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# Determinants Of Firm Value: Evidence From Capital Structure And Profitability (Case Study Of PT Nippon Indosari Corpindo TBK 2015–2024

**Nina Shabrina [1], Rosalina Wati Tias [2]**
[1]Program Studi Manajemen Program Sarjana Fakultas Ekonomi Dan Bisnis Universitas Pamulang
[2]Program Studi Manajemen Program Sarjana Fakultas Ekonomi Dan Bisnis Universitas Pamulang

** Coresponding Authori:* dosen01567@unpam.ac.id [1]

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***ABSTRACT***

Firm value is a critical indicator of corporate performance; however, empirical evidence on the determinants of firm value—particularly in the Indonesian food and beverage sector—remains inconclusive. Prior studies have reported mixed findings regarding the effects of capital structure and profitability on firm value, suggesting the need for further investigation in a single-firm longitudinal context. This study aims to address this gap by providing empirical evidence on the partial and simultaneous effects of Debt to Asset Ratio (DAR) and Return on Asset (ROA) on Firm Value at PT Nippon Indosari Corpindo Tbk over the period 2015–2024. The population of this study is PT Nippon Indosari Corpindo Tbk, with samples determined through purposive sampling. The research employs a quantitative descriptive method, with data tested using classical assumption tests—including normality, multicollinearity, heteroscedasticity, and autocorrelation tests—followed by correlation and determination tests, multiple linear regression analysis, partial test (t-test), and simultaneous test (F-test), processed using Eviews 12. The results indicate that partially, DAR has a significant effect on Firm Value, while ROA does not. However, the simultaneous test (F-test) confirms that DAR and ROA jointly have a significant effect on Firm Value. This study contributes to the literature by demonstrating that capital structure, proxied by DAR, is a more dominant determinant of firm value than profitability in the context of a leading Indonesian food manufacturer, offering practical implications for managerial decision-making related to financing policy.

***Keywords :*** *Debt to Asset Ratio*, *Return On Asset*, *Firm Value.*

## INTRODUCTION

The food and beverage (F&B) industry plays a strategic role in Indonesia's national economy. Staple commodities such as rice, wheat, sugar, and cooking oil are consumed across virtually all segments of society, making the sector highly resilient to economic fluctuations. The Food and Beverage Industry Association of Indonesia (GAPMMI) reported that the F&B sector contributed approximately 6.55% to national GDP in 2023, making it one of the largest contributors within the manufacturing industry. Furthermore, rapid urbanization and population growth have intensified demand for processed food products. Shifting consumer preferences toward convenient and ready-to-eat alternatives have transformed products such as bread—previously regarded merely as a snack—into a primary carbohydrate source, particularly in urban areas. This structural shift creates substantial opportunities for companies operating in the processed food segment, including PT Nippon Indosari Corpindo Tbk, the largest industrial bread manufacturer in Indonesia.

Despite its growth potential, the F&B sector faces considerable financial challenges, including volatility in global raw material prices, rising production costs, and increasing competition. These conditions make financial decision-making—particularly regarding capital structure and asset utilization—critical determinants of a firm's ability to sustain and enhance its market value. Firm value, commonly proxied by Price-to-Book Value (PBV), reflects investors' expectations of a company's future performance and is a key metric in corporate financial management.

The following table presents the trend of Debt to Asset Ratio (DAR), Return on Asset (ROA), and Price-to-Book Value (PBV) of PT Nippon Indosari Corpindo Tbk for the period 2015–2024:

**Tabel 1**
**DAR, ROA, and PBV of PT Nippon Indosari Corpindo Tbk, Period 2015–2024**

| Year | DAR | ROA | PBV |
|---|---|---|---|
| 2015 | 0.560830443 | 0.099965391 | 5.38745368 |
| 2016 | 0.50584615 | 0.095825953 | 5.613495098 |
| 2017 | 0.381497944 | 0.029687868 | 2.79697789 |
| 2018 | 0.336134046 | 0.028943315 | 2.5450937 |
| 2019 | 0.3394827 | 0.05051566 | 2.600543999 |
| 2020 | 0.275033644 | 0.037871512 | 2.606716968 |
| 2021 | 0.320156009 | 0.067125171 | 2.95275048 |
| 2022 | 0.350859621 | 0.104652316 | 3.045759963 |
| 2023 | 0.393072044 | 0.08451854 | 2.972494512 |
| 2024 | 0.383891775 | 0.096679699 | 2.599866005 |

*Source: Processed Data*

Based on Table 1.1, the financial data of PT Nippon Indosari Corpindo Tbk reveals several noteworthy dynamics. Over the period 2015–2020, DAR declined substantially from 0.5608 to 0.2750, reflecting the company's strategic efforts to deleverage and reduce its reliance on debt financing, thereby lowering financial risk exposure. However, from 2020 onwards, DAR began to rise again—from 0.2750 in 2020 to 0.3931 in 2023—indicating that the company resumed the use of debt as part of its capital structure strategy to support operational expansion. This increase in leverage coincided with a recovery in profitability, as ROA improved from 0.0379 in 2020 to 0.1047 in 2022, suggesting that the additional debt was deployed productively to generate returns.

Nevertheless, PBV showed a declining trend from 5.6135 in 2016 to approximately 2.60 in 2024, implying that despite improvements in operational performance, market valuation has not recovered to its earlier levels. This divergence between financial performance indicators and market value warrants further academic investigation.

The relationship between capital structure, profitability, and firm value has been extensively studied in corporate finance literature; however, empirical findings remain inconclusive. Bharawati (2021) found that DAR has a positive and significant effect on firm value, whereas Limbong (2022) concluded that DAR has no significant effect on firm value. Similarly, Sofiani and Siregar (2022) reported that ROA positively influences firm value, while Sari (2021) found no significant relationship between ROA and firm value. These contradictory findings suggest that the direction and magnitude of these relationships may be context-dependent, varying across industries, firm characteristics, and time periods.

This inconsistency in prior research constitutes a significant research gap, particularly in the context of a single publicly listed firm within the Indonesian F&B sector over a long-term observation period (2015–2024). Most existing studies rely on multi-firm panel data, which may obscure firm-specific dynamics. By focusing on PT Nippon Indosari Corpindo Tbk as a case study, this research contributes a more granular and longitudinal perspective on how capital structure and profitability jointly influence firm value in a volatile commodity-driven industry.

## LITERATURE REVIEW

### Signaling Theory

Signaling Theory was first introduced by Ross (1977) and is grounded in the premise that information is not symmetrically distributed among market participants. The theory addresses the condition of information asymmetry, wherein corporate management possesses superior and more complete information relative to external stakeholders such as investors and shareholders. Under this condition, managers are incentivized to communicate relevant information to the market through financial disclosures and reporting.

In the context of this study, Signaling Theory provides the theoretical basis for understanding how a firm's financial decisions—particularly those related to capital structure and profitability—serve as signals to the market regarding the firm's future prospects. A reduction in the Debt to Asset Ratio (DAR) may signal to investors that the company is managing its financial risk prudently, while an improvement in Return on Asset (ROA) signals enhanced operational efficiency and earnings capacity. Both signals are expected to positively influence investor perception, thereby affecting firm value as reflected in the Price-to-Book Value (PBV) ratio. However, as noted in the asymmetry framework, investors may not always interpret these signals uniformly, which partially explains the mixed empirical findings reported in prior literature.

### Trade-Off Theory

The Trade-Off Theory of capital structure, developed by Modigliani and Miller (1963) and later extended by subsequent scholars, posits that firms determine an optimal capital structure by balancing the tax benefits of debt against the costs of financial distress. According to this theory, moderate use of debt can enhance firm value through interest tax shields; however, beyond an optimal threshold, additional leverage increases the probability of bankruptcy, thereby eroding firm value. This theoretical framework is directly relevant to the role of DAR as a determinant of firm value, as it predicts a non-linear relationship between leverage and market valuation.

### Agency Theory

Agency Theory, introduced by Jensen and Meckling (1976), explains the conflicts of interest that arise between principals (shareholders) and agents (managers). Managers may pursue self-serving objectives that diverge from shareholder wealth maximization. In this context, debt

serves a disciplinary function: higher leverage constrains managerial discretion by imposing fixed financial obligations, thereby aligning managerial behavior more closely with shareholder interests. This perspective suggests that DAR may positively influence firm value by mitigating agency costs. Conversely, excessive debt may lead to underinvestment problems, reducing long-term firm value.

**Financial Management**

Financial management encompasses the planning, organizing, directing, and controlling of financial activities within an organization. According to Siswanto (2021), the success of a firm is largely determined by the financial manager's ability to adapt to change, raise capital efficiently, invest in productive assets, and manage those assets wisely. Effective financial management not only contributes to individual firm performance but also has broader macroeconomic implications, as misallocation of capital at the firm level can impede aggregate economic growth.

**Financial Statement Analysis**

Financial statement analysis is the systematic process of evaluating a firm's financial information as reported in its financial statements, including the balance sheet, income statement, and cash flow statement. The objective is to assess the firm's financial performance, stability, profitability, and capacity to meet both short-term and long-term obligations. Analytical methods include financial ratio analysis, historical trend analysis, and cross-sectional comparisons with industry benchmarks. The insights derived from this process support managerial decision-making, investment evaluation by shareholders, and credit risk assessment by creditors.

Firm Value

Firm value refers to the market's assessment of a company's overall worth, reflecting investor expectations regarding the firm's future performance and growth potential. According to Brigham and Houston (2019:122), firm value as measured by PBV indicates the extent to which the market values the firm's book equity; a higher PBV suggests greater market confidence in the firm's prospects. Hery (2017:5) defines firm value as a condition achieved by a company as a reflection of public trust built over the course of its operational history. Silvia Indrarini (2019:2) further characterizes firm value as investors' perception of management's effectiveness in utilizing entrusted resources, commonly reflected in the firm's stock price.

**Operational Definition and Formula:**

Firm value in this study is measured using the Price-to-Book Value (PBV) ratio, calculated as follows:

$$PBV = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$$

Where:

- Market Price per Share = closing stock price at the end of the fiscal year
- Book Value per Share = Total Equity ÷ Number of Shares Outstanding

A PBV ratio greater than 1 indicates that the market values the firm above its book value, reflecting positive investor confidence.

Debt to Asset Ratio (DAR)

The Debt to Asset Ratio measures the proportion of a firm's total assets that are financed through debt. According to Anwar (2019), a higher DAR indicates greater financial risk due to increasing obligations, while a lower DAR suggests a more conservative and lower-risk financial

position. Oryza (2024) notes that while debt can provide tax advantages through interest deductions, excessive leverage may place the firm in a financially distressed condition.
From a theoretical standpoint, DAR is linked to both Trade-Off Theory and Agency Theory. Moderate leverage may enhance firm value through tax shields and agency cost reduction, while excessive leverage increases bankruptcy risk and reduces market valuation.

**Operational Definition and Formula:**

$$DAR = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

Where:

- Total Liabilities = all short-term and long-term obligations of the firm
- Total Assets = total resources owned by the firm

DAR values range from 0 to 1; a value closer to 1 indicates higher financial leverage and risk exposure.

Return on Asset (ROA)

Return on Asset measures the efficiency with which a firm utilizes its total assets to generate net profit. It is a key indicator of operational performance and management effectiveness in deploying company resources. A higher ROA reflects superior asset productivity and profitability, which in turn serves as a positive signal to investors regarding the firm's earnings capacity (Signaling Theory).

**Operational Definition and Formula:**

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$$

Where:

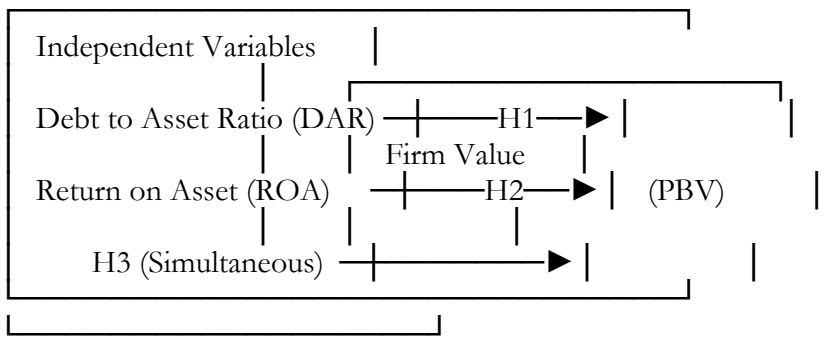
- Net Income = profit after tax for the fiscal year
- Total Assets = average or end-of-period total assets

An increasing ROA trend indicates improving profitability and is generally associated with higher firm value in the market.

*Conceptual Framework and Hypothesis Development*

Based on the theoretical foundations outlined above, the following conceptual framework is proposed:

**Figure 2.1 – Conceptual Framework**



Hypothesis 1 (H1): Debt to Asset Ratio has a significant partial effect on Firm Value at PT Nippon Indosari Corpindo Tbk.
*Rationale:* Based on Trade-Off Theory and Agency Theory, capital structure decisions proxied by DAR—are expected to significantly influence market valuation. This is further supported by Bharawati (2021), who found a positive and significant relationship between DAR and firm value.

Hypothesis 2 (H2): Return on Asset has a significant partial effect on Firm Value at PT Nippon Indosari Corpindo Tbk.
*Rationale:* In line with Signaling Theory, higher ROA conveys positive information about management's operational efficiency to the market, which is expected to enhance investor confidence and firm value. This is consistent with Sofiani and Siregar (2022).
Hypothesis 3 (H3): Debt to Asset Ratio and Return on Asset simultaneously have a significant effect on Firm Value at PT Nippon Indosari Corpindo Tbk.
*Rationale:* Capital structure and profitability are interrelated financial dimensions that jointly shape investor perceptions of firm value. The simultaneous assessment captures the combined explanatory power of both variables in determining PBV.

## METHODS

This study employs a quantitative associative research design, which aims to examine the relationship and influence between two or more variables (Sugiyono, 2016:55). Specifically, this study adopts a causal associative approach, investigating the directional effect of independent variables—Debt to Asset Ratio (DAR) and Return on Asset (ROA)—on the dependent variable, Firm Value (PBV). Given that the unit of analysis is a single publicly listed company observed over a ten-year period (2015–2024), this study is more precisely characterized as a quantitative time series case study. This design is appropriate when the research objective is to analyze the dynamic behavior of financial variables within a specific firm over an extended observation period, rather than to generalize findings across a broader population. The time series approach allows for the examination of temporal patterns, trends, and causal relationships among variables within the firm specific context of PT Nippon Indosari Corpindo Tbk. This research was conducted from March 25, 2025, until completion. The research object is PT Nippon Indosari Corpindo Tbk, a publicly listed company on the Indonesia Stock Exchange (IDX) throughout the period 2015–2024. All required data were accessed through the official IDX website (www.idx.co.id) and the company's official website. The data used in this study are secondary data obtained from the company's annual reports and audited financial statements for the period 2015–2024. According to Sugiyono (2022), a population refers to the entirety of elements that constitute the domain of inference or generalization in a study, encompassing all characteristics and attributes of the subjects or objects under investigation. In this study, the population is PT Nippon Indosari Corpindo Tbk, representing the firm as a whole across its operational history on the Indonesia Stock Exchange. Given the nature of this research as a single-firm time series case study, the conventional notion of sampling across multiple units does not apply. Instead, the study adopts a purposive time series data selection approach, wherein the observation period is deliberately selected based on data availability, completeness, and relevance to the research objectives. This approach is consistent with case study methodology in quantitative financial research, where longitudinal data from a single firm serve as the primary analytical unit (Yin, 2018).
The criteria for data selection are as follows:

1. The data must pertain to PT Nippon Indosari Corpindo Tbk, a manufacturing company in the food and beverage sector listed on the Indonesia Stock Exchange throughout the observation period 2015–2024.
2. Complete data must be available for all variables used in the study—DAR, ROA, and PBV—for each year within the observation period.

3. PT Nippon Indosari Corpindo Tbk must have published complete and audited financial reports and annual reports for each year of the period 2015–2024.

Based on these criteria, the study utilizes 10 annual observations (2015–2024), representing a complete and uninterrupted time series dataset for the selected firm.
Methodological Note: The use of a single firm with n = 10 observations constitutes a recognized limitation of this study. A small sample size may reduce the statistical power of regression estimates and increase sensitivity to outliers, potentially affecting the reliability of hypothesis testing. To address this, the study applies several robustness measures, including classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) and interprets the results with appropriate caution, acknowledging the constraints of small-sample inference. Future research is encouraged to expand the dataset by incorporating a longer time horizon or adopting a multi-firm panel data approach to enhance generalizability.

Data Type and Source
This study relies exclusively on secondary data, defined as data that have been previously collected and published by other parties (Sugiyono, 2022). The data sources used in this research are:

| Data Type | Source |
|---|---|
| Annual Financial Statements (2015–2024) | PT Nippon Indosari Corpindo Tbk official website |
| Stock Price and Market Data | Indonesia Stock Exchange (www.idx.co.id) |
| DAR, ROA, and PBV values | Calculated from audited financial reports |

Operationalization of Variables
The following table summarizes the operational definitions and measurement indicators for each variable used in this study:

| Variable | Type | Operational Definition | Formula | Scale |
|---|---|---|---|---|
| Firm Value (PBV) | Dependent | Market's valuation relative to book value of equity | PBV = Market Price per Share ÷ Book Value per Share | Ratio |
| Debt to Asset Ratio (DAR) | Independent | Proportion of total assets financed by debt | DAR = Total Liabilities ÷ Total Assets | Ratio |
| Return on Asset (ROA) | Independent | Efficiency of asset utilization in generating net profit | ROA = Net Income ÷ Total Assets × 100% | Ratio |

Data Analysis Method
Data in this study were processed and analyzed using Eviews 12. The analytical procedures are as follows:
Classical Assumption Tests
Prior to regression estimation, the following diagnostic tests were conducted to ensure the validity of the Ordinary Least Squares (OLS) assumptions:
a. Normality Test The Jarque-Bera test was used to assess whether the residuals of the regression model are normally distributed. Given the small sample size (n = 10), normality of residuals is particularly important for the validity of t-test and F-test inferences. It is acknowledged that

with n = 10, the power of normality tests is inherently limited, and results should be interpreted with caution.

b. Multicollinearity Test The Variance Inflation Factor (VIF) was used to detect the presence of multicollinearity among independent variables. A VIF value exceeding 10 indicates problematic multicollinearity. In small samples, even moderate multicollinearity can substantially inflate standard errors, reducing the precision of coefficient estimates.
c. Heteroscedasticity Test The Glejser test or White test was employed to detect non-constant variance in the residuals. Heteroscedasticity can lead to inefficient OLS estimates and invalid hypothesis tests. Its presence is particularly concerning in time series data spanning periods of economic volatility.
d. Autocorrelation Test The Durbin-Watson statistic was used to detect first-order serial autocorrelation in the residuals—a common issue in time series regression. The presence of autocorrelation violates the OLS assumption of independent errors and may lead to underestimated standard errors and inflated t-statistics.

Small Sample Bias Justification: With only 10 observations, this study is subject to the limitations of small-sample statistical inference. These include reduced degrees of freedom (df = n − k − 1 = 7), increased risk of Type II error (failure to reject a false null hypothesis), and heightened sensitivity to individual data points. The results of all hypothesis tests should therefore be interpreted within this constraint, and findings should be considered exploratory rather than conclusive. The study contributes primarily to firm-specific insights rather than broad empirical generalization.

Multiple Linear Regression Analysis

The primary analytical method employed is multiple linear regression, specified as follows:

$$PBVt=\alpha+\beta1DARt+\beta2ROAt+\varepsilon t$$

Where:

- PBV = Firm Value (Price-to-Book Value) in period *t*
- $\alpha$ = constant (intercept)
- $\beta_1$, $\beta_2$ = regression coefficients
- DAR = Debt to Asset Ratio in period *t*
- ROA = Return on Asset in period *t*
- $\varepsilon$ = error term

Hypothesis Testing

a. Partial Test (t-test) — tests H1 and H2 individually at $\alpha = 0.05$
b. Simultaneous Test (F-test) — tests H3, examining the joint significance of DAR and ROA on PBV
c. Coefficient of Determination ($R^2$) — measures the proportion of variance in PBV explained by DAR and ROA

## RESULTS AND DISCUSSION

### Descriptive Statistical Analysis

The descriptive statistical analysis aims to characterize the behavior of each variable across the observation period. This study involves one dependent variable—Price-to-Book Value (PBV) as a proxy for Firm Value—and two independent variables: Debt to Asset Ratio (DAR) and Return on Asset (ROA)

**Tabel 1. DAR Indicator Data of PT Nippon Indosari Corpindo Tbk (2015–2024)**

| Tahun | Liabilitas | Total Aset | DAR |
|---|---|---|---|
| | (Dalam Rupiah) | (Dalam Rupiah) | % |
| 2015 | 1.517.788.685.162 | 2.706.323.637.034 | 56,08% |
| 2016 | 1.476.889.086.692 | 2.919.640.858.718 | 50,58% |
| 2017 | 1.739.467.993.982 | 4.559.573.709.411 | 38,15% |
| 2018 | 1.476.909.260.772 | 4.393.810.380.883 | 33,61% |
| 2019 | 1.589.486.465.854 | 4.682.083.844.951 | 33,95% |
| 2020 | 1.224.495.624.254 | 4.452.166.671.985 | 27,50% |
| 2021 | 1.341.864.891.951 | 4.191.284.422.677 | 32,02% |
| 2022 | 1.449.163.077.319 | 4.130.321.616.083 | 35,09% |
| 2023 | 1.550.086.849.761 | 3.943.518.425.042 | 39,31% |
| 2024 | 1.438.191.795.263 | 3.746.346.988.767 | 38,39% |

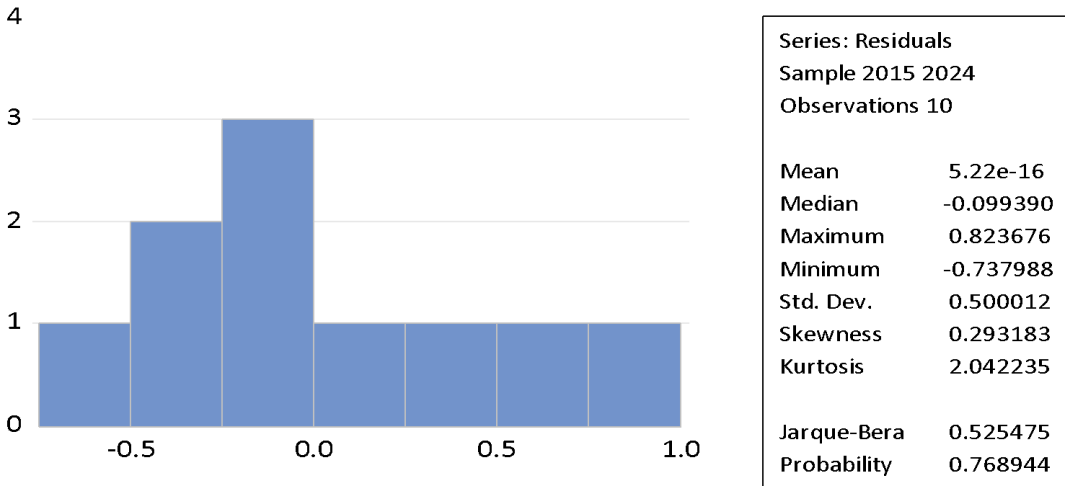
Table 1. reveals that DAR reached its highest level in 2015 at 56.08%, indicating that more than half of the company's total assets were financed through debt obligations. From 2016 through 2020, DAR declined consistently to its lowest point of 27.50%, reflecting a deliberate strategic shift toward equity-based financing and reduced financial leverage. This deleveraging pattern is theoretically consistent with Trade-Off Theory (Modigliani & Miller, 1963), which predicts that firms actively manage their leverage ratios to minimize the combined costs of financial distress and taxation. Beginning in 2021, DAR gradually increased again through 2023, suggesting the company re-engaged debt financing to support operational growth and capital expenditure, before stabilizing at 38.39% in 2024.

## Classical Assumption Tests

Normality Test

The normality test examines whether the regression model's residuals follow a normal distribution, which is a fundamental assumption underpinning the validity of OLS-based parametric inference. This study employs the Jarque-Bera test using Eviews 12.

**Figure 1 Normality Test Result** *(Source: Processed using Eviews 12)*




*(Sumber : Data diolah dengan Eviews 12)*

The Jarque-Bera statistic is 0.525475, with a corresponding probability value of 0.768944. Since 0.768944 > 0.05, the null hypothesis of normally distributed residuals cannot be rejected.

The residuals are therefore confirmed to be normally distributed, satisfying the normality assumption required for valid t-test and F-test inference.

Small Sample Caveat: Given n = 10, the Jarque-Bera test operates with limited statistical power. Normality results in small samples are inherently less reliable and should be interpreted alongside other diagnostic indicators rather than treated as definitive.

**Heteroscedasticity Test**

**Tabel 2. Heteroscedasticity Test Result**

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

| | | | |
|---|---|---|---|
| F-statistic | 0.167861 | Prob. F(2,7) | 0.8488 |
| Obs*R-squared | 0.457654 | Prob. Chi-Square(2) | 0.7955 |
| Scaled explained SS | 0.116861 | Prob. Chi-Square(2) | 0.9432 |

The heteroscedasticity test yields a Prob. Chi-Square value of 0.9432, substantially exceeding the 0.05 threshold. This confirms the absence of heteroscedasticity, meaning the variance of residuals remains constant across all observations. The OLS estimators are consequently efficient and unbiased under the Gauss-Markov conditions.

**Multicollinearity Test**

**Table 3. Multicollinearity Test Result**

Variance Inflation Factors
Date: 10/24/25 Time: 21:29
Sample: 2015 2024
Included observations: 10

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| C | 0.743014 | 23.11492 | NA |
| X1 | 7.292413 | 35.10299 | 1.531798 |
| X2 | 58.49649 | 10.34179 | 1.531798 |

*(Source: Processed using Eviews 12)*

The Centered VIF for both DAR (X1) and ROA (X2) is **1.531798**, well below the critical threshold of 10. This confirms the **absence of multicollinearity** between the two independent variables, ensuring that the individual regression coefficients can be interpreted independently without distortion from collinear overlap.

**Autocorrelation Test**

**Table 4. Autocorrelation Test Result**

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

| | | | |
|---|---|---|---|
| F-statistic | 0.131209 | Prob. F(2,5) | 0.8800 |
| Obs*R-squared | 0.498663 | Prob. Chi-Square(2) | 0.7793 |

*(Source: Processed using Eviews 12)*

The autocorrelation test produces a Prob. Chi-Square value of 0.7793, exceeding the 0.05 significance level. This confirms the absence of serial autocorrelation in the model residuals—a particularly critical result for time series regression, where correlated errors would otherwise inflate t-statistics and invalidate hypothesis testing conclusions.

**Hypothesis TestingUji t (Parsial)**

**Table 5 Partial Test (t-test) Results**

Dependent Variable: Y
Method: Least Squares
Date: 10/24/25 Time: 21:31
Sample: 2015 2024
Included observations: 10

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1.361514 | 0.861983 | -1.579514 | 0.1582 |
| X1 | 11.91489 | 2.700447 | 4.412190 | 0.0031 |
| X2 | 1.296457 | 7.648300 | 0.169509 | 0.8702 |

| | | | |
|---|---|---|---|
| R-squared | 0.816822 | Mean dependent var | 3.312115 |
| Adjusted R-squared | 0.764486 | S.D. dependent var | 1.168271 |
| S.E. of regression | 0.566960 | Akaike info criterion | 1.946269 |
| Sum squared resid | 2.250105 | Schwarz criterion | 2.037044 |
| Log likelihood | -6.731344 | Hannan-Quinn criter. | 1.846688 |
| F-statistic | 15.60711 | Durbin-Watson stat | 1.596261 |
| Prob(F-statistic) | 0.002631 | | |

*(Source: Processed using Eviews 12)*

The t-test assesses the individual significance of each independent variable in explaining variation in Firm Value (PBV) at $\alpha = 0.05$.

H1 — Debt to Asset Ratio (DAR) on Firm Value (PBV)

The t-statistic for DAR is 4.412190 with a probability value of 0.0031. Since t-calculated (4.412190) > t-table (1.89458) and p-value (0.0031) < 0.05, $H_0$ is rejected and $H_1$ is accepted, confirming that DAR has a significant partial effect on Firm Value.

Theoretical Interpretation:

This result aligns with the core propositions of Trade-Off Theory, which holds that a firm's capital structure—and specifically its leverage level—materially affects its market valuation. When DAR is maintained within a range perceived as financially prudent, the tax shield benefits of debt can enhance firm value. However, when DAR rises beyond what investors consider sustainable, the associated financial distress costs outweigh the benefits, eroding market confidence and reducing PBV. Furthermore, from the perspective of Signaling Theory (Ross, 1977), changes in DAR serve as observable signals to external investors regarding the firm's financial risk posture. A declining DAR signals improved financial health and reduced default risk, prompting investors to revise their valuation upward. Conversely, a sharply rising DAR may signal deteriorating financial stability, reducing firm value. The significant relationship observed in this study confirms that capital structure decisions at PT Nippon Indosari Corpindo Tbk carry meaningful informational content that is reflected in its market valuation.

**H2 Return on Asset (ROA) on Firm Value (PBV)**

The t-statistic for ROA is 0.169509 with a probability value of **0.8702**. Since t-calculated (0.169509) < t-table (1.89458) and p-value (0.8702) > 0.05, $H_0$ is accepted and $H_2$ is rejected, indicating that ROA does not have a significant partial effect on Firm Value.

**Theoretical Interpretation:** This result warrants critical examination, as it appears to contradict the standard expectation derived from Signaling Theory, which predicts that superior profitability conveys positive signals to investors and should therefore enhance firm value. Several theoretical and contextual explanations may account for this finding. First, in an efficient market context, profitability improvements may already be anticipated and priced into the stock prior to their formal disclosure in financial statements, rendering the ROA signal informationally redundant for market participants. Second, the information environment of a well-established, large-cap listed company such as PT Nippon Indosari Corpindo Tbk may be characterized by relatively lower information asymmetry, diminishing the marginal signaling value of profitability disclosures. Third, in the Indonesian F&B sector—which is highly exposed to commodity price volatility—investor attention may be disproportionately directed toward balance sheet risk indicators such as DAR rather than income-based metrics like ROA. Fourth, with only n = 10 observations, the statistical power of the t-test is inherently limited, increasing the probability of a Type II error (i.e., failing to detect a true effect). This suggests that the non-significance of ROA may partly reflect a small-sample statistical artifact rather than a true absence of economic relationship.

**Simultaneous Test (F-test)**

Uji hipotesis (F-test) dilakukan guna untuk melihat apakah hubungan antara semua variabel bebas dan variabel terikat signifikan secara simultan.

**Table 6. Simultaneous Test (F-test) Results**

Dependent Variable: Y
Method: Least Squares
Date: 10/24/25 Time: 21:31
Sample: 2015 2024
Included observations: 10

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1.361514 | 0.861983 | -1.579514 | 0.1582 |
| X1 | 11.91489 | 2.700447 | 4.412190 | 0.0031 |
| X2 | 1.296457 | 7.648300 | 0.169509 | 0.8702 |

| | | | |
|---|---|---|---|
| R-squared | 0.816822 | Mean dependent var | 3.312115 |
| Adjusted R-squared | 0.764486 | S.D. dependent var | 1.168271 |
| S.E. of regression | 0.566960 | Akaike info criterion | 1.946269 |
| Sum squared resid | 2.250105 | Schwarz criterion | 2.037044 |
| Log likelihood | -6.731344 | Hannan-Quinn criter. | 1.846688 |
| F-statistic | 15.60711 | Durbin-Watson stat | 1.596261 |
| Prob(F-statistic) | 0.002631 | | |

*(Source: Processed using Eviews 12)*

The F-statistic is 15.60711 with a significance value of 0.002631. Since F-calculated (15.60711) > F-table (4.74, df1 = 3, df2 = 7) and p-value (0.002631) < 0.05, $H_0$ is rejected and $H_3$ is accepted. DAR and ROA jointly and significantly explain variation in Firm Value (PBV).

Theoretical Interpretation: The significant simultaneous result—despite ROA being individually insignificant—reflects the principle that capital structure and profitability function as jointly determined, interdependent financial dimensions. From a Trade-Off Theory perspective, leverage and asset returns together define the firm's net risk-return profile, which investors evaluate holistically when pricing equity. The combined model captures this joint dynamic more effectively than either variable alone. This finding also reinforces Agency Theory (Jensen & Meckling, 1976), wherein both debt discipline (captured by DAR) and management efficiency (proxied by ROA) are simultaneously relevant in determining how investors perceive managerial stewardship and, by extension, the firm's market value.

**Coefficient of Determination ($R^2$)**

**Table 7. Coefficient of Determination ($R^2$)**

Dependent Variable: Y
Method: Least Squares
Date: 10/24/25 Time: 21:31
Sample: 2015 2024
Included observations: 10

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1.361514 | 0.861983 | -1.579514 | 0.1582 |
| X1 | 11.91489 | 2.700447 | 4.412190 | 0.0031 |
| X2 | 1.296457 | 7.648300 | 0.169509 | 0.8702 |

| | | | |
|---|---|---|---|
| R-squared | 0.816822 | Mean dependent var | 3.312115 |
| Adjusted R-squared | 0.764486 | S.D. dependent var | 1.168271 |
| S.E. of regression | 0.566960 | Akaike info criterion | 1.946269 |
| Sum squared resid | 2.250105 | Schwarz criterion | 2.037044 |
| Log likelihood | -6.731344 | Hannan-Quinn criter. | 1.846688 |
| F-statistic | 15.60711 | Durbin-Watson stat | 1.596261 |
| Prob(F-statistic) | 0.002631 | | |

*(Source: Processed using Eviews 12)*

The Adjusted $R^2$ is 0.764486 (76.45%), indicating that DAR and ROA together account for approximately 76.45% of the total variation in Firm Value (PBV). The remaining 23.55% is explained by variables not included in this model, potentially including firm size, dividend policy, liquidity ratios, earnings per share, interest rate movements, or broader macroeconomic conditions. An Adjusted $R^2$ of 76.45% reflects strong explanatory power for a two-predictor time series model; however, given n = 10, this estimate is subject to upward bias and should be interpreted conservatively. Future studies are encouraged to incorporate additional explanatory variables and expand the observation period to validate the robustness of this explanatory capacity.

**Effect of Debt to Asset Ratio on Firm Value at PT Nippon Indosari Corpindo Tbk (2015–2024)**

The empirical results of this study confirm that **Debt to Asset Ratio (DAR) has a significant partial effect on Firm Value (PBV)**, as evidenced by a t-statistic of 4.412190 and a p-value of 0.0031 (< 0.05), leading to the rejection of $H_0$ and acceptance of $H_1$.

From a theoretical standpoint, DAR measures the extent to which a firm's assets are financed through debt obligations. According to Putu Kartinita Apryani et al. (2021), DAR is also interpreted as an indicator of a firm's capacity to settle all of its liabilities—both short-term and long-term—in the event of liquidation. A high DAR implies elevated financial risk: when a firm carries excessive debt and fails to manage it productively, investors may perceive a heightened risk of default, eroding market confidence and ultimately reducing firm value. This is consistent with the **financial distress cost hypothesis** embedded within Trade-Off Theory, which posits that beyond an optimal leverage threshold, the costs of financial distress outweigh the tax benefits of debt, leading to a decline in firm value.

**Critical Comparison with Prior Research:**

This finding is **consistent** with several prior studies. Limbong (2022) found that DAR significantly affects firm value, noting that leverage changes are rapidly absorbed by market participants in their valuation assessments. Similarly, Sofiani and Siregar (2022) and Asmin et al. (2024) confirmed a significant relationship between DAR and firm value across different Indonesian listed firms, reinforcing the cross-study validity of this finding within the domestic F&B and manufacturing context.

However, this result **contradicts** the findings of Darmawan and Firdausy (2021), who reported that DAR does not have a significant impact on firm value. This divergence may be attributable to differences in sample composition, observation period, and industry characteristics. Darmawan and Firdausy's study utilized a multi-firm panel dataset spanning different sectors, where firm-specific leverage effects may have been diluted by cross-sectional heterogeneity. In contrast, this study's single-firm longitudinal design isolates the intertemporal variation in DAR

within one company, potentially amplifying the detectability of its effect on PBV. This methodological difference partially explains the conflicting conclusions and highlights the importance of research context in interpreting leverage-valuation relationships.

From the perspective of **Signaling Theory**, the significant effect of DAR on PBV in this study suggests that the market treats PT Nippon Indosari Corpindo Tbk's leverage decisions as credible signals of financial discipline or risk. The sustained decline in DAR from 56.08% (2015) to 27.50% (2020) appears to have been interpreted by investors as a positive signal of improved financial health, contributing to the maintenance of PBV above 2.5x throughout the post-2017 period. This signaling dynamic underscores the practical importance of transparent and consistent capital structure communication by management to external stakeholders.

## CONCLUSION

This study investigated the partial and simultaneous effects of Debt to Asset Ratio (DAR) and Return on Asset (ROA) on Firm Value (PBV) at PT Nippon Indosari Corpindo Tbk over the period 2015–2024, using time series regression analysis processed through Eviews 12. The results reveal that DAR has a significant partial effect on Firm Value ($t = 4.412$; $p = 0.0031 < 0.05$), confirming that capital structure decisions are a primary driver of market valuation, consistent with Trade-Off Theory and Signaling Theory; conversely, ROA does not have a significant partial effect on Firm Value ($t = 0.170$; $p = 0.8702 > 0.05$), suggesting that short-term profitability improvements alone are insufficient to influence investor valuation in this firm-specific context, likely because such information is already priced into the market or overshadowed by investors' stronger sensitivity to leverage risk. Nevertheless, when evaluated simultaneously, DAR and ROA jointly exert a significant effect on Firm Value ($F = 15.607$; $p = 0.0026 < 0.05$), with an Adjusted $R^2$ of 76.45%, indicating that capital structure and profitability together provide a more comprehensive explanation of firm value dynamics than either variable in isolation. Based on the findings of this study, investors and prospective investors are advised to prioritize capital structure indicators—particularly DAR—over short-term profitability metrics when evaluating F&B sector firms, as a DAR maintained below 40% has historically been associated with more stable PBV levels at PT Nippon Indosari Corpindo Tbk; company management, meanwhile, should adopt a deliberate and transparently communicated leverage strategy that sustains debt levels within a market-optimal range, while simultaneously pursuing consistent profitability improvements to strengthen the firm's combined financial profile given ROA's contributory role in the simultaneous model; and future researchers are encouraged to expand the sample to include multiple F&B sub-sector companies listed on the IDX for panel data analysis, extend the observation period beyond 2024, and incorporate additional variables such as firm size, dividend payout ratio, current ratio, and earnings per share to achieve a more comprehensive model of firm value determinants.

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