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# Capital Structure, Asset Efficiency, and Firm Performance: The Moderating Role of Transfer Pricing in Indonesian Consumer Sector Firms

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**Abstract**

**Background:** Financing, asset use and affiliated transactions may be associated with accounting profitability, but their relationships can depend on measurement and model specification.
**Objective:** This study examines capital structure and asset efficiency in relation to firm performance and tests interactions with foreign related-party sales intensity.
**Methods:** The reported balanced panel covers 160 Indonesian consumer cyclical and non-cyclical firms in 2023–2024 (320 firm-year observations). ROA is related to debt-to-asset ratio, total asset turnover and foreign related-party sales/equity through moderated regression, controlling for size and liquidity. Pooled, fixed-effects and random-effects estimates are compared.
**Results:** In pooled estimates, TATO is positive (β = 0.0379; reported White p < .0001), whereas DAR is not significant (β = 0.0012; p = .8701). The TATO interaction is positive (β = 0.0761; p = .0027); the DAR interaction is not significant (β = 0.0428; p = .5027). Adjusted $R^2$ is 0.4377. Under fixed effects, DAR is significant (β = 0.0774; p = .0092), whereas the TATO interaction is not (β = −0.0349; p = .7191).
**Conclusion:** TATO is the most consistently significant predictor across the reported models. The interaction is estimator-sensitive and cannot establish transfer-pricing effects or mispricing. Accounting overlap, selection and unresolved within-firm dependence limit interpretation; firm-clustered re-estimation is required.

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## INTRODUCTION

Firm performance remains the most closely watched outcome of corporate financial policy because it reflects how well managers convert the resources entrusted to them into returns for shareholders and other stakeholders. Two decisions sit at the core of that conversion. The first is capital structure, namely the mix of debt and equity used to fund the asset base; the second is asset efficiency, which captures how intensively those assets are turned into revenue. Both decisions are routinely summarized through accounting ratios, and return on assets (ROA) has become a standard barometer of whether the combination works (Hasanatun et al., 2025; Mehzabin et al., 2023). For consumer cyclical and non-cyclical firms in Indonesia, the question is pressing. These firms operate in markets with thin margins and volatile demand, depend heavily on working capital and distribution networks, and increasingly belong to domestic or multinational business groups that transact extensively with affiliated entities.

The theoretical expectations regarding leverage and performance are far from settled. Trade-off reasoning suggests that moderate borrowing adds value through interest tax shields until financial distress costs outweigh the benefit, whereas the pecking order view holds that profitable firms prefer internal funds, so leverage need not drive profitability at all (Myers, 1984;

Myers & Majluf, 1984). Agency theory adds a disciplining channel: fixed debt obligations can restrain managerial discretion over free resources, although they also create conflicts between shareholders and creditors (Jensen & Meckling, 1976). Empirical findings mirror this ambiguity. Debt has been associated with higher profitability in Asian banks Mehzabin et al. (2023) and in East African non-financial firms Priyan et al. (2024), yet a negative association has been reported for Indonesian banks Hasanatun et al. (2025), Mauritian listed companies Ronoowah & Seetanah, (2023), and Ghanaian firms (Essel, 2024). Evidence from Indonesia further shows that capital structure and profitability influence each other reciprocally Chandra et al. (2022) and that capital structure and firm performance jointly shape the market competitiveness of manufacturers Kartika et al. (2023), while a recent systematic review concludes that the debt–performance nexus depends heavily on industry, firm size, and macroeconomic conditions (Ervina et al., 2025).

Evidence on asset utilization is suggestive rather than uniform across industries. Productive deployment is consistent with the resource-based view, but an accounting turnover ratio is not itself proof of an inimitable capability. Banking findings cited here have limited generalizability to consumer firms. The US telecom study concerns capital structure and profitability and is not used to substantiate a distinct TATO–ROA association. Moreover, ROA and asset turnover share accounting components, which motivates cautious interpretation of their observed relationship.

One such arrangement is transfer pricing, the pricing of goods, services, intangibles, and financing among entities under common control. International guidance requires these prices to follow the arm's length principle OECD (2022), and Indonesia has codified the same principle in the Minister of Finance Regulation (*Peraturan Menteri Keuangan*) Number 172 of 2023 (Kementerian Keuangan Republik Indonesia, 2023). The concern is not hypothetical. Global estimates indicate that a substantial share of multinational profits is booked in low-tax jurisdictions Garcia-Bernardo & Janský (2024), Tørsløv et al. (2023) and firm-level evidence from Vietnam confirms that such shifting also occurs in Southeast Asian emerging markets (Le & Zamarian, 2025). At the same time, related-party transactions are not inherently opportunistic. They can reduce transaction costs within groups and have been associated with better market performance in some settings Ben Cheikh & Loukil (2023), while their effect on firm value varies with governance quality and market conditions (Bansal & Singh, 2023; Khuong et al., 2023). Indonesian evidence reveals the same duality, with financial related-party transactions lowering accounting performance but raising stock returns (Lee et al., 2026).

Research on transfer pricing in Indonesia has concentrated on its determinants and tax consequences. Tax avoidance, debt covenants, firm size, multinationality, and foreign ownership have been shown to shape transfer pricing decisions Alexander (2024), Kumala et al. (2024), Supriyati et al. (2021) and transfer pricing aggressiveness has been linked to tax avoidance behavior (Fasita et al., 2022; Situmorang & Setiabudi, 2025). When transfer pricing has been modelled as a moderator, the outcome has typically been tax avoidance rather than operating performance, and the interaction has often proved insignificant (Ananta, 2024; Wahyuni & Nursiam, 2025). A review of Indonesian studies attributes these inconsistent results partly to the heterogeneous indicators used to capture transfer pricing (Isthika et al., 2024). Consequently, it remains unclear whether related-party pricing changes the way financing and investment decisions are reflected in reported profitability.

The hypotheses are developed from the theoretical relationships between financing decisions, asset utilisation, and accounting profitability. H1 proposes a positive association between capital structure and firm performance, reflecting the potential benefits of debt financing through tax shields and financial discipline, although financial distress costs and financing preferences may produce different outcomes. H2 proposes a positive association between asset efficiency and firm performance, as higher asset turnover may accompany stronger profitability. Nevertheless, the shared accounting components of TATO and ROA require careful interpretation.

H3 proposes that foreign related-party sales intensity positively moderates the relationship between capital structure and firm performance, based on the possibility that affiliated commercial relationships support operating stability. However, this hypothesis remains exploratory because the moderator does not directly measure intra-group financing. H4 proposes that foreign related-party sales intensity positively moderates the relationship between asset

efficiency and firm performance, potentially reflecting coordination within affiliated distribution arrangements. These hypotheses concern conditional statistical associations rather than causal mechanisms or deviations from arm's-length pricing. The 2023–2024 window straddles PMK 172/2023, effective from 29 December 2023; its transition provisions apply the transfer-pricing documentation requirements to tax year 2024 onward. The window cannot establish a post-regulation effect or evaluate the regulation's effectiveness (Kementerian Keuangan Republik Indonesia, 2023).

This study examines associations between capital structure, asset efficiency and ROA in Indonesian consumer sector firms, and whether the two associations vary with foreign related-party sales intensity. Its theoretical contribution is the comparison of financing and operating channels within one contingency framework. Its empirical contribution is contextual evidence from a short Indonesian consumer-sector panel, including differences across pooled, fixed-effects and random-effects specifications. Routine estimation and diagnostic procedures are methodological steps, not independent contributions. The findings do not identify the effect of the regulatory change.

## METHOD

This study employed a quantitative observational approach using secondary annual panel data from companies listed on the Indonesia Stock Exchange (IDX) in the consumer cyclical and consumer non-cyclical sectors during 2023–2024. The reported analytical sample comprised 160 firms and 320 firm-year observations, forming a balanced two-year panel. The stated sampling criteria included continuous listing during the observation period, the availability of annual financial statements, and sufficient disclosures to construct the research variables. Financial statement information was obtained from company reports available through the IDX.

The analysis examined statistical associations between capital structure, asset efficiency, foreign related-party sales intensity, and firm performance. Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) estimations were compared to assess the sensitivity of the findings to alternative panel specifications. However, the available documentation did not provide a complete firm-level extraction record or a sequential account of sampling exclusions. Consequently, the reported sample size was retained as originally documented, while the completeness of the selection process and the reconciliation of source data remained subject to verification. The observational design did not establish causal relationships.

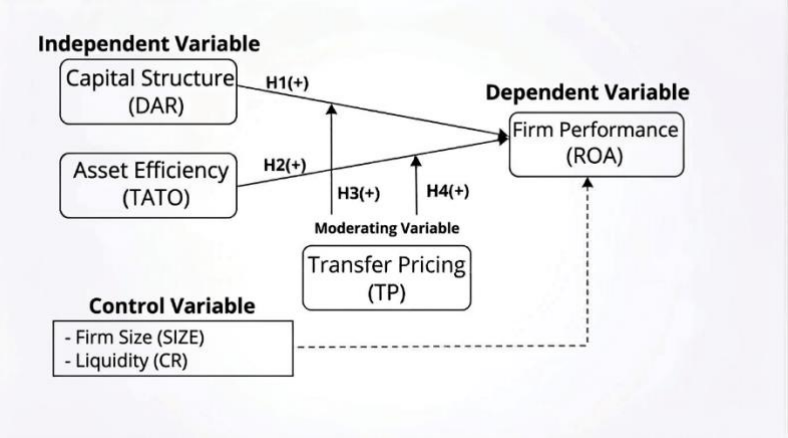



**Figure 1.** Conceptual framework of the hypothesized associations and moderating relationships.

Figure 1 presents the original hypotheses, while Table 1 defines the variables. TP was defined as foreign related-party sales divided by total equity and represented an exposure or intensity proxy rather than a direct test of transfer mispricing or tax avoidance. Scaling affiliated sales by equity expressed those sales relative to shareholders' funds but could magnify the ratio when equity was small or negative. The company reports needed to establish that the counterparties were both related parties and foreign entities; total related-party sales alone were insufficient.

SIZE and CR served as control variables rather than as an identification strategy. Given the specified denominators, the following accounting relationship held when net sales were nonzero:

ROA = (net income / net sales) × TATO × (average total assets / year-end total assets)

Thus, the association between ROA and TATO was partly attributable to an accounting relationship. TP and TATO also shared sales components, meaning that their interaction did not necessarily identify an independent pricing mechanism.

The following validation checks were therefore required: reconciliation of report disclosures and denominators; re-estimation using profit margin or an alternative outcome, such as ROE or Tobin's Q, while accounting for ROE's own accounting relationships; comparison of affiliated sales scaled by total sales and total assets; and evaluation of a financing-specific proxy for H3. Sensitivity analyses were also required to assess the effects of equity sign, near-zero equity, and shared accounting components. These checks were proposed rather than completed analyses.

**Table 1**
Operational definitions of variables

| Variable | Role | Measurement |
|---|---|---|
| Firm Performance (ROA) | Dependent | Net income after tax ÷ total assets |
| Capital Structure (DAR) | Independent | Total liabilities ÷ total assets |
| Asset Efficiency (TATO) | Independent | Net sales ÷ average total assets |
| Transfer Pricing (TP) | Moderating | Sales to foreign related parties ÷ total equity |
| Firm Size (SIZE) | Control | Natural logarithm of total assets |
| Liquidity (CR) | Control | Current assets ÷ current liabilities |

Source: Compiled by the author (2026).

EViews estimation results were reported for CEM, cross-section FEM, and Swamy–Arora REM. Only DAR, TATO, and TP were mean-centred according to the following formula:

$$X_C = X - \text{sample mean}(X).$$

SIZE and CR remained uncentred. The interaction terms labelled DAR×TP_C and TATO×TP_C represented DAR_C × TP_C and TATO_C × TP_C, respectively. Descriptive statistics, correlation results, model-selection tests, and the reported diagnostic results were retained. The hypotheses specified positive coefficients as statistically significant at the 5% level, with a reported p-value of 0.0000 interpreted as $p < .0001$. White diagonal standard errors addressed heteroskedasticity but did not account for within-firm correlation.

The study used publicly available corporate data and did not involve human or animal participants. No causal identification strategy was implemented. Further estimation was required to calculate firm-clustered standard errors for the same specifications and compare CEM, FEM, and REM using the original firm identifiers and residuals. Aggregate tables were insufficient to calculate these standard errors. Firm-level clustering was necessary to reflect the dependence structure of the observations (MacKinnon et al., 2023).

## RESULTS AND DISCUSSION

### Results

### Sample and Descriptive Statistics

Table 2 describes the reported 160-firm analysis sample, not a verified census of all IDX consumer-sector listings. A balanced panel gives two observations per included firm but does not prevent selection bias. The positive minimum ROA (0.0001) and TP (0.0400) show that the

reported sample contains neither loss-making observations nor zero foreign related-party sales; they do not establish how such firms were screened. Author verification required: reconstruct the complete sector roster, dates and number initially eligible; document sequential exclusions, losses, absent foreign sales and missing disclosures; and report whether any values were trimmed or winsorized. The original screening log and firm-year data are unavailable, so the sector population and exclusion counts cannot be verified.

**Table 2**
Sample selection procedure

| No. | Criteria | Number |
|---|---|---|
| 1. | Consumer cyclical and non-cyclical firms listed on the IDX during 2023–2024 | 160 |
| 2. | Firms delisted or suspended during the observation period | (0) |
| 3. | Firms without complete annual financial statements | (0) |
| 4. | Firms with incomplete data on the research variables | (0) |
| | Firms meeting the criteria | 160 |
| | Observation years | 2 |
| | Total firm-year observations (160 × 2) | 320 |

Source: IDX data processed by the author (2026).

Table 3 retains the original descriptive values. Mean ROA is 0.0513, mean DAR 0.4450 and mean TATO 1.0051. Positive ROA values describe profitability only within the reported sample, not the full sector. Mean TP of 0.2410 represents foreign related-party sales relative to equity; it does not quantify pricing aggressiveness. SIZE and CR average 28.0033 and 1.7329. Variable-level Jarque–Bera results do not establish the distribution of regression residuals. The reported data transformations and inclusion rules require the extraction audit described above.

**Table 3**
Descriptive statistics

| Variable | Mean | Median | Maximum | Minimum | Std. Dev. | Prob. J-B |
|---|---|---|---|---|---|---|
| ROA | 0.0513 | 0.0496 | 0.1050 | 0.0001 | 0.0190 | 0.0094 |
| DAR | 0.4450 | 0.4411 | 0.8170 | 0.1664 | 0.1189 | 0.2687 |
| TATO | 1.0051 | 0.9658 | 1.8628 | 0.5145 | 0.2708 | 0.0001 |
| TP | 0.2410 | 0.2458 | 0.5421 | 0.0400 | 0.1089 | 0.0869 |
| SIZE | 28.0033 | 27.9709 | 30.6792 | 25.3361 | 1.0113 | 0.0801 |
| CR | 1.7329 | 1.7055 | 3.1312 | 0.6500 | 0.4903 | 0.0470 |

Notes: N = 320 as reported. ROA = return on assets; DAR = debt-to-asset ratio; TATO = total asset turnover; TP = foreign related-party sales intensity (original variable label); SIZE = natural logarithm of total assets; CR = current ratio. Source: EViews output reported in the original manuscript (2026); underlying data not supplied.

**Correlation Analysis**

Table 4 presents the Pearson correlation matrix for the variables included in the moderated regression analysis. ROA exhibits a positive correlation with TATO_C (r = 0.5940) and SIZE (r = 0.3826), whereas its correlations with DAR_C, TP_C, and the interaction terms are relatively weak. Among the explanatory variables, the largest reported absolute pairwise correlation is between DAR_C and CR (r = −0.2772). These correlations do not indicate strong bivariate relationships among the predictors. Furthermore, the VIF values reported in Table 6 range from 1.0135 to 1.1536, providing additional evidence that severe multicollinearity is not apparent in the reported specification. Nevertheless, these diagnostics do not address possible endogeneity, accounting overlap, or other sources of model misspecification.

**Table 4**
Pearson correlation matrix

| Variable | ROA | DAR_C | TATO_C | TP_C | DAR×TP_C | TATO×TP_C | SIZE | CR |
|---|---|---|---|---|---|---|---|---|
| ROA | 1.0000 | | | | | | | |
| DAR_C | 0.0310 | 1.0000 | | | | | | |
| TATO_C | 0.5940 | 0.0930 | 1.0000 | | | | | |
| TP_C | 0.0420 | 0.0180 | 0.0816 | 1.0000 | | | | |
| DAR×TP_C | 0.0787 | −0.1941 | 0.0295 | −0.0634 | 1.0000 | | | |
| TATO×TP_C | 0.1004 | 0.0310 | 0.0221 | −0.0010 | 0.1597 | 1.0000 | | |
| SIZE | 0.3826 | −0.0713 | 0.1647 | −0.0173 | 0.0589 | −0.0856 | 1.0000 | |
| CR | −0.0821 | −0.2772 | −0.0626 | 0.0339 | 0.0470 | −0.0378 | −0.1765 | 1.0000 |

Notes: The suffix _C denotes mean-centred variables. Source: EViews output (2026).

**Panel Model Estimation and Selection**

Table 5 compares the reported CEM, FEM and REM estimates. TATO_C is positive and significant across all three. DAR_C is not significant in CEM or REM, but is positive under FEM (0.0774, p = .0092). The TATO_C × TP_C coefficient is positive in CEM (0.0761, p = .0107) and REM (0.0731, p = .0183), but negative and not significant in FEM (−0.0349, p = .7191). Thus, H1 and H4 are sensitive to the estimator; the leverage interaction is not significant in any specification. These comparisons are sensitivity evidence, not confirmation of a single model.

**Table 5**
Comparison of panel estimations of the moderated regression model

| Variable | CEM Coef. (p) | FEM Coef. (p) | REM Coef. (p) | Expected |
|---|---|---|---|---|
| C | −0.1092 (0.0000)*** | 0.3102 (0.5908) | −0.1089 (0.0000)*** | |
| DAR_C | 0.0012 (0.8728) | 0.0774 (0.0092)*** | 0.0021 (0.7780) | + |
| TATO_C | 0.0379 (0.0000)*** | 0.0496 (0.0009)*** | 0.0379 (0.0000)*** | + |
| TP_C | 0.0008 (0.9129) | 0.0094 (0.7753) | 0.0009 (0.9035) | |
| DAR×TP_C | 0.0428 (0.5143) | 0.0895 (0.6528) | 0.0439 (0.5179) | + |
| TATO×TP_C | 0.0761 (0.0107)** | −0.0349 (0.7191) | 0.0731 (0.0183)** | + |
| SIZE | 0.0057 (0.0000)*** | −0.0090 (0.6631) | 0.0056 (0.0000)*** | |
| CR | 0.0004 (0.8238) | −0.0044 (0.5369) | 0.0003 (0.8366) | |
| $R^2$ | 0.4500 | 0.7632 | 0.4245 | |
| Adj. $R^2$ | 0.4377 | 0.5062 | 0.4116 | |
| F-statistic | 36.4719*** | 2.9703*** | 32.8801*** | |

Notes: Dependent variable: ROA. *p < 0.10; **p < 0.05; ***p < 0.01. FEM uses cross-section fixed effects; REM uses the Swamy–Arora estimator. Source: EViews output (2026).

Table 6 presents the reported model-selection and diagnostic test results. The cross-section F version of the Chow test does not reject the restriction of common intercepts at the 5% significance level (p = 0.0671), whereas the corresponding chi-square statistic indicates a different conclusion (p < 0.0001). The Hausman test (p = 0.1377) does not reject the random-effects restrictions, while the Breusch–Pagan LM test (p = 0.3159) does not provide sufficient evidence of random-effect variance. These results do not establish a uniformly preferred panel specification, particularly given the conflicting Chow statistics and the assumptions underlying

the tests.

The reported residual normality and heteroskedasticity tests do not reject their respective null hypotheses, while the VIF values suggest limited multicollinearity in the estimated specification. However, the Breusch–Godfrey test indicates possible residual dependence (p = 0.0216), although its implementation requires verification in the two-period panel setting. Accordingly, CEM is retained as a descriptive reference model, with FEM and REM estimates used to assess specification sensitivity. The reported White diagonal standard errors do not address possible within-firm dependence, and firm-clustered re-estimation remains necessary before the statistical findings can be treated as confirmatory.

**Table 6**
Model selection and classical assumption tests

| Test | Statistic | Prob. | Decision |
|---|---|---|---|
| Chow (cross-section F) | F(159, 153) = 1.2724 | 0.0671 | CEM |
| Chow (cross-section $\chi^2$) | $\chi^2(159) = 269.6269$ | 0.0000 | FEM |
| Hausman | $\chi^2(7) = 11.0203$ | 0.1377 | REM |
| Breusch–Pagan LM (cross-section) | LM = 1.0056 | 0.3159 | CEM |
| Jarque–Bera (residuals) | JB = 1.5659 | 0.4570 | Normal |
| VIF (range) | 1.0135–1.1536 | – | No multicollinearity |
| Breusch–Pagan–Godfrey | Obs*$R^2$ = 7.6219 | 0.3671 | Homoskedastic |
| Glejser | Obs*$R^2$ = 10.1819 | 0.1784 | Homoskedastic |
| White (no cross terms) | Obs*$R^2$ = 17.8638 | 0.2130 | Homoskedastic |
| Breusch–Godfrey LM(1) | Obs*$R^2$ = 5.2704 | 0.0216 | Autocorrelation indicated |

Source: EViews output (2026).

**Moderated Regression Analysis and Hypothesis Testing**

Table 7 retains the reported White diagonal uncertainty statistics and displays the pooled coefficients consistently with Table 5. A covariance correction cannot change OLS point estimates. The original Table 7 coefficient displays and adjusted $R^2$ differed slightly from Table 5; the available tables do not establish the source of those discrepancies. The equation uses the Table 5 pooled point estimates. Exact-output reconciliation required: verify all coefficients, standard errors, t-statistics and p-values against the unrounded EViews output and re-estimate with firm-clustered errors. The displayed White results are provisional; no new regression has been run.

**Table 7**
Moderated regression analysis (reported CEM; White diagonal inference provisional)

$$ROA_{it} = -0.1092 + 0.0012\ DAR_C_{it} + 0.0379\ TATO_C_{it} + 0.0008\ TP_C_{it} + 0.0428\ (DAR\times TP_C)_{it} + 0.0761\ (TATO\times TP_C)_{it} + 0.0057\ SIZE_{it} + 0.0004\ CR_{it} + \varepsilon_{it}$$

| Variable | Prediction | β | *Std. Error* | *t-Stat.* | Prob. | Decision |
|---|---|---|---|---|---|---|
| C | | −0,1091 | 0,0238 | −4,5697 | 0,0000*** | |
| DAR → ROA | + | 0,0011 | 0,0070 | 0,1636 | 0,8701 | H1 Not supported |
| TATO → ROA | + | 0,0378 | 0,0027 | 13,7826 | 0,0000*** | H2 Supported |
| TP | | 0,0008 | 0,0069 | 0,1157 | 0,9080 | (+) Not Significant |
| DAR×TP → ROA | + | 0,0427 | 0,0637 | 0,6709 | 0,5027 | H3 Not supported |
| TATO×TP → ROA | + | 0,0761 | 0,0251 | 3,0238 | 0,0027*** | H4 Supported |

| Variable | Prediction | β | *Std. Error* | *t-Stat.* | Prob. | Decision |
|---|---|---|---|---|---|---|
| SIZE | | 0,0056 | 0,0008 | 6,8592 | 0,0000*** | (+) Significant |
| CR | | 0,0003 | 0,0018 | 0,2064 | 0,8366 | (+) Not Significant |
| $R^2$ | | 0,4500 | | | | |
| *Adj.* $R^2$ | | 0,4376 | | | | |
| *F-statistic* | | | | 36,4719 | | |
| *Prob(F-statistic)* | | | | | 0,0000*** | |

Notes: ROA dependent; N = 320. Coefficients and fit statistics follow Table 5; White diagonal SEs, t and p are retained as originally reported and require verification against unrounded output. *p < .10; **p < .05; ***p < .01. Reported 0.0000 means p < .0001. These are not firm-clustered results.

The reported $R^2$ is 0.4500 and adjusted $R^2$ is 0.4377. These describe in-sample fit, not a causal attribution of 43.77% of profitability to the regressors. The reported F-statistic is 36.4719 (p < .0001); the conventional joint test does not resolve residual dependence or identification. The constant corresponds to DAR, TATO and TP at their sample means and uncentred SIZE and CR at zero, a baseline with little economic meaning. Hypothesis decisions are interpreted below using the existing Table 7, subject to the stated inference limitations.

**Interpretation of Hypothesis Testing**

The original White table reports p = .8701 for DAR_C, p < .0001 for TATO_C, p = .5027 for DAR_C × TP_C and p = .0027 for TATO_C × TP_C. Read provisionally, these do not support H1 or H3 and are directionally consistent with H2 and H4 in the pooled specification. The pooled coefficient displays are 0.0012, 0.0379, 0.0428 and 0.0761, respectively. H1 differs under FEM, while H4 loses significance and changes sign; consequently, neither is estimator-invariant. A one-unit increase in centered TATO corresponds to 0.0379 higher fitted ROA at mean TP, not a causal effect. The marginal slope is β_TATO + β_TATO×TP × TP_C, so the TP main term and interaction must be interpreted jointly. Firm-clustered inference and source-output reconciliation remain outstanding.

**Discussion**

**Capital Structure and Firm Performance**

The pooled estimate provides no evidence of a leverage association with ROA at the 5% level; it does not establish economic neutrality or the absence of an effect. FEM instead reports a positive coefficient of 0.0774 (p = .0092), indicating that the inference changes when time-invariant firm effects are absorbed. Tax-shield, distress-cost and internal-funding mechanisms remain possible explanations, but the regressions do not distinguish them. A null pooled coefficient cannot validate or reject capital-structure theory.

The contrast with positive and negative leverage findings in banking and non-financial settings is compatible with heterogeneity across sectors and estimators. The present sample cannot establish why those differences arise. In particular, omitted firm characteristics and reverse causality between profitability and financing could influence the coefficients. Managerial debt decisions therefore require cash-flow and risk analysis beyond these short-panel associations.

**Asset Efficiency and Firm Performance**

TATO is the most consistently significant predictor in the estimated models: its coefficient is positive in CEM, FEM and REM. This is compatible with productive asset deployment, but the regression does not identify procurement, production or distribution capabilities as the mechanism. ROA and TATO also share accounting components, so the coefficient cannot be interpreted as a separate causal return to managerial efficiency.

The positive association is directionally consistent with the banking evidence discussed in the Introduction, but differences in industry and measurement limit comparison. Inventory

management and capacity utilization are plausible areas for managerial assessment rather than interventions whose profitability effects have been estimated here. A longer panel and outcome measures with less accounting overlap would help distinguish an operational explanation from common-component correlation.

**The Moderating Role of Transfer Pricing on the Capital Structure–Performance Relationship**

The reported leverage interaction is not significant in any of the three specifications. This is insufficient evidence for H3, rather than proof that related-party arrangements cannot condition financing outcomes. A sales-based moderator does not measure affiliated borrowing, interest charges or debt allocation; consequently, it is a limited test of a financing-channel hypothesis. An insignificant direct coefficient also does not logically preclude an interaction.

Related-party sales and intra-group financing should therefore be distinguished when interpreting the leverage result. The supplied estimates do not measure compliance, documentation quality or changes in lending terms. Neither the null interaction nor the timing of PMK 172/2023 establishes that regulation constrained the use of related-party debt. A transaction-specific financing proxy would be needed to examine that explanation.

**The Moderating Role of Transfer Pricing on the Asset Efficiency–Performance Relationship**

The reported pooled efficiency interaction is positive, but the corresponding FEM coefficient is negative and not significant. The result therefore describes an estimator-dependent association between TATO and ROA at different levels of foreign related-party sales intensity. Stable affiliate demand, distribution coordination and margin allocation are possible explanations, not mechanisms tested by these data. A non-significant TP main coefficient at mean TATO does not establish the absence of a direct association at every TATO value, and does not justify labelling TP a pure moderator.

The operating/financing comparison raises a question for future contingency research rather than establishing selective causal moderation. Because both TATO and TP contain sales-related quantities, their interaction can reflect shared accounting components as well as organizational relationships. A sales-based measure cannot distinguish efficient coordination from mispricing. Conclusions about either explanation require alternative scaling, transaction-specific measures and evidence on margins and governance.

**Theoretical and Practical Implications**

The contingency framework separates financing and operating associations, but the evidence does not establish that efficiency dominates financing or that transfer pricing causes higher returns. TATO is consistently significant across the reported estimators, whereas leverage and the efficiency interaction are specification-sensitive. The theoretical implication is a need to distinguish construct validity, accounting overlap and unobserved firm heterogeneity when testing related-party contingencies.

Managers and investors may examine asset turnover, profitability and related-party disclosures jointly, while recognizing the limits of a two-year observational model. The findings do not establish that more affiliated sales improve performance or indicate non-arm's-length pricing. They provide no validated basis for tax-audit targeting. Compliance assessment requires transaction-level comparability evidence and the applicable legal requirements.

**International Relevance and Limitations**

The Indonesian results contribute a narrow accounting association to the wider discussion of business-group transactions. They do not estimate shifted profits, identify mispricing or establish a mechanism for risk-based audits. International comparisons must account for differences in transaction measures, governance, regulation and model specification. The empirical scope remains the reported consumer-sector sample and observation window.

The two-year panel limits within-firm information and cannot establish causality, regulatory effects or long-run performance. Omitted governance, macroeconomic conditions and capital intensity may confound associations, while profitable firms can alter their financing and

sales arrangements, creating reverse causality. The single TP proxy omits loans, royalties and services and does not measure arm's-length deviations. Selection, disclosure and outlier treatment are not independently verifiable from the manuscripts; generalization is therefore limited. White diagonal inference is provisional because within-firm dependence remains unresolved. Priority extensions are a longer identified panel, firm-clustered inference, alternative outcomes and transaction-specific TP measures. Credible instruments or an independently justified quasi-experimental design must be validated rather than assumed.

## CONCLUSION

Asset efficiency is the most consistently significant predictor in the estimated models for the reported 160 Indonesian consumer-sector firms during 2023–2024. The pooled model provides no evidence for a leverage association, although the positive FEM coefficient makes that inference specification-dependent. The foreign related-party sales interaction with TATO is positive in CEM and REM but not significant in FEM; the leverage interaction is not significant across the reported estimators. These findings describe associations and do not establish causal effects, a pure moderator, mispricing or regulatory effectiveness. Managers and investors may consider asset-use and affiliate-transaction disclosures jointly, without treating the coefficients as intervention effects or tax-risk indicators. Future research should prioritize longer panels, endogeneity and identification, firm-clustered inference, alternative performance outcomes, multidimensional related-party measures and governance/macroeconomic controls. Unavailable underlying data and unresolved source-output discrepancies constrain confirmation of the reported estimates.

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## AUTHOR CONTRIBUTION STATEMENT

Nove Feneriti and Etty Murwaningsari were responsible for the conceptualization, data collection, formal analysis, and writing of the original draft.

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