusted squared	R-	0.9287	0.9286	0.9286	0.9286
F-statistic		7.5033	6.7899	6.7203	6.7949
Prob > F		0.0000	0.0000	0.0000	0.0000

Standard errors in parentheses

Firm fixed effects: Yes

Time fixed effects: Yes

Standard errors clustered at firm level

p<0.01, p<0.05, p<0.10

* p < 0.10, ** p < 0.05, p < 0.01

Source: Researcher's data processing (2026) using Stata/EViews panel data regression with lagged variables

Based on Table 8, the results of the two-way fixed effect regression showed that FSTS lag 1 to lag 4 had no significant effect on LEV. The FSTSt1 coefficient was 0.0421, FSTSt2 was 0.0069, FSTSt3 was -0.0134, and FSTSt4 was -0.0179, but all were not statistically significant. These results show that the proportion of overseas sales to total sales is not proven to have a delayed effect on the company's leverage until the previous four quarters. Thus, these findings reinforce the main regression results that FSTS has not been a strong proxy of multinationalism in explaining a company's leverage decisions.

Although the FSTS lag is not significant, the control variable shows a consistent pattern. ROA has a significant negative effect on LEV, GROWTHASSET has a significant positive effect, and CURRENTRATIO has a significant negative effect on the entire model. This shows that a company's leverage is more consistently explained by the company's internal characteristics, in particular profitability, asset growth, and liquidity, than by the proportion of foreign sales in the previous period.

Table 9. LOGDER Regression Results with FSTS variable lag
Two-way Fixed Effect Regression: LOGDER with FSTS Lag 1 to Lag 4

	(1)	(2)	(3)	(4)
	LOGDER-FSTS Team 1	LOGDER-FSTS Layer 2	LOGDER-FSTS Team 3	LOGDER-FSTS Team 4
fstst1	0.1135 (0.1149)			
fstst2		0.0199 (0.0710)		
fstst3			-0.0372 (0.0800)	
fstst4				-0.0474 (0.0777)
size	0.0613 (0.0792)	0.0666 (0.0787)	0.0705 (0.0797)	0.0713 (0.0794)

tall	-0.8854*	-0.8718*	-0.8781*	-0.8811*
	(0.4596)	(0.4571)	(0.4580)	(0.4584)
collateral	-0.2799	-0.2779	-0.2783	-0.2801
	(0.2460)	(0.2467)	(0.2475)	(0.2477)
Growth asset	0.1367**	0.1322**	0.1304**	0.1277**
	(0.0598)	(0.0603)	(0.0608)	(0.0597)
Current ratio	-0.0463***	-0.0463***	-0.0459***	-0.0458***
	(0.0142)	(0.0142)	(0.0144)	(0.0143)
Observations	1080.0000	1080.0000	1080.0000	1080.0000
R-squared	0.9345	0.9344	0.9344	0.9344
Adjusted R-squared	0.9294	0.9293	0.9293	0.9293
F-statistic	8.6669	7.5037	7.1800	7.2283
Prob > F	0.0000	0.0000	0.0000	0.0000

Standard errors in parentheses

Firm fixed effects: Yes

Time fixed effects: Yes

Standard errors clustered at firm level

p<0.01, p<0.05, p<0.10

* p < 0.10, ** p < 0.05, p < 0.01

Source: Researcher's data processing (2026) using Stata/EViews panel data regression with lagged variables

Based on Table 9, the results of the two-way fixed effect regression show that FSTS lag 1 to lag 4 has no significant effect on LOGDER. The FSTSt1 coefficient was 0.1135, FSTSt2 was 0.0199, FSTSt3 was -0.0372, and FSTSt4 was -0.0474, but all were not statistically significant. These results show that the proportion of overseas sales to total sales has not been proven to have a delayed effect on the leverage measured with LOGDER until the previous four quarters. Thus, these results are consistent with the main regression that FSTS has not been a strong multinational proxy in explaining the company's leverage decisions.

Although the FSTS lag is not significant, the control variable shows a consistent pattern. ROA has a significant negative effect on LOGDER, GROWTHASSET has a significant positive effect, and CURRENTRATIO has a significant negative effect on the entire model. This shows that a company's leverage is more consistently explained by the company's internal characteristics, in particular profitability, asset growth, and liquidity, than by the proportion of foreign sales in the previous period.

CONCLUSION

This study analyzes the influence of multinational status and industrial cyclicity on the leverage of consumer companies listed on the Indonesia Stock Exchange for the period 2020–2024 using a two-way fixed effect panel regression. Multinational status is proxied through Foreign Sales to Total Sales (FSTS) and Foreign Assets to Total Assets (FATA), while leverage is measured using LEV and LOGDER. The results showed that FSTS had no significant effect on leverage, while FATA had a significant positive effect, suggesting that overseas asset

ownership is more relevant in explaining company funding decisions. In addition, ROA and current ratio have a negative effect on leverage, while growth assets have a positive effect. The size and collateral variables did not show a consistent influence. In the subsample analysis, the influence of FATA on leverage is more visible in non-cyclical consumer companies than in cyclical consumers. Overall, the study concludes that the leverage decisions of consumer companies in Indonesia are influenced by the balance between access to funding, risk, profitability, liquidity, asset growth, and the company's international engagement. Based on the findings, several recommendations can be proposed. For corporate managers, the positive and significant effect of FATA on leverage suggests that companies with substantial foreign asset holdings should strategically leverage their international presence to optimize capital structure and access broader funding sources, while simultaneously managing the associated exchange rate and operational risks. The negative effects of ROA and current ratio on leverage imply that highly profitable and liquid companies should prioritize internal funding before considering external debt, consistent with the pecking order theory. For investors, the differing effects of FATA between cyclical and non-cyclical subsamples indicate that investment decisions should consider both the type of multinational involvement and industry characteristics, as asset-based internationalization in non-cyclical sectors provides greater debt capacity and potentially lower financing costs. For policymakers and regulators, the insignificant effect of FSTS on leverage suggests that policies promoting export-oriented internationalization may not automatically translate into improved financing flexibility, whereas policies encouraging foreign direct investment and asset-based international expansion may have stronger implications for corporate financial structure. The findings also highlight the need for continued development of capital markets and financial infrastructure to support companies in optimizing their capital structure. For future research, this study recommends further investigation into the moderating role of institutional quality, corporate governance mechanisms, and macroeconomic conditions on the relationship between multinationalism and leverage across different sectors in emerging markets. Additionally, future studies could extend the analysis by incorporating other proxies of multinationalism, such as the number of foreign subsidiaries or geographic diversification indices, and by employing alternative econometric approaches such as dynamic panel GMM to address potential endogeneity issues.

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