THE EFFECT OF TOBACCO EXCISE TAX INCREASES ON PROFITABILITY AND SOLVENCY OF CIGARETTE COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE (IDX) 2020–2024

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Abstract:

This study aims to examine and analyze the effect of tobacco excise tax (Cukai Hasil Tembakau/CHT) rate increases on the profitability and solvency of cigarette manufacturing companies listed on the Indonesia Stock Exchange (IDX) over the 2020–2024 period. Employing an explanatory quantitative design, the study selected four public cigarette companies (PT HM Sampoerna Tbk, PT Gudang Garam Tbk, PT Wismilak Inti Makmur Tbk, and PT Indonesian Tobacco Tbk) using purposive sampling, resulting in a balanced panel of 20 firm-year observations. The independent variable is the excise tax burden ratio (Excise Expense/Net Sales), while the dependent variables are profitability proxied by Return on Assets (ROA) and solvency proxied by Debt to Equity Ratio (DER). Classical assumption diagnostics (Kolmogorov-Smirnov normality, Durbin-Watson autocorrelation, and Glejser heteroscedasticity) were satisfied before performing linear regression and hypothesis testing. Empirical results indicate that tobacco excise tax has a positive and statistically significant effect on profitability/ROA (t-count = 3.538 > t-table = 2.101; sig. = 0.002 < 0.05; F = 12.518, sig. = 0.002; R^2 = 0.410), demonstrating robust forward tax shifting (pricing power) by cigarette manufacturers in inelastic markets. In contrast, excise tax has no statistically significant effect on solvency/DER (t-count = 0.118 < t-table = 2.101; sig. = 0.907 > 0.05; F = 0.014, sig. = 0.907), reflecting conservative capital structure policies where short-term operational fiscal burdens do not alter long-term debt-to-equity allocations.

1. INTRODUCTION

The Tobacco Manufacturing Industry (Industri Hasil Tembakau/IHT) in Indonesia operates within a complex socio-economic and regulatory landscape marked by policy tensions. Macroeconomically, the sector serves a dual role: generating substantial public revenue and supporting employment, while simultaneously imposing significant public health

costs. From a fiscal standpoint, Tobacco Excise Tax (Cukai Hasil Tembakau/CHT) functions as a primary policy instrument. In 2020, CHT revenues reached approximately IDR 170.24 trillion, accounting for roughly 96.6% of total national excise receipts of IDR 176.31 trillion (Ministry of Finance, 2021). Concurrently, the tobacco supply chain—spanning farming to retail distribution—absorbs an estimated 5.8 million workers, representing approximately 4.2% of Indonesia's total workforce (BPS, 2020; Bappenas, 2021). From a public health viewpoint, smoking-attributable mortality reaches an estimated 225,700 deaths annually, with direct healthcare costs ranging between IDR 17.9 and 27.7 trillion, absorbing substantial national health insurance (JKN) resources (IHME, 2020; LPEM UI, 2020). Prevalences also remain high, with adult smoking rates at 33.8% and youth smoking (ages 10–18) rising from 7.2% to 9.1% (Ministry of Health, 2019; World Bank, 2020).

To balance fiscal objectives with consumption control, the Indonesian government implemented multi-tier regulatory adjustments through Ministry of Finance Regulations (PMK No. 198/PMK.010/2020, PMK No. 192/PMK.010/2021, PMK No. 192/PMK.010/2022, and PMK No. 97/2024). These regulations enacted an average annual excise rate hike of over 10% to 23%, coupled with retail price floor (Harga Jual Eceran/HJE) increases exceeding 35%. Functioning as a Pigouvian tax, excise duties are designed to internalize health externalities by driving up consumer prices.

For listed cigarette manufacturers on the Indonesia Stock Exchange (IDX), continuous excise tariff hikes represent a mandatory, non-negotiable cost shock that enters directly into Cost of Goods Sold (COGS). Excise stamp procurement constitutes the single largest component of manufacturing expenditures, frequently exceeding 50% to 75% of net sales revenue in major producers like PT Gudang Garam Tbk and PT HM Sampoerna Tbk. Consequently, persistent tax escalation directly challenges corporate profit margins and operational efficiency.

In addition to profitability, sustained fiscal pressure creates potential solvency risks. When operating profits contract, retained earnings—a key component of equity—may diminish. If debt levels remain constant or increase to finance working capital and prepaid tax stamps, financial leverage (Debt to Equity Ratio/DER) can rise, escalating long-term solvency risks. Prior empirical literature presents mixed findings (research gap): Saraswati & Suputra (2022) and Rani (2023) observed negative effects of excise policies on profitability (ROA), while Sari & Purbasari (2022) noted insignificant effects on solvency (DER). Siregar & Agustina (2018) highlighted structural tax impacts on capital architecture. Given the aggressive multi-year excise trajectory during 2020–2024, an empirical investigation into how listed tobacco firms manage profitability and solvency is essential.

2. RESEARCH METHOD

2.1 Population and Sample Selection

This study utilized an explanatory quantitative design based on secondary panel data covering the five-year period 2020–2024. The study population comprised all public cigarette manufacturing companies listed on the Indonesia Stock Exchange. Using purposive sampling

criteria—namely continuous listing on the IDX and consistent publication of complete audited annual reports with full disclosure of excise expenses during 2020–2024—four companies were selected: PT HM Sampoerna Tbk (HMSP), PT Gudang Garam Tbk (GGRM), PT Wismilak Inti Makmur Tbk (WIIM), and PT Indonesian Tobacco Tbk (ITIC). This yielded a balanced panel of 20 firm-year observations (N = 20).

Table 1. Profile of Sample Cigarette Companies Listed on the IDX

No	Ticker	Company Name	Product Specialization & Market Segment
1	HMSP	PT Hanjaya Mandala Sampoerna Tbk	Machine-Made & Hand-Rolled Clove Cigarettes (SKM, SKT) - Market Leader
2	GGRM	PT Gudang Garam Tbk	Machine-Made Clove Cigarettes (SKM) - Large Scale Manufacturer
3	WIIM	PT Wismilak Inti Makmur Tbk	Premium Clove Cigarettes & Cigars (SKM, SKT, Cigars) - Mid Tier
4	ITIC	PT Indonesian Tobacco Tbk	Cut Tobacco (Tembakau Iris/TIS) - Roll-Your-Own (RYO) Segment

2.2 **Operational Definitions and Measurement of Variables**

1. Tobacco Excise Tax Burden (X): Ratio of total excise stamp expense to net sales revenue: Excise Burden = (Total Excise Expense / Net Sales) × 100%.

2. Profitability (Y1): Return on Assets: ROA = (Net Income After Tax / Total Assets) × 100%.

3. Solvency (Y2): Debt to Equity Ratio: DER = (Total Liabilities / Total Equity) × 100%.

2.3 **Econometric Model and Estimation Strategy**

Linear regression models were estimated separately for profitability and solvency using IBM SPSS Statistics 29:

Model 1: $ROA = \alpha_1 + \beta_1 (EXCISE) + e_1$

Model 2: $DER = \alpha_2 + \beta_2 (EXCISE) + e_2$

Diagnostic tests included Durbin-Watson autocorrelation, Kolmogorov-Smirnov normality, and Glejser heteroscedasticity tests, followed by t-tests, F-tests, and coefficient of determination (R^2) evaluation at $\alpha = 0.05$.

3. DISCUSSION

3.1 Descriptive Statistics

Descriptive statistical results summarizing central tendencies and dispersion metrics across the 20 firm-year observations are presented in Table 2.

Table 2. Descriptive Statistics of Research Variables (N = 20)

Variable	N	Mean	Std. Deviation	Interpretation
Excise Tax Burden (X)	20	0.4780 (47.80%)	0.24153	High fiscal cost burden (10% to 78%)
Return on Assets / ROA (Y1)	20	0.0799 (7.99%)	0.04341	Healthy profitability (> 5% benchmark)
Debt to Equity Ratio / DER (Y2)	20	0.4148 (41.48%)	0.10165	Conservative capital structure (< 100%)

As shown in Table 2, the mean excise burden ratio was 47.80% (std. dev. 0.2415), spanning from ~10% in cut-tobacco (ITIC) to 78% in mass-scale kretek (GGRM). ROA averaged 7.99% (std. dev. 0.0434), remaining above the 5% industry benchmark. DER averaged 41.48% (std. dev. 0.1016), demonstrating conservative leverage below the 100% threshold.

3.2 Classical Assumption Diagnostic Tests

1. Autocorrelation: Durbin-Watson statistics were 2.465 for Model 1 (ROA) and 2.448 for Model 2 (DER), closely surrounding 2.0 and confirming no autocorrelation.

2. Normality: One-Sample Kolmogorov-Smirnov test on unstandardized residuals yielded Asymp. Sig. (2-tailed) values of 0.131 (Monte Carlo sig. = 0.129) for ROA and 0.200 (Monte Carlo sig. = 0.212) for DER, both exceeding 0.05 and confirming normal residual distribution.

3. Heteroscedasticity: Glejser regression and standardized residual scatterplots showed random dispersion without distinct geometric patterns, confirming homoscedasticity.

3.3 Regression Estimation and Hypotheses Testing

Empirical regression results for both models are presented in Table 3.

Table 3. Regression Estimation, Hypothesis Testing, and Goodness-of-Fit

Dependent Variable	Constant (α)	Coeff (B)	Std. Error	t-count	t-table	Sig.	R^2 / F-stat
ROA (Profitability)	0.025	0.115	0.033	3.538	2.101	0.002	$R^2 = 0.410$ (F = 12.518, p = 0.002)

DER (Solvency)	0.409	0.012	0.099	0.118	2.101	0.907	$R^2 = 0.001$ ($F = 0.014$, $p = 0.907$)

Model 1 (Profitability / ROA): The estimated model is ROA = 0.025 + 0.115 (EXCISE). The t-count of 3.538 exceeds t-table (2.101, df = 18, $\alpha = 0.05$) with $p = 0.002$ (< 0.05), accepting H1. The F-statistic of 12.518 ($p = 0.002$) confirms model fitness, with $R^2 = 0.410$ (Adjusted $R^2 = 0.377$) indicating that 41.0% of ROA variation is explained by the excise tax burden.

Model 2 (Solvency / DER): The estimated model is DER = 0.409 + 0.012 (EXCISE). The t-count of 0.118 is well below t-table (2.101) with $p = 0.907$ (> 0.05), rejecting H2. The F-statistic of 0.014 ($p = 0.907$) and R^2 of 0.001 indicate that excise tax changes exert no statistically meaningful impact on corporate debt-to-equity ratios.

3.4 Discussion

Effect of Tobacco Excise Tax on Profitability: The statistically significant positive coefficient ($B = 0.115$, $p = 0.002$) reveals an important economic phenomenon: despite substantial fiscal hikes, public cigarette manufacturers maintained asset profitability. Because tobacco products exhibit price-inelastic demand due to addictive consumer behavior, major manufacturers (HMSP, GGRM, WIIM) successfully implemented forward tax shifting, adjusting retail prices (HJE) above incremental excise costs while optimizing operational efficiencies. This pricing power protected net margins and asset turnover. While contrasting with earlier studies observing post-shock margin compression (Saraswati & Suputra, 2022; Rani, 2023; Fauzi & Rosyidi, 2020), this finding demonstrates enhanced adaptive capabilities and pricing resilience among Indonesian tobacco producers during 2020–2024.

Effect of Tobacco Excise Tax on Solvency: The insignificant effect on DER ($B = 0.012$, $p = 0.907$) is consistent with corporate finance principles. Excise expenses represent short-term operational working capital outlays within Cost of Goods Sold. Listed tobacco firms maintained conservative financing policies (average DER = 41.48%), funding operations primarily through internal cash flows rather than external debt. Consequently, annual regulatory tax updates did not distort long-term debt-to-equity allocations, consistent with findings by Sari & Purbasari (2022).

4. CONCLUSION

1. Tobacco excise tax rate increases have a positive and statistically significant effect on the profitability (ROA) of cigarette companies listed on the IDX during 2020–2024 (t-count = 3.538, $p = 0.002$; $R^2 = 0.410$), demonstrating strong forward tax-shifting capacity.

2. Tobacco excise tax rate increases do not have a statistically significant effect on corporate solvency (DER) (t-count = 0.118, $p = 0.907$; $R^2 = 0.001$), indicating that short-term fiscal costs do not alter long-term capital structures.

3. Overall, fiscal excise policies primarily affect operating income generation rather than structural balance sheet solvency.

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