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Analysis of determinants of firm value: a study of listed companies in the tobacco sub-sector on the Indonesia Stock Exchange (2012-2024)

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ABSTRACT

This study aims to analyze the effects of profitability (ROA), leverage (DER), and liquidity (CR) on firm value, as measured by Tobin's Q, among companies in the tobacco subsector listed on the Indonesia Stock Exchange during the period 2012-2024. A quantitative causality approach was employed using the Ordinary Least Squares (OLS) multiple linear regression method with Heteroscedasticity and Autocorrelation Consistent (HAC) standard errors using the Newey-West estimator (Bartlett kernel, fixed bandwidth = 4) on three sample companies: PT Gudang Garam Tbk (GGRM), PT Hanjaya Mandala Sampoerna Tbk (HMSP), and PT Wismilak Inti Makmur Tbk (WIIM), with a total of 39 observations. The results indicate that, both partially and simultaneously, profitability, leverage, and liquidity do not significantly affect firm value ($p > 0.05$; Wald F-statistic = 0.776; Prob. 0.515). An R-squared value of 10.96% indicates that most of the variation in firm value is explained by factors outside the model that influence market sentiment. This finding underscores the uniqueness of the tobacco industry as a sector facing multi-dimensional pressures that cannot be fully captured through conventional financial ratios.

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1. INTRODUCTION

In today's volatile stock market environment, every publicly traded company is required to continuously enhance its competitiveness in order to attract investors. Investors in the Indonesia Stock Exchange (IDX) market are always looking for companies capable of delivering optimal returns on their invested capital. Therefore, management's primary focus is on maximizing corporate value, as a high corporate value reflects shareholder prosperity and the market's positive perception of the organization's future performance. However, management's efforts to maximize corporate value do not always proceed smoothly; one structural challenge that frequently erodes stock prices is regulatory intervention and government policy.

Indonesia's tobacco industry has undergone significant transformation in the past decade due to increasingly strict consumption control policies. The government has implemented a series of regulations that have substantially impacted the operations and profitability of tobacco companies, including Government Regulation No. 109 of 2012 on the Control of Addictive Substances in the Form of Tobacco Products and its revision via Government Regulation No. 28 of 2024. These regulations include advertising restrictions, a ban on the sale of individual cigarettes, and restrictions on smoking areas in public places.

Additionally, cigarette excise tax rates increased by an average of 10% in 2024, with the system simplified from 12 tiers to 8 tiers since 2022 (CRIF, 2024). Nevertheless, data from the Ministry of Finance shows that tobacco excise revenue accounted for 96.20% of total national excise revenue, averaging Rp214.29 trillion in 2022-2023. However, cigarette production is showing a downward trend and is projected to reach a low of 294.93 billion sticks in 2024. These policies have a direct impact on increased production costs and the potential for a decline in sales volume (Djasuli et al., 2025; Le & Nguyen, 2023). This situation reflects the high level of operational uncertainty faced by companies in the tobacco industry and has direct implications for revenue and cash flow uncertainty, potentially leading to a decline in stock prices, which will ultimately be reflected in the company’s valuation.

In addition to regulatory pressure, the tobacco industry is also facing structural changes due to the emergence of substitute products such as e-cigarettes, growing public awareness of health issues, and demands for the implementation of Environmental, Social, and Governance (ESG) principles (WHO, 2021; Wu et al., 2022). These pressures have the potential to affect cash flow, which in turn indirectly influences investor expectations and ultimately reflects in the company's value (El Ghoul et al., 2022).

From a financial perspective, firm value is influenced by performance as reflected in key ratios. Signaling theory (Ross, 1977) explains that capital structure decisions serve as signals to investors regarding the quality of the firm. In the context of capital markets, a company’s value reflects not only its historical performance but also market expectations regarding its ability to generate future cash flows (Brealey et al., 2020).

Firm value, as the dependent variable, is measured using Tobin’s Q, which reflects the ratio of market value to book value of the firm’s assets (Sari & Wijaya, 2021). Tobin's Q is selected as a proxy for firm value due to its ability to comprehensively capture market value relative to book value of assets compared to accounting-based ratios (Zaleski, 2024). In fact, according to Ross et al. (2018), Tobin’s Q is widely used in empirical research because it is able to represent market valuation more comprehensively than accounting-based ratios.

Profitability is the performance indicator most frequently associated with corporate value creation, where a company's ability to consistently generate profits has been shown to be positively correlated with corporate value (Nguyen & Duong, 2025). However, this relationship can be complex, as mature companies with few growth options tend to be more profitable yet have lower valuations, while companies with high profitability generally have more growth opportunities and receive higher valuations from investors (Kraft et al., 2023).

Leverage, which reflects a company's financing policy, is also a key factor, as excessive debt can increase risk and reduce firm value (Huang & Lien, 2022). Although Maukonda et al., (2024) found that leverage has a positive effect on firm value moderated by audit quality, Indrati & Artikasari (2023) argue the opposite that leverage does not affect firm value-making capital structure management increasingly crucial in the tobacco industry, which faces high regulatory uncertainty.

Liquidity, meanwhile, describes a company's ability to meet its short-term obligations; in this regard Alshakhanbeh et al. (2025) found that liquidity has a significant positive effect on firm value because it reflects sound short-term financial health. However, empirical findings remain varied (Hunjra et al., 2021), and excessive liquidity may actually indicate inefficient asset utilization and high opportunity costs.

Previous empirical studies have yielded diverse findings. Jihadi et al. (2021) found that liquidity, leverage, and profitability simultaneously have a significant impact on firm value. Alshakhanbeh et al. (2025) confirmed that liquidity and leverage have a significant impact on firm value in Jordan. Meanwhile, Sudiyatno et al. (2020) found that profitability (ROA) has a significant positive effect, while leverage has a negative effect on firm value. However, research specifically examining the tobacco sub-sector remains very limited (Adebisi et al., 2025; Crosbie et al., 2024), even though this industry faces higher regulatory and social pressures compared to other sectors.

Based on this background, this study formulates the following research questions: (1) Does profitability have a significant effect on the firm value of tobacco sub-sector issuers on the IDX during the 2012-2024 period? (2) Does leverage have a significant effect on firm value? (3) Does liquidity have a significant effect on firm value? (4) Which factor is the most dominant in determining firm value amid regulatory pressures and ESG issues?

This study aims to fill a gap in the literature regarding the determinants of firm value in Indonesia's tobacco sub-sector, as well as to provide an empirical basis for company management and regulators in formulating adaptive strategies oriented toward the sustainability of firm value.

2. RESEARCH METHOD

This study employs a quantitative approach with a causal design to test the relationship between independent variables (profitability, leverage, and liquidity) and the dependent variable (firm value). The data used are secondary data in the form of annual financial reports obtained from the Indonesia Stock Exchange (www.idx.co.id) and the companies' official websites for the period 2012-2024.

The 2012–2024 study period was selected because it coincides with the issuance of Government Regulation No. 109 of 2012, the first comprehensive tobacco regulation in Indonesia. This timeframe also captures the full cycle of tobacco industry policy transformation, ranging from gradual excise tax increases, the simplification of excise tax tiers from 12 to 8 levels starting in 2022, to regulatory revisions via Government Regulation No. 28 of 2024, which serves as a natural endpoint for the study. Thus, the 2012–2024 period has a strong natural boundary from an academic perspective.

Given the limited number of observations (N=3), this study uses Ordinary Least Squares (OLS)-based multiple linear regression as the estimation method. This approach was chosen because panel data with a very small number of cross-sections has the potential to produce unstable estimates and model specification tests that are not statistically reliable (Wooldridge, 2020). By combining all observations into a single pooled dataset, a total of 39 data points (3 companies 13 years) were deemed sufficient to estimate a model with three independent variables.

a. Population and Sample

The study population includes all companies in the tobacco subsector listed on the IDX. A purposive sampling technique was applied with the following criteria: (1) consistently listed on the IDX during the 2012-2024 period, (2) has complete and accessible annual financial statements, and (3) have never been delisted during the study period.

Based on these criteria, three sample companies were selected: PT Gudang Garam Tbk (GGRM), PT Hanjaya Mandala Sampoerna Tbk (HMSP), and PT Wismilak Inti Makmur Tbk (WIIM).

Table 1. Operational Definitions of Variables

No	Variabel	Operational Definition	Proxy	Measurement Formula
1	Enterprise Value (Y)	The present value of expected future free cash flows, discounted at the weighted average cost of capital (WACC), reflecting the wealth the firm can provide to shareholders. (Brigham & Houston, 2019).	Tobin's Q	(Market Capitalization + Total Liabilities) /Total Assets
2	Profitability (X1)	A company's ability to generate net profit over a specific period and provides a general overview of how effectively management runs its business operations. (Risky & Yuniningsih, 2024)	Return on Assets (ROA)	Net Profit/Total Assets) × 100%
3	Leverage (X2)	A ratio used to measure the extent to which a company's assets are financed by debt, meaning how much debt the company carries relative to its assets. (Kasmir, 2019)	Debt to Equity Ratio (DER)	(Total Liabilities / Total Equity) x 100%
4	Likuidity (X3)	A ratio that illustrates a company's ability to meet its short-term obligations (debt). (Kasmir, 2019)	Current Ratio (CR)	(Current Assets /Current Liabilities) x 100%

b. Data Analysis Techniques

Data analysis was conducted using OLS multiple linear regression with Heteroscedasticity and Autocorrelation Consistent (HAC) standard errors, specifically the Newey-West estimator with Bartlett kernel and fixed bandwidth of 4.0000, to address the presence of autocorrelation (Durbin-Watson = 0.703) detected in the residuals. The regression equation model is: Tobin's Q = a + B1ROA + B2DER + B3CR + ε. Prior to model estimation, classical assumption tests were conducted, including a normality test (Kolmogorov-Smirnov), a multicollinearity test (VIF), a heteroscedasticity test (Glejser), and an autocorrelation test (Durbin-Watson). Hypothesis testing was performed using the t-test (partial) based on HAC standard errors, Wald F-test (simultaneous), and coefficient of determination (R2) analysis. All analyses were conducted using EViews software.

3. RESULTS AND DISCUSSIONS

Results of Multiple Linear Regression Analysis

Table 2. OLS Regression Estimation Results - Dependent Variable: Tobin's Q (Y)

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Description
C (Constanta)	1,618	2,533	0,639	0,5271	Not Significant
X1 – ROA	-1,180	0,809	-1,459	0,1536	Not Significant
X2 – DER	-0,452	2,004	-0,225	0,8230	Not Significant
X3 – CR	0,511	0,727	0,702	0,4872	Not Significant

Table 3. Regression Model Statistics

Statistics	Value	Statistic	Value
R-squared	0,1096 (10,96%)	F-statistic	1,437
Adjusted R-squared	0,0333 (3,33%)	Prob. (F-statistic)	0,2486
S.E. of Regression	2,7177	Durbin-Watson	0,7030
Observasi (n)	39	Methode	HAC (Newey-West)

Source: EViews output, processed by the researcher (2026).

Based on the results of the HAC (Newey-West) regression estimates in Table 2 and Table 3, the resulting regression equation is as follows:

$$\text{Tobin's Q} = 1{,}618 - 1{,}180\ \text{ROA} - 0{,}452\ \text{DER} + 0{,}511\ \text{CR} + \varepsilon.$$

a. Coefficient of Determination

The adjusted R-squared value of 10.96% indicates that the variables ROA, DER, and CR together account for only about 10.96% of the variation in Tobin's Q. The remaining 89.04% is explained by factors outside the model. The low R-squared value can be understood in the context of the tobacco industry, which is heavily influenced by external factors such as excise tax policies, government regulations, ESG issues, and non-financial market sentiment. This aligns with the Kraft et al. (2023) which states that firm valuations in industries with high regulatory pressure tend not to be explained solely by conventional financial ratios.

b. Simultaneous Test (F-Test)

A Wald F-statistic value of 0.776 with a probability of 0.5154 (well above 0.05) indicates that, taken together, profitability, leverage, and liquidity do not have a significant effect on firm value. The use of HAC (Newey-West) standard errors corrects for the autocorrelation detected in the residuals (Durbin-Watson = 0.703), ensuring that inference remains robust. These results suggest that the determinants of firm value in the tobacco industry are more heavily influenced by non-financial factors such as regulatory intensity, ESG stigma, and industry-specific excise tax policies (Adebisi et al., 2025; Crosbie et al., 2024).

c. The Effect of Profitability (ROA) on Firm Value

The ROA variable has a coefficient of -1.180 with a HAC-robust standard error of 0.809 and a probability of 0.1536 > 0.05, so H1 is rejected: profitability does not have a significant effect on firm value. Notably, the HAC t-statistic (-1.459) is larger in absolute value than the conventional OLS t-statistic (-0.844), reflecting that the Newey-West correction reduced the inflated standard error caused by autocorrelation. Despite this correction, the result remains insignificant at the 5% level. The negative sign of the coefficient indicates that an increase in profitability is not accompanied by an increase in Tobin's Q. This finding is consistent with the argument that mature companies with limited growth options such as tobacco companies facing market stagnation-can generate high profits yet receive lower valuations. Furthermore, in the context of strong ESG stigma, good profitability does not necessarily improve investor perception if reputational and regulatory risks are deemed too significant (El Ghoul et al., 2022). Thus, these results indicate that for tobacco companies, profit generation alone is insufficient to increase the firm's market value.

d. The Effect of Leverage (DER) on Firm Value

The DER variable has a coefficient of -0.452 with a HAC-robust standard error of 2.004 and a p-value of 0.8230 > 0.05, so H2 is rejected: leverage does not have a significant effect on firm value. The direction of this negative relationship is consistent with the findings of Sudiyatno et al. (2020) who stated that leverage has a negative effect on firm value. The lack of significance of the DER is likely due to the relatively stable leverage profiles of the three sample companies during the study period, so that variations in the DER were insufficient to explain changes in Tobin's Q. This finding is also in line with Indrati & Artikasari (2023) who also found that leverage does not have a significant effect on firm value.

e. The Effect of Liquidity (CR) on Firm Value

The CR variable has a coefficient of 0.511 with a HAC-robust standard error of 0.727 and a p-value of 0.4872 > 0.05, so H3 is rejected: liquidity does not have a significant effect on firm value. Although a positive direction aligns with theoretical logic, the three sample firms generally have current ratios already above 1, so variations in CR do not serve as a meaningful differentiating factor for investors. On the other hand, excessively high liquidity may indicate inefficient use of current assets (Hunjra et al., 2021). This finding can also be understood within the context of the Indonesian capital market, where investors in the tobacco sector prioritize regulatory policy factors and long-term risk profiles over a company's short-term liquidity conditions.

f. General Discussion

Overall, the three financial variables tested do not have a significant effect on Tobin's Q, either partially or simultaneously. This finding differs from previous studies in other sectors, such as Jihadi et al. (2021) dan Alshakhanbeh et al. (2025). This difference can be explained by three main factors unique to the tobacco industry. First, extremely intense regulatory pressure creates cash flow uncertainty that cannot be captured by conventional financial ratios. Second, ESG issues and social-health stigmas act as non-financial factors that influence investor perceptions but have a tangible impact on market valuation. Third, the very limited number of issuers with heterogeneous characteristics causes the variation among observations to not fully reflect a systematic relationship between financial ratios and market value.

In addition to these industry pressures, significant structural heterogeneity among the different firms in the sample (such as assets, ownership structure, and market position) contributes to the low R^2 of 10.96%. The pooled OLS approach, which assumes uniform intercepts and slopes, has the potential to produce coefficients that cancel each other out across firms, rendering the estimates insignificant even though the relationship may be relevant at the individual level. This condition, combined with cross-sectional dependence due to the similarity of their regulatory environments, is reflected in the Durbin-Watson value of 0.703 and serves as the primary justification for applying the HAC (Newey-West) correction in this study

4. CONCLUSION

This study concludes that profitability (ROA), leverage (DER), and liquidity (CR), whether considered partially or simultaneously, do not have a significant effect on firm value (Tobin's Q) for issuers in the tobacco sub-sector on the IDX during the 2012-2024 period. This conclusion is robust to the presence of autocorrelation in the data, as the estimation employed HAC (Newey-West) standard errors with Bartlett kernel and fixed bandwidth = 4. The Wald F-statistic of 0.776 (Prob. 0.515) confirms the joint insignificance of all regressors. An R-squared value of only 10.96% indicates that firm value in this industry is largely determined by non-financial factors.

This finding confirms that conventional financial ratio-based valuation approaches have limitations in explaining the dynamics of firm value in sectors facing high regulatory and social pressures. The tobacco industry is a special case where even good profitability does not necessarily translate into higher market value, given that investors also factor in reputational risk, regulatory sustainability, and long-term growth prospects.

Recommendations, Based on the research findings, several recommendations can be offered to relevant parties. For tobacco company management, managing financial ratios alone is insufficient to enhance corporate value. Companies need to integrate sustainability strategies and transparent ESG disclosures as part of efforts to mitigate negative stigma in the eyes of investors. Product diversification into segments with lower regulatory risk should also be considered as a long-term strategic step.

For investors and market analysts, the assessment of tobacco issuers should not only focus on historical financial performance but also consider qualitative factors such as regulatory intensity, excise tax policies, and the company's ESG position, which have a tangible impact on valuation.

For future research, this can be expanded by exploring alternative robust estimators such as Generalized Least Squares (GLS) or panel-corrected standard errors (PCSE) to account for cross-sectional dependence. Additionally, it is recommended to include ESG scores and regulatory intensity indices as independent or moderating variables to quantitatively measure factors that in this study could only be explained conceptually. Expanding the sample to sectors with similar regulatory pressures, such as pharmaceuticals or mining, as well as to other developing countries with significant tobacco industries, would also substantially enhance the generalizability of the findings.

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