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The relationship between leverage and company value: an approach using industry effect resolution

Section:
Business management

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Abstract

This study investigates the relationship between leverage and firm value by applying an industry effect resolution approach. Using a sample of non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023, the research employs panel data regression with fixed-effects and random-effects models to isolate and account for industry-specific influences. The analysis compares explicitly the leverage-value relationship before and after implementing industry effect controls. The results demonstrate that leverage maintains a positive relationship with firm value, both in baseline models and after resolving for industry heterogeneity. This consistency across model specifications confirms the robustness of the leverage-value relationship, while highlighting the methodological importance of resolving industry effects in corporate finance research.

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Abstrak

Penelitian ini mengkaji hubungan antara leverage dan nilai perusahaan dengan menerapkan pendekatan penyelesaian efek industri. Menggunakan sampel perusahaan non-keuangan yang terdaftar di Bursa Efek Indonesia (BEI) dari tahun 2019 hingga 2023, penelitian ini menggunakan regresi data panel dengan model efek tetap dan efek acak untuk mengisolasi dan memperhitungkan pengaruh spesifik industri. Analisis ini secara eksplisit membandingkan hubungan leverage-nilai sebelum dan setelah menerapkan kontrol efek industri. Hasil penelitian menunjukkan bahwa leverage tetap memiliki hubungan positif dengan nilai perusahaan, baik dalam model dasar maupun setelah memperhitungkan heterogenitas industri. Konsistensi ini di seluruh spesifikasi model mengonfirmasi ketahanan hubungan leverage-nilai, sekaligus menyoroti pentingnya secara metodologis untuk memisahkan efek industri dalam penelitian keuangan korporat.

Kata Kunci: Citra Merek, Harga, Minat Beli Ulang, Kepuasan Konsumen

INTRODUCTION

Capital structure is an essential element in corporate financial decisions. Leverage, as part of a company's capital structure, is believed to affect company value through several mechanisms, including tax shields, agency costs, and signaling. However, the effect of leverage on company value is not universal, but may vary depending on industry characteristics and the company's growth opportunities.

This study examines the relationship between leverage and company value, considering the industry effect resolution, which refers to the influence of industry characteristics on a company's optimal capital structure. In addition, this study also distinguishes companies based on their level of growth opportunities to test whether leverage has a different impact on company value.

In the last five years, Indonesia's capital market has shown rapid growth. The digitization of stock trading, the entry of retail investors from the millennial and Gen Z generations, and changes in OJK and IDX regulations have further emphasized the importance of capital structure and corporate funding strategies in determining firm value. After the COVID-19 pandemic (2020–2022), public companies in Indonesia faced significant pressure on their capital structure. Some companies chose to increase leverage to maintain liquidity, while others reduced debt due to concerns about global uncertainty. This phenomenon aligns with the findings of Yolanda and Dwita (2025), who stated that debt financing decisions have varying effects depending on industry conditions and company growth opportunities.

In addition, issues of sustainability and Environmental, Social, and Governance (ESG) are now increasingly influencing capital structure decisions. Investors, both global and domestic, tend to be more cautious about the risks of excessive leverage because it can disrupt business sustainability. Several recent studies (e.g., Haryanto & Putri, 2022; Setiawan, 2023) show that high leverage tends to reduce firm value in industries with high volatility, but can actually increase firm value in relatively stable industries, such as the consumer goods sector.

In line with Stulz (1990), the use of debt has a dual effect: on the one hand, it can increase company value through managerial discipline (reducing agency costs), but on the other hand, it has the potential to cause underinvestment if the company faces numerous growth opportunities. This remains relevant today, especially in the post-pandemic era, when companies face tight cash flow pressures. Furthermore, the industry effect is an essential aspect in determining the influence of leverage on company value. For example, technology companies on the IDX tend to avoid high leverage due to high business risks, while companies in the utilities sector are relatively able to bear greater leverage. This supports Aggarwal's (2007) theory, which asserts that industry characteristics greatly determine the optimal level of leverage.

However, previous studies in Indonesia have generally only examined the relationship between leverage and company value without considering the industry effect resolution. In fact, macroeconomic factors such as the pandemic crisis, interest rate fluctuations, and global inflation, as well as industry factors, are increasingly crucial in determining firm value. Therefore, this study is essential to update the analysis of the relationship between leverage and firm value by incorporating the perspective of industry effect resolution, particularly for non-financial companies listed on the IDX during the period 2019–2023.

LITERATURE REVIEW

Definition of Capital Structure

According to Ross (2006), capital structure refers to the combination of long-term debt used by companies for their operational activities. According to Wild (2001), capital structure refers to the composition of funding between equity (self-funding) and debt within a company. A company's funding decisions are one of the aspects that influence the creation of value for the company.

Therefore, companies need to establish effective financing policies. One of the steps companies take is to implement financial management. The primary responsibility of a financial manager in a company is to plan the allocation and utilization of funds to maximize the company's value.

Debt Policy

One source of company financing comes from debt. According to McConnell (1995), debt financing has advantages over equity for two main reasons. First, debt provides tax advantages because interest expenses reduce taxable income, a benefit that dividends do not have. Second, debt creates discipline for management by encouraging efficient cash allocation to pay its obligations, thereby preventing investment in unprofitable projects.

Modigliani and Miller (M&M) Theory Prepositions

The Modigliani and Miller (1958) theory, also known as the M&M theory, serves as the basis of modern financial theory. This theory provides an operational definition of capital costs and a theoretical basis for investment that explicitly acknowledges uncertainty, thereby providing support for the principle of maximizing market value. In other words, the M&M theory seeks to explain the relationship between a company's capital structure and its value.

Pecking Order Hypothesis

The Pecking Order model was developed by Myers (1984) with the following assumptions:

1. Managers will maintain a constant dividend per share and will not increase or decrease dividends in the event of temporary changes in earnings.
2. Managers do not have a target debt-to-equity ratio, but they do have a hierarchy in the use of funding sources.

Based on this theory, internal financing in the form of retained earnings is preferred over external funding. If internal sources are insufficient, the company will then turn to external sources of capital, starting with the least risky, namely debt, bond issuance, and then share issuance. This

order is also in line with the transaction costs that the company must incur to obtain additional capital from these sources.

Signaling Theory

This theory was developed by Ross (1977) and other researchers based on the capital structure of companies with asymmetric information between well-informed managers and poorly informed outside shareholders (Megginson, 1997). In this model, managers of companies with promising prospects will inform investors about the company's situation, hoping that the share price will increase. However, due to asymmetric information, managers do not typically achieve the expected results immediately. Investors do not immediately believe the information because management has an incentive to announce such information or investment projects. In addition, managers of other companies with poor prospects also have the same opportunity to do so in order to increase the value or price of their shares. Due to the ambiguity of the information, investors tend to assign a relatively low value or price to all companies, including those with high prospects.

Industry Effects and Capital Structure

Company capital structures vary and can be influenced by factors in the industry in which the company operates (Miao, 2005). Therefore, companies in different industries will have different capital structures (Aggarwal, 2007). Aggarwal explains that industry conditions greatly affect the business risks faced by a company. For this reason, grouping companies by industry will be a significant factor in determining the company's capital structure. According to Hovakiman (2004), a company's leverage level should be evaluated in relation to its deviation from the industry average. This is supported by Frank (2009), who argues that industry median leverage is the most influential factor in a company's leverage decision, where companies in industries with high median leverage values tend to have high leverage.

Research model:

Without Industry Effect

$$Q_{it} = \beta_1 X\ Industry\ Median\ Q_t + \beta_2 X\ Leverage_{it} + \beta_3 X\ Assets_{it} + \beta_4 X\ CAPX_{it} + \beta_5 X\ G1_{Sales_{it}} + \beta_6 X\ SGA\ Expenditure_{it} + Intercept$$

With Industry Effect

$$Q_{it} = \beta_1 X\ Industry\ Median\ Q_t + \beta_2 X\ Industry\ Median\ Leverage_{it} + \beta_3 X\ Dev_{it} + \beta_4 X\ Assets_{it} + \beta_5 X\ CAPX_{it} + \beta_6 X\ G1\_Sales_{it} + \beta_7 X\ SGA\ Expenditure_{it} + Intercept$$

Description:

Q_{it}	=	The value of company i in year t.
Ind.Median Q_t	=	The median value of company Q's industry in year t.
Ind.Median $Leverage_{it}$	=	The median value of leverage for each industry in year t.
$Leverage_{it}$	=	The ratio of company i's total debt to its total assets in year t.
Dev_{it}	=	The difference between company i's leverage in year t and the median value for its industry.
$Assets_{it}$	=	The natural logarithm of company i's total assets in year t.
$CAPX_{it}$	=	Company i's capital expenditure ratio to total assets in year t.
$G1\_Sales_{it}$	=	Company i's real sales growth in year t.

$SGA\ Expenditure_{it}$ = Company i's SGA expenditure ratio to total assets in year t.

METHODS

This study utilizes panel data from non-financial companies listed on the IDX from 2019 to 2023. The sample was selected using purposive sampling based on the criteria of complete financial reports and the existence of at least two companies in one sub-industry.

Data and Sample

The data and sample used in this study consisted of non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023, selected through purposive sampling, with the following criteria: having complete financial reports and being part of a sub-industry with at least two companies.

Research Variables

The variables in this study are the dependent variable: company value (Tobin's Q), independent variables: leverage, industry median leverage, leverage deviation, and control variables: assets, CAPX, G1_Sales, and SGA expenditure.

Analysis Techniques

This study employs panel data regression analysis, including fixed effects and random effects, as well as Chow and Hausman tests for model selection. Additionally, it conducts tests for multicollinearity, heteroscedasticity, and autocorrelation.

RESULTS AND DISCUSSION

Descriptive Statistics

Processed descriptive statistics provide a general description of the data for each variable, including both dependent and independent variables.

Table 1.
Descriptive Statistics

Variabel	Mean	Standard Deviasi	Min	Max
Qit	1.514	1.524	0.023	15.003
Leverageit	0.256	0.270	0.000	2.758
Devit	0.017	0.243	-0.492	2.563
CAPXit	0.058	0.064	0.000	0.540
G1_Sales	0.158	0.424	-2.527	5.325
Assetsit	21.208	1.657	16.395	25.981
SGA Expenditureit	0.145	0.275	0.000	6.257
Industry Median Qit	1.173	0.440	0.520	3.839
Industry Median Leverage it	0.238	0.121	0.000	0.531

Source: Eviews

Table 1 presents the descriptive statistics of the research variables. The average Qit value of 1.514, with a range of 0.023 to 15.003, indicates a relatively high variation in company values between samples. The average Leverageit of 0.256, with a maximum value of 2.758, suggests that some companies have a relatively high level of debt dependence. The Devit variable has an average of 0.017 with a fairly diverse distribution (minimum -0.492 and maximum 2.563). At the same time, CAPXit shows an average of 0.058 with a maximum value of 0.540, indicating that capital expenditure is relatively small compared to the company's assets.

Sales growth (G1_Sales) has an average of 0.158 but varies considerably, as indicated by the minimum value of -2.527 and the maximum of 5.325. Company size (Assetsit) has an average of 21.208 with a standard deviation of 1.657, which confirms that there are significant differences in company size in the sample. The average SGA expenditure is $0.145, with a maximum of $6.257, indicating that the company's operating expenses vary significantly. Meanwhile, industry control variables such as Industry Median Qit have an average of 1.173 (range 0.520–3.839), while Industry Median Leverageit has an average of 0.238 with a range of 0.000–0.531. These results generally indicate considerable heterogeneity between companies and across industries within the research sample.

hypothesis testing

Results of hypothesis testing using regression models with and without industry effects to examine the influence of independent variables on the dependent variable.

Table 2.
Output Regresi

Variabel	Coefficient	t-statistic	Prob.
Without Industry Effect			
C	4.108	2.191	0.029
Assetsit	-0.206	-2.302	0.022
CAPXit	0.423	0.809	0.419
G1_Sales	-0.124	-2.119	0.034
Industry Median Qit	1.392	14.237	0.000
Leverageit	0.442	1.727	0.084
SGA Expenditureit	0.151	1.158	0.247
Adjusted R square		0.755	
F-statistic		16.078	
Prob. (F-Statistic)		0.000	
With Industry Effect			
C	3.787	1.946	0.052
Assetsit	-0.191	-2.056	0.040
CAPXit	0.264	0.489	0.625
G1_Sales	-0.124	-2.054	0.040
Industry Median Qit	1.356	13.467	0.000
Leverageit	0.798	2.166	0.031
Devit	0.574	2.107	0.035
SGA Expenditureit	0.146	1.078	0.281
Adjusted R square		0.740	
F-statistic		14.856	
Prob. (F-Statistic)		0.000	

Source: Eviews Output Results (2025)

Regression Results Without Using Industry Effect Resolution

Based on the regression output, the first control variable is assets. This variable is used to ensure that the relationship between a company's debt level and Tobin's Q value is not influenced by differences in company size. The estimation results yield a coefficient value of -0.206 with a p-value of 0.022, indicating significance at the α = 5% level. This means that, with a 95% confidence level, the assets variable has a significant effect on the company's Tobin's Q value.

The following control variables are SGA expenditure, capital expenditure, and sales growth. These three variables are used to control the influence of the company's *growth opportunities*. The results show that SGA expenditure has a positive coefficient of 0.151 with a p-value of 0.247, and capital expenditure has a coefficient of 0.423 with a p-value of 0.419. In contrast, sales growth has a negative coefficient of -0.124 with a p-value of 0.034. This indicates that, with a 95% confidence level, sales growth has a significant impact on the company's Tobin's Q value. In contrast, SGA expenditure and capital expenditure have no considerable effect.

Furthermore, the industry median Tobin's Q variable has a positive coefficient of 1.392 with a probability of 0.000, which is significant at the α = 1% level. This means that, with a 99% confidence level, the median Tobin's Q in the sub-industry is positively correlated with the company's Tobin's Q value. In other words, the higher the median Tobin's Q value in a sub-industry, the higher the Tobin's Q value of companies in that sub-industry.

The primary variable in this study is leverage, which yields a coefficient value of 0.442 with a p-value of 0.084, significant at the α = 10% level. This indicates that with a 90% confidence level, leverage is positively related to the company's Tobin's Q value. Thus, every 1% increase in company leverage will increase the Tobin's Q value by 0.442%. This result is consistent with the theory proposed by Ross (1977) in McConnell (1995), which states that the use of debt can increase company value because leverage strengthens the positive perception of the market and investors towards the company.

The adjusted R-squared value in this model is 0.755. This means that the independent variables used can explain 75.5% of the variation in the company's Tobin's Q value. Meanwhile, the F-statistic value of 16.078, which is greater than the α value, indicates that all independent variables (assets, capital expenditure, sales growth, industry median Tobin's Q, leverage, and SGA expenditure) collectively have a significant effect on the dependent variable, namely the company's Tobin's Q value.

Regression Results Using Industry Effect Resolution

Based on the regression output, the first control variable is **assets**, which is used to ensure that the relationship between a company's debt level and Tobin's Q value is not influenced by differences in company size. The estimation results show a coefficient value of -0.191 with a p-value of 0.040, which is significant at the α = 5% level. This means that, with a 95% confidence level, the assets variable has a significant effect on the company's Tobin's Q value.

The following control variables are **SGA expenditure**, **capital expenditure**, and **sales growth**. These three variables are used to control the influence of the company's growth opportunities. The results show that **SGA expenditure** has a positive coefficient of 0.146 with a p-value of 0.281, **and capital expenditure** has a coefficient of 0.264 with a p-value of 0.625. In contrast, **sales growth** has a negative coefficient of -0.124 with a p-value of 0.040. This indicates that, with a

95% confidence level, sales growth has a significant impact on the company's Tobin's Q value. In contrast, SGA expenditure and capital expenditure have a negligible effect.

Furthermore, the variable **industry median Tobin's Q** shows a positive coefficient of 1.356 and is significant at the α = 1% level. With a 99% confidence level, it can be concluded that the higher the median Tobin's Q in a sub-industry, the higher the Tobin's Q value of companies in that sub-industry.

Additionally, the industry median leverage variable has a significant effect, with a positive coefficient of 0.798 at a significance level of α = 0.05. This shows that with a 95% confidence level, the higher the median leverage in an industry, the higher the Tobin's Q value of companies in that industry.

The primary focus of this study is the variable **Dev** (company leverage deviation from industry median). The results indicate that the Dev variable is statistically significant at the α = 0.05 level. This means that with a 95% confidence level, leverage deviation is related to a company's Tobin's Q value. The positive coefficient indicates that an increase in leverage relative to the industry median will increase the Tobin's Q value, especially in groups of companies with low growth opportunities. In other words, every 1% increase in leverage will increase the Tobin's Q value by 0.798%. These results are consistent with previous findings (without industry effect resolution) and align with Ross's (1977) theory, as cited in McConnell (1995), which states that the use of debt can increase company value because leverage reinforces positive market perceptions and investor confidence.

The adjusted R-squared value in this model is 0.740, indicating that the independent variables can explain 74% of the variation in companies' Tobin's Q values. Meanwhile, the F-statistic value of 14.859, which is significant at the α level, indicates that all independent variables (assets, capital expenditure, sales growth, industry median Tobin's Q, industry median leverage, and SGA expenditure) collectively have a significant effect on the dependent variable, namely the company's Tobin's Q value.

CONCLUSION

The results indicate that assets and sales growth have a significant impact on Tobin's Q value, whereas SGA expenditure and capital expenditure have no effect. The median Tobin's Q in the sub-industry is shown to have a positive and significant relationship at a 99% confidence level, indicating that industry conditions influence company value. The primary variable of the study, leverage, has a significant positive effect at the 10% level, suggesting that an increase in debt usage can lead to a higher Tobin's Q value for a company. This regression model has an adjusted R^2 of 0.755, which means that 75.5% of the variation in company value can be explained by the independent variables used.

These findings suggest that companies should consider using leverage as a strategy to enhance company value, provided its use is controlled to minimize excessive financial risk. Additionally, sales growth has been proven to be a crucial factor that companies must maintain to enhance their market value. For investors, the median Tobin's Q in the sub-industry can serve as a reference for assessing a company's prospects.

REFERENCES

Aggarwal, R., & Zhao, X. (2007). The leverage-value relationship puzzle: An industry effects resolution. Journal of Economics and Business, 59, 286–297.

Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. American Economic Review, 48, 261–297.

Myers, S. (1984). Determinants of corporate borrowing. Journal of Financial Economics, 5, 147–175.

McConnell, J., & Servaes, H. (1995). Equity ownership and the two faces of debt. Journal of Financial Economics, 39, 131–157.

Ross, S. (1977). The Determinations of Financial Structures: The Incentive Signaling Approach. Bell Journal of Economics, 8(1), 23–40.

Stulz, R. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, *26*(1), 3–27. https://doi.org/10.1016/0304-405X(90)90011-N

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