

The Influence of Current Ratio (CR), Debt to Equity Ratio (DER), and Net Profit Margin (NPM) on Return on Assets (ROA) at PT Astra International Tbk

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Article Info

Keywords:

Current Ratio, Debt to Equity Ratio, Net Profit Margin, Return on Assets, PT Astra Internasional Tbk.

Abstract

This research aims to analyze the influence of Current Ratio (CR), Debt to Equity Ratio (DER), and Net Profit Margin (NPM) on Return on Assets (ROA) at PT Astra Internasional Tbk during the 2014–2023 period. The background to this research is based on the importance of financial indicators in assessing company profitability, especially in the very dynamic automotive sector. This research uses secondary data in the form of company annual financial reports obtained through documentation and literature study, and analyzed using the multiple linear regression method with the help of SPSS 16.0. The research results show that both partially and simultaneously, CR, DER, and NPM do not have a significant effect on ROA, with a simultaneous significance value of 0.512. The coefficient of determination of 30% shows that only a small portion of the variation in ROA can be explained by these three variables, while the rest is influenced by other factors. These findings indicate that the efficiency of asset use in generating profits is determined more by other variables outside CR, DER, and NPM. This research suggests that companies focus more on efficient asset management strategies and consider other variables in improving their profitability performance, while future researchers are advised to add variables such as Total Asset Turnover, company size, or other efficiency ratios so that the research results are more comprehensive.

1. Introduction

The automotive industry is a vital sector in driving Indonesia's economic development. As a major contributor, PT Astra International Tbk plays a significant role in advancing the national automotive industry. The company operates across multiple business lines, including vehicle manufacturing, distribution, and after-sales services. With an extensive network and a portfolio of well-known brands, Astra has established itself as a market leader in Indonesia's automotive sector.

In the business context, a company's financial performance is a key determinant of its success and sustainability. Financial performance reflects how effectively a company manages its resources to achieve its goals and create shareholder value. One of the essential indicators for measuring financial performance is Return on Assets (ROA). As noted by Kasmir (2019), "*ROA is a ratio used to measure a company's ability to generate profits from its total assets.*" ROA provides insight into how efficiently a company utilizes its assets to

produce net income, making it a critical metric for managers, investors, and analysts alike.

To analyze ROA, researchers frequently examine supporting financial ratios that may influence its value. These ratios offer a snapshot of a company's financial health and operational efficiency. According to Wijayanti (2022), ROA is influenced by several factors, notably the Current Ratio (CR), Debt to Equity Ratio (DER), and Net Profit Margin (NPM). These three indicators are widely used to understand the interplay between operational and financial performance.

The Current Ratio (CR) measures a company's liquidity—specifically, its ability to meet short-term obligations using its current assets. According to Kasmir (2019), "*CR is a ratio used to assess a company's capability to use current assets to settle current liabilities when they fall due.*" A strong liquidity position supports operational continuity and enhances a company's ability to generate returns on its assets.

The Debt to Equity Ratio (DER) reflects a company's capital structure by comparing total liabilities to total equity. As stated by Kasmir (2019), "*DER is used to assess the proportion of debt relative to shareholders' equity.*" Although higher leverage can amplify financial risk, optimal debt usage can also support growth and improve asset productivity.

The Net Profit Margin (NPM) indicates how efficiently a company converts revenue into net profit. It reflects cost control and operational efficiency. Kasmir (2019) defines NPM as "*a ratio that compares net income after*

tax and interest to total revenue." A higher NPM suggests better profitability and improved capacity to generate value from sales.

PT Astra International Tbk was founded in Jakarta in 1957 under the name Astra International Inc. In 1969, it was appointed the official distributor of Toyota vehicles in Indonesia. Listed on the Indonesia Stock Exchange since 1990, the company is now one of Indonesia's largest business groups, comprising 283 subsidiaries, joint ventures, and affiliated companies, and supported by more than 200,000 employees.

Table 1. Financial Data of PT Astra International Tbk (in trillion IDR)

Year	Current Assets	Current Liabilities	Total Debt	Total Equity	Net Profit	Revenue	Total Assets
2019	129.06	99.96	165.19	186.76	26.62	237.17	351.96
2020	132.31	85.74	142.75	195.45	18.57	175.05	338.20
2021	130.26	103.78	151.70	215.62	25.57	233.49	367.31
2022	179.82	119.20	169.58	243.72	40.42	301.38	413.30
2023	166.19	125.02	195.26	250.42	44.50	316.57	445.68

Source: Processed Secondary Data (2025)

Data Analysis Overview Table 1 illustrates fluctuations in the components of liquidity, solvency, and profitability ratios over the past five years. Current assets showed variability, decreasing notably in 2021 and again in 2023. Concurrently, both current liabilities and total debt have trended upward from 2021 to 2023, driven by increased operational and investment activities, alongside the financial impacts of the COVID-19 pandemic.

Total equity has consistently increased from 2019 to 2023, largely due to strategic debt utilization—both short-term and long-term—to finance business expansion. However, in 2020, net profit, revenue, and total assets all experienced significant declines, attributed to intense competition in the global automotive market, which necessitated strategic adjustments.

2. Literature review

Return on Assets (ROA) Return on Assets (ROA) represents the percentage of net profit generated relative to total assets, indicating how efficiently a company utilizes its assets to generate earnings. ROA also reflects the effectiveness of management in operating the company (Hery, 2015). A positive ROA implies that company assets are being used profitably, while a negative ROA signals inefficiency or losses (Mahardika & Marbun in Kusumi, 2020). According to Hery (2016), a good industry benchmark for ROA is 30%. The ROA formula is as follows:

$$ROA = \frac{LABA \text{ BERSIH}}{TOTAL \text{ ASET}} \times 100\%$$

(Source: Kasmir, 2019)

Current Ratio (CR) The Current Ratio (CR) assesses a company's liquidity by measuring its ability to meet short-term liabilities using current assets. According to Hery (2015) and Kasmir (2011), it is essential for evaluating short-term financial health. Prior studies present mixed results: Afrianti (in Mahardhika, 2016) finds a negative influence of CR on ROA, while Barus & Leliani (in Mahardhika, 2016) argue there is no effect. Kasmir (2019) considers a CR of 200% as optimal. The formula is:

$$CR = \frac{ASET\ LANCAR}{UTANG\ LANCAR} \times 100\%$$

(Source: Kasmir, 2019)

Debt to Equity Ratio (DER) DER reflects a company's financial leverage by comparing total debt to total equity. According to Harahap (in Mahardhika, 2016), it indicates the extent of external funding relative to shareholders' equity. Empirical results vary: Barus & Leliani (in Mahardhika, 2016) find a positive impact, whereas Mahmoudi (in Putra, 2015) reports a negative effect. Roza Gustika & Yola Purnamasari (2022) suggest an optimal DER is below 90%. Formula:

$$DER = \frac{TOTAL\ UTANG}{TOTAL\ EKUITAS} \times 100\%$$

(Source: Kasmir, 2019)

Net Profit Margin (NPM) NPM measures the efficiency of converting sales into net income. According to Sudana (in Tyas, 2018), it evaluates profit generation capacity post-tax and interest. Hery (2016) suggests 20% as a solid benchmark.

$$NPM = \frac{LABA\ BERSIH\ SETELAH\ PAJAK}{PENJUALAN\ BERSIH} \times 100\%$$

(Source: Kasmir, 2019)

Effect of CR on ROA Supardi & Suratno (2016) note that while a high CR reflects strong liquidity, excessively high levels may imply underutilized assets. Mahardhika & Marbun (2016) found a significant positive effect,

whereas Herman & Suratno (in Alemina, 2020) noted no significant influence.

Effect of DER on ROA Based on Pecking Order Theory, a higher DER can elevate costs and risk (Tan & Hadi, 2020; Ardiana & Chabachib, 2018). Findings by Sari & Dwirandra (2019) support a significant impact, but Rika & Hendratno (in Alemina, 2020) observed otherwise.

Effect of NPM on ROA NPM positively correlates with ROA. Higher NPM values indicate better cost efficiency and profit generation from sales (Dedy in Fitriyani, 2019; Dewi et al., 2021; Alemina Br Surbakti & Nelsari Malau, 2020).

Combined Effect of CR, DER, and NPM on ROA Sugiono (2022) concludes that CR, DER, and NPM jointly influence ROA. Dewi et al. (2021) emphasize the interplay between these ratios in determining profitability. Rosa Al (2024) confirms a simultaneous positive and significant impact.

Research Hypotheses:

- **H1:** CR has a significant partial effect on ROA at PT Astra International Tbk.
- **H2:** DER has a significant partial effect on ROA at PT Astra International Tbk.
- **H3:** NPM has a significant partial effect on ROA at PT Astra International Tbk.
- **H4:** CR, DER, and NPM simultaneously have a significant effect on ROA at PT Astra International Tbk.

3. Research methods

2.1 Research Design

This study employs a quantitative associative approach. Quantitative research views human behavior as predictable and social reality as objective and measurable (Yusuf in Khakim, 2022). Associative research aims to identify relationships between two or more variables, allowing the development of theories that explain, predict, and control phenomena (Arifudin et al., 2020). This study examines the influence of the Current Ratio (CR), Debt to Equity Ratio (DER), and Net Profit Margin

(NPM) on Return on Assets (ROA) at PT Astra International Tbk.

2.2 Research Instrument

The instrument utilized in this study is a financial data table containing figures from PT Astra International Tbk, including current assets, current liabilities, total debt, total equity, net profit, revenue, and total assets for the period 2019–2023 (Sugiyono, 2009).

2.3 Population and Sample

The population comprises financial reports of PT Astra International Tbk since its listing on the IDX from 1990 to 2023. The sample, selected using purposive sampling, includes financial report data from 2014 to 2023, based on the availability and completeness of data in the automotive sector (Suharsimi Arikunto, 2019; Kasmir, 2019).

2.4 Data Collection Techniques

Data were collected through documentation and literature review. Documentation involves gathering relevant financial reports of PT Astra International Tbk (2014–2023), while literature review includes sourcing theories and findings from books, journals, articles, and academic references (Sugiyono, 2021; Zed, 2019).

2.5 Data Analysis Method

This study utilizes multiple linear regression analysis to test the effect of CR, DER, and NPM on ROA. Data processing is conducted using SPSS version 16.0 for Windows. The analysis consists of the following steps:

2.5.1 Classical Assumption Testing

- **Normality Test:** Assesses whether residuals are normally distributed using the Shapiro-Wilk test. A significance value > 0.05 indicates normal distribution (Almunawwaroh, 2018).
- **Multicollinearity Test:** Checks the intercorrelation among independent variables using VIF and Tolerance. $VIF < 10$ or $Tolerance > 0.10$ suggests no multicollinearity (Hartati et al., n.d.).

- **Heteroscedasticity Test:** Examines residual variance equality using a scatterplot. Random distribution above and below the Y-axis implies absence of heteroscedasticity (Akuntansi et al., n.d.).
- **Autocorrelation Test:** Evaluates residual independence using the Durbin-Watson statistic. DW values between DU and 4–DU indicate no autocorrelation (Ghozali in Mokoginta et al., 2021).
- **Run Test:** A non-parametric test to assess whether residuals occur randomly, indicating no autocorrelation (Ghozali in Mokoginta et al., 2021).

2.5.2 Multiple Linear Regression Analysis

This analysis determines the influence of CR, DER, and NPM on ROA using the following equation (Pradnyaswari & Dana, 2022):

Where:

- = Return on Assets (ROA)
- = Current Ratio (CR)
- = Debt to Equity Ratio (DER)
- = Net Profit Margin (NPM)
- = Constant
- = Regression coefficient
- = Error term

2.5.3 Correlation and Coefficient of Determination

- **Correlation Coefficient:** Measures the strength and direction of the relationship between independent and dependent variables (Sugiyono in Fathussyaadah, 2019).

Coefficient Interval	Relationship Level
0.00–0.199	Very Low
0.20–0.399	Low
0.40–0.599	Moderate
0.60–0.799	Strong
0.80–1.000	Very Strong

- **Coefficient of Determination (R^2):** Indicates the proportion of the variance in the dependent variable explained by the independent variables. The formula is: (Hartati et al., 2021).

2.5.4 Hypothesis Testing

- **Partial Test (t-test):** Assesses the individual effect of each independent variable on the dependent variable. If and , the null hypothesis is rejected (Sugiyono, 2017; Ghozali, 2018).
- **Simultaneous Test (F-test):** Tests the combined effect of all independent variables on ROA. If and , the null hypothesis is rejected (Hartati et al., n.d.; Ardiyanto et al., 2020; Ghozali, 2018).

2.6 Research Location

The research was conducted at PT Astra International Tbk, located at Menara Astra, 58th–63rd Floor, Jl. Jendral Sudirman Kav. 5–6, Jakarta 10220. Financial data were accessed through the company's official website: <https://www.astra.co.id>.

4. Results and Discussion

4.1 Research Results

a. Normality Test

According to Priyatno (2012), data normality is a prerequisite for parametric statistical analysis. The Shapiro–Wilk test was used in this study due to the limited sample size (<50), following Ghozali (2021).

Table 1. Results of Normality Test Using Shapiro–Wilk

Variable	Shapiro-Wilk Statistic	df	Sig. (p-value)
CR	0.911	11	0.250
DER	0.917	11	0.296
NPM	0.888	11	0.130
ROA	0.842	11	0.033

Based on Table 1, the significance values for CR, DER, and NPM are all greater than 0.05, indicating that these variables are normally distributed. However, ROA has a p-value of 0.033, indicating that it does not follow a normal distribution. As a result, the data are partially normally distributed.

b. Multicollinearity Test

To detect multicollinearity, the tolerance and Variance Inflation Factor (VIF) values were analyzed. According to Gujarati and Porter

(2009), multicollinearity is not a concern if tolerance > 0.10 and VIF < 10.

Table 2. Multicollinearity Test Results

Variable	Tolerance	VIF
CR	0.201	4.978
DER	0.151	6.639
NPM	0.471	2.122

As shown in Table 2, all variables meet the threshold, indicating the absence of serious multicollinearity issues in the regression model.

c. Heteroscedasticity Test

Heteroscedasticity was tested using a scatterplot analysis. The scatterplot exhibited a random distribution of residuals without any clear pattern, which suggests that the assumption of homoscedasticity is met.

d. Autocorrelation Test

The Durbin–Watson (DW) test was used to evaluate the presence of autocorrelation.

Table 3. Durbin–Watson Test

Model	DW Statistic
1	2.834

With a DW value of 2.834 and a DU value of 2.0163, the result satisfies the condition $DU < DW < 4 - DU$ (i.e., $2.0163 < 2.834 < 1.9837$). However, since $DW > 4 - DU$, it suggests the presence of negative autocorrelation symptoms.

e. Run Test

A non-parametric run test was conducted to check the randomness of the residuals.

Table 4. Run Test Results

Z-Score	Sig. (2-tailed)
0.671	0.502

The p-value > 0.05 confirms that the residuals are random, indicating no autocorrelation and validating the use of parametric tests.

f. Multiple Linear Regression Analysis

Table 5. Multiple Linear Regression Coefficients

Variable	B	Std. Error	t	Sig.
Constant	-	48.148	-	0.341
	49.757		1.033	

CR	0.155	0.159	0.976	0.367
DER	0.238	0.241	0.986	0.362
NPM	1.420	0.918	1.546	0.173

Regression Equation:

$$ROA = -49.757 + 0.155(CR) + 0.238(DER) + 1.420(NPM)$$
 The regression coefficients indicate a positive relationship between each independent variable and ROA, although none of them are statistically significant at the 5% level.

g. Coefficient of Determination (R^2) and Correlation

Table 6. Model Summary

R	R^2	Adjusted R^2	Std. Error
0.548	0.300	-0.050	3.016

The R^2 value of 0.30 indicates that 30% of the variation in ROA can be explained by CR, DER, and NPM. The remaining 70% is influenced by other variables not included in the model.

h. Partial Significance Test (t-Test)

As shown in Table 5 above:

- **CR:** $t = 0.976$, $p = 0.367 \rightarrow$ Not significant.
- **DER:** $t = 0.986$, $p = 0.362 \rightarrow$ Not significant.
- **NPM:** $t = 1.546$, $p = 0.173 \rightarrow$ Not significant.

None of the independent variables have a statistically significant impact on ROA at the 5% level.

i. Simultaneous Significance Test (F-Test)

Table 7. ANOVA

F	Sig.	F table
0.858	0.512	5.409

The F value is lower than the F table, and the significance value > 0.05 . Hence, the model does not significantly explain the variation in ROA.

4.2 Discussion

a. The Effect of CR on ROA

The results indicate that CR has no significant effect on ROA. This aligns with prior

findings by Mutiara & Alwi (2024) and Destari (2019), which argue that liquidity, as measured by CR, does not directly influence asset profitability. Conversely, studies by Permata et al. (2021) suggest a significant effect, indicating mixed empirical evidence.

b. The Effect of DER on ROA

Similarly, DER has no significant effect on ROA. This result supports the findings by Mutiara et al. (2023) and Permata et al. (2021), suggesting that increased leverage does not always translate to improved profitability. However, Wijayanti et al. (2022) found contrasting results, reporting a significant effect.

c. The Effect of NPM on ROA

The relationship between NPM and ROA was also statistically insignificant. This contradicts findings by Permata et al. (2021) and Wijayanti et al. (2022), who found a positive and significant relationship, suggesting that the profitability of sales does not always equate to increased asset efficiency.

d. Joint Effect of CR, DER, and NPM on ROA

Simultaneously, CR, DER, and NPM were not significant predictors of ROA. This is consistent with research by Khakim (2022) and Satria (2022), but differs from the findings of Permata et al. (n.d.), who reported a significant joint effect.

5. Closing

5.1 Conclusion

Based on the analysis of the effect of the Current Ratio (CR), Debt to Equity Ratio (DER), and Net Profit Margin (NPM) on Return on Assets (ROA) at PT Astra International Tbk during the 2014–2023 period, the following conclusions can be drawn:

1. The **Current Ratio (CR)** has no statistically significant partial effect on Return on Assets (ROA) at PT Astra International Tbk.
2. The **Debt to Equity Ratio (DER)** does not have a significant partial effect on ROA during the research period.

3. The **Net Profit Margin (NPM)** likewise shows no significant partial effect on ROA.
 4. Simultaneously, **CR, DER, and NPM** do not have a statistically significant effect on Return on Assets (ROA), indicating that these variables collectively do not explain the variation in ROA at PT Astra International Tbk during the study period.
- These findings imply that other financial or operational factors beyond liquidity, leverage, and profitability ratios may play a more dominant role in determining asset efficiency in the context of this company.

5.2 Recommendations

Based on the findings, the following recommendations are proposed:

1. **For Management at PT Astra International Tbk**
It is recommended that the company maintains the stability of its financial ratios to preserve its fundamental health. Additionally, management should prioritize improving asset utilization and implementing more targeted investment strategies to enhance profitability performance over the long term.
2. **Strategic Considerations**
Even though CR, DER, and NPM did not significantly affect ROA in this study, continuous evaluation of how efficiently assets are being employed remains essential. The optimization of fixed assets and working capital management can be leveraged to improve overall financial performance and competitiveness in the automotive sector.
3. **For Future Researchers**
Future studies are encouraged to include additional independent variables that may have a stronger influence on ROA, such as Total Asset Turnover, Operating Cash Flow, or Return on Equity. Extending the research period or increasing the number of sample companies (e.g., through cross-sectional or panel data analysis) is also recommended to obtain more robust and generalizable results.

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