

Digital transformation and fixed asset turnover in improving the financial performance of manufacturing companies



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ABSTRACT

Digital transformation has become a strategic imperative for manufacturing firms seeking to enhance financial performance and maintain competitiveness in an increasingly digital business environment. This study examines the effects of digital transformation and fixed asset turnover on the financial performance of manufacturing companies listed on the Indonesia Stock Exchange during the 2021–2025 period. A quantitative research design was employed using panel data regression analysis based on 180 firm-year observations selected through purposive sampling. The findings indicate that digital transformation has a positive and significant effect on financial performance, highlighting its role in improving organizational competitiveness and value creation. Fixed asset turnover contributes to cost efficiency but does not significantly enhance profitability. In addition, revenue growth positively influences financial performance, whereas financial leverage negatively affects it. Firm size and firm age are also found to influence cost efficiency. These results underscore the importance of digital transformation and effective asset utilization in strengthening firms' financial outcomes. The study contributes to the growing literature on digitalization and corporate performance by providing empirical evidence from Indonesia's manufacturing sector. However, the analysis is limited to publicly listed manufacturing companies over the 2021–2025 period. Future studies are encouraged to examine other industries, incorporate additional explanatory variables, and employ longer observation periods to provide a more comprehensive understanding of the determinants of financial performance.

Keywords: Cost To Revenue Ratio; Digital Transformation; Fixed Asset Turnover; Financial Performance; Manufacturing Companies ; Revenue Growth Rate; Return On Assets



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INTRODUCTION

The financial performance of manufacturing companies is influenced by various factors, ranging from operational efficiency and financing structure to technological adaptation and macroeconomic policies. (Liu et al., 2023). Factors like using debt for productive purposes, making the best use of plant capacity, and managing operating expenses have been found to be important in deciding how profitable and sustainable the manufacturing sector is (Shafira & Gantowati, 2025). Companies are now focusing a lot on digital transformation because it helps them work better, stay ahead of competitors, and make long-term value in the digital world (Valaskova et al., 2025). Despite all those potential benefits, digital transformation implementation in companies always faces more obstacles, especially on high upfront investment cost, a shortage digital talent, and associated of the risk with the technology itself (Tran et al., 2026)

Sulbahri and Putri (2025), found that manufacturing companies serve as the primary drivers of the real sector by creating added value to products, enabling them to meet domestic demand and expand exports. In addition to sustaining national economic growth, this drives job creation and bolsters corporate resilience against global market uncertainties. For this role to function optimally, manufacturing companies must have sound asset and capital management. Some commonly used strategies include accelerating digital transformation across the production line through to the distribution process, as well as implementing cost efficiencies through high fixed-asset turnover and applying the principle of prudence in the measured use of capital loans (Nguyen et al., 2026). With these measures, the company is expected not only to maintain profitability but also to preserve financial stability and investor confidence.

For all Empirical evidence suggest that although investment in production technologies often require substantial capital, companies should prioritize long-term capital allocation for technological innovation (Tran et al., 2026). Other example many companies will invest automation-based or high-tech machinery for efficiency and strategically important option, otherwise the system with low initial investment will generally have more operating costs because technologies will tend to be low efficiency. Although the investment cost for digital transformation high, most all studies show a positive relation between digitalization and resulting higher Return on Assets (ROA).

Ahmad and Fadli (2025) Also showed that manufacturing companies listed on the Indonesia Stock Exchange (IDX) are getting more value for their company and more trust from investors when they use their assets in a smart way, which leads to a higher Return on Assets (ROA). A high ROA shows that a company can make the most profit from each asset it uses. In the context of capital-intensive industries, ROA is a crucial indicator because it directly reflects whether the expansion of physical assets and the adoption of technology can be efficiently converted into net profit. Dung et al. (2026), whose research that shows when companies with more higher levels digital transformation tends to have a better levels of efficiency. Supported by the findings of Nguyen (2025), this study indicates that digital transformation has a positive relationship with the financial performance of manufacturing companies in developing countries.

In addition Digital Transformation also have a important roles for reducng operation costs and improving corporate efficiency, Bobro et al. (2025) revealed that Digital transformation is a key factor tool for reducing operating costs and improving corporate efficiency, as measured by Cost to Revenue Ratio (CRR).

Yuniar (2026) study revealed that, companies that are able to integrate digital technology in a planned and strategic manner have been shown to achieve increased profitability, improved asset efficiency, and measurable operational advantages.

Increased revenue growth generally improves financial performance because companies generate greater profits from their assets. In addition, revenue growth can also lower the CRR if the increase in revenue exceeds the increase in operating costs, thereby improving efficiency companies. This finding is consistent with Dung et al. (2026) The extent of digital transformation and the rate at which revenue is growing both have a positive effect on how well the company's finances are doing. The results indicate that when a company's revenue grows more, its return on assets also increases. Digital transformation can be done by using technologies like artificial intelligence, the Internet of Things, blockchain, robotics, automation, and others. These tools help lower the costs of managing business activities. (Nuseva et al, 2025) also found that revenue growth is a key factor that affects a company's profitability. In simple terms, when a company's revenue increases, it has a positive impact on its financial performance.

Rahmadita and Amri (2024) It was found that, in the short term, using borrowed capital leads to a big drop in financial performance because of the interest payments that come with the loans. Using debt to boost financial performance is in line with increasing the company's assets. Dung et al. (2026) found that financial leverage has a significant negative relationship with ROA, while it tends to have a significant positive effect on CRR which can be detrimental if the company fails to convert debt into sales, but can have a beneficial negative impact if used for efficiency investments. In general, high debt increases interest expenses, which can raise a company's total expenses. If revenue growth fails to offset this increase in expenses, the CRR will rise, resulting in the company becoming inefficient.

Rahmadita and Amri (2024) emphasize that firm size has a positive impact on its financial performance, as shown by ROA. This means that bigger companies are better at using their assets to generate profits. Research by Ofori et al. (2025) shows that larger companies tend to have better financial results, as seen by their return on assets. From a theoretical point of view, this study adds to Agency Theory by showing that the size of a company affects how corporate governance practices relate to financial performance. Nayottama and Dewi (2024) discovered that larger companies tend to perform better financially.

Ahmad and Fadli (2025) show that firm age can reflect a company's experience and reputation; older firms may improve performance, although under certain conditions, this may actually lead to inefficiencies that can undermine financial performance. Research by Ramadhani and Nurullah (2025) showed that how long a company has been in business positively affects its financial performance, which is linked to the time the company has been operating in its industry. However, having a long history of operation doesn't always mean being more efficient, because it can cause people to resist change, create complicated rules, and slow down new ideas. Shawat et al. (2024) agree with this idea and found that older companies tend to have higher ROA, but how strong this link is can depend on how well the managers are doing and the specific situation the company is in.

Tran et al.(2026) revealed that effective asset management is essential for improving total asset turnover. Companies can achieve this by optimizing the use of productive assets and disposing of underutilized fixed assets, thereby enhancing operational efficiency. Supporting this view, Ahmad and Fadli (2025) demonstrated that higher fixed asset turnover contributes positively and significantly to corporate financial performance.

Based on this background, this study was conducted to analyze the effect of Digital Transformation, Fixed Asset Turnover, Revenue Growth Rate, Financial Leverage, Firm Size and Firm Age on Financial Performance among all manufacturing companies in Indonesia.

LITERATURE REVIEW, RESEARCH FRAMEWORK, AND HYPOTHESES

Financial Performance

Dung et al. (2026) say that financial performance is about how well a company makes money and uses its resources in a smart way to reach its goals. It also shows how good the management is at using assets, keeping costs under control, and providing value to the company's shareholders (Dung et al., 2026). In this study, the financial performance is measured using two indicators: ROA and CRR. ROA shows how well a company makes money from all its assets, while CRR looks at how efficiently a company runs its operations by comparing its costs to its sales. A higher ROA means the company is better at making profits, and a lower CRR shows the company is more efficient at controlling its operating costs (Kingdom et al., 2025).

In this study, the financial performance is measured using two indicators: ROA and CRR. ROA shows how well a company makes money from all its assets, while CRR looks at how efficiently a company runs its operations by comparing its costs to its sales. A higher ROA means the company is better at making profits, and a lower CRR shows the company is more efficient at controlling its operating costs (Kingdom et al., 2025).

Digital Transformation

Zhou et al. (2023) said that digitalization can help make operations more efficient, which makes managers and those who make decisions more likely to put money into technologies that use data. Companies should take time to look at what they already have, the advantages they might gain, and the costs involved in changing their processes. This helps them choose the best way to move toward digital transformation (Zhang, 2026).

Fixed Asset Turnover

Tran et al. (2026) said that fixed asset turnover is a ratio that shows how well a company uses its fixed assets to make sales. This ratio shows how effectively fixed assets like machinery, production equipment, buildings, and other operational facilities are being used. A higher FAT value shows that a company is better at using its fixed assets to make money. In companies that require a lot of capital for manufacturing, using fixed assets efficiently is very important for increasing productivity and making more profit (Satria et al., 2025).

Revenue Growth Rate

Nuseva et al. (2025) discovered that increasing revenue is a key factor in improving a company's profitability. This means that when a company's revenue grows, it tends to perform better financially.

Financial Leverage

Rahmadita and Amri (2024) say that financial leverage shows how much debt a company uses in its capital structure. Companies can grow their business and make more money by using money from outside sources. Using too much debt can make a company's finances riskier because it has to pay interest and meet payment demands (Anuno et al., 2024). So, companies should carefully handle their debt levels in a way that lets them take

advantage of borrowing without putting too much pressure on their financial health (Arhinful and Radmehr, 2023).

Firm Size

Ofori et al. (2025) said that larger companies tend to perform better financially, as shown by their return on assets. From a theoretical point of view, this study adds to Agency Theory by showing that the size of a company affects how corporate governance practices relate to financial performance.

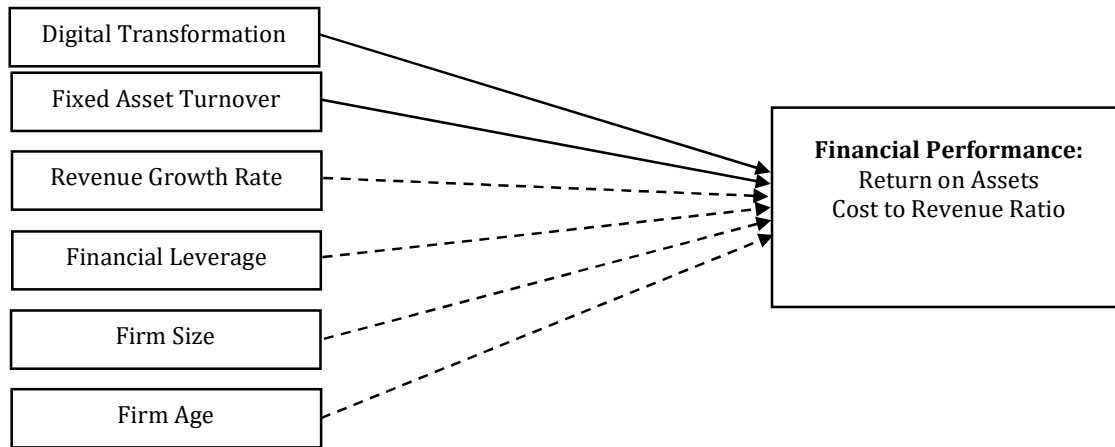
Firm Age

Ahmad and Fadli (2025) say that firm age is the amount of time a company has been operating since it was started until the time of the study. A company's age shows how much experience it has, how well-known it is, and how good it is at adjusting to changes in the business world. Companies that have been around longer usually have better management skills, more connections in the business community, and are better at handling competition (Tran et al., 2026). Some businesses that have been around for a long time may face problems like slow decision-making and being slow to adopt new technology (Anokhin et al., 2026).

Research Framework

Research conducted by Dung et al. (2026), show that digital transformation helps increase revenue growth, which in turn improves return on assets (ROA) but lowers the cost to revenue ratio (CRR). On the other hand, financial leverage has a bad effect on ROA but a good effect on CRR. In addition, Furthermore, Tran et al. (2026) und that fixed asset turnover has a positive impact on ROA. Ramadhani and Nurullah (2025) discovered that the size of a company has a positive impact on its financial performance, which was measured using ROA. Similarly, Shawat et al. (2024) also found that how long a company has been around can have a positive impact on its return on assets, but the strength of this connection can change based on how well the managers are doing and the specific situation the company is in.

Based on the previous empirical studies, this research framework is developes to illustrate the proposed relationships among the research variables. Digital transformation and fixed asset turnover serve as the main independent variables, while revenue growth rate, financial leverage, firm size and firm age are incorporated as control variables. Financial performance, measured by return on assets (ROA) and cost to revenue ratio (CRR), is the dependent variable. The conceptual frameword is illustrated in Figure 1.



Source : Adapted from Dung et al., (2026) dan Tran et al., (2026)

Figure 1
Conceptual Framework Diagram

The Impact of Digital Transformation on Financial Performance

Dung et al. (2026) found that the interaction between digital transformation has a significant positive effect and demonstrates efficiency in the cost to revenue ratio (CRR), thereby increasing revenue. This effect is observed in companies that have undergone comprehensive digitalization compared to those with limited digital implementation. Nguyen and Nguyen (2025) found that digital transformation is positively associated with the financial performance of manufacturing firms in developing countries. Therefore, the one hypothesis is proposed as follows:

H1: Digital transformation has a significantly have effect on financial performance of manufacturing company.

The Effect of Fixed Asset Turnover on Financial Performance

Tran et al. (2026) found that companies need to improve fixed asset efficiency turnover by enhancing their asset management capabilities. This can be achieved by managing assets more effectively, which can increase ROA and the study emphasizes that asset utilization efficiency is a key determinant of profitability. (Dincă & Akomeah, 2026) emphasized that effective asset management supports improved ROA. Therefore, the second hypothesis is proposed as follows:

H2: Fixed Asset Turnover has a significant effect on financial performance of manufacturing company.

The Effect of Revenue Growth Rate on Financial Performance

Dung et al. (2026) also reported that both digital transformation and revenue growth have a favorable influence on financial performance. Revenue growth, therefore, can be seen as an important indicator of company success. Therefore, the third hypothesis is proposed as follows:

H3: Revenue Growth Rate has a significant effect on financial performance of manufacturing company.

The Effect of Financial Leverage on Financial Performance

The study by Tran et al. (2026) firms must manage debt carefully and avoid excessive leverage, because a high debt-to-equity ratio can lower profit margins. This suggests that financial leverage is an important factor in determining profitability. Accordingly, the fourth hypothesis is formulated as follows:

H4: Financial leverage has a significant effect on financial performance of manufacturing company.

The Effect of Firm Size on Financial Performance

Chen and Lin. (2026) found that firm size has a positive and significant effect on ROA. Larger firms generally have greater resources, wider market access, and stronger operational capacity, which may contribute to better performance. Accordingly, the fifth hypothesis is formulated as follows:

H5: Firm size has a significant effect on financial performance of manufacturing company.

The Effect of Firm Age on Financial Performance

Shawat et al. (2024) argues found that firm age has a positive and significant effect on Return on Assets (ROA), although the magnitude of this effect may vary depending on managerial effectiveness and the company's operational context. Based on the foregoing discussion, the hypotheses of this study are formulated as follows :

H6: Firm age has a significant effect on financial performance of manufacturing company.

METHOD

This research uses a quantitative method based on hypothesis testing to examine how digital transformation and fixed asset turnover impact the financial performance of manufacturing businesses. Financial performance is measured using Return on Assets (ROA) and Cost to Revenue Ratio (CRR). Other factors like Revenue Growth Rate, Financial Leverage, Firm Size, and Firm Age are considered as control variables. The study looks at manufacturing companies that are listed on the Indonesia Stock Exchange (IDX) from the years 2021 to 2025.

The study includes 383 manufacturing companies that were always listed on the Indonesia Stock Exchange during the time of the study. The sample size was chosen using a non-probability sampling approach called purposive sampling (Haro-Sarango, 2026), Samples were picked based on these specific rules: first, companies that were listed one after another on the Indonesia Stock Exchange between 2021 and 2025; second, companies that released full audited annual financial reports and annual reports during the time we studied; and third, companies that included details about digital transformation in their financial reports. Based on these criteria, 36 companies were chosen for the research, resulting in 180 observations across different years. This study uses data collected from the companies' annual financial reports, which are available on the official website of the Indonesia Stock Exchange at <http://www.idx.co.id/> and also on each company's own website. The data were analyzed using panel data regression with the help of EViews 13 software (S&P Global, 2022). The best regression model was chosen by using the Chow test, the Hausman test, and the Lagrange Multiplier test to figure out which model—Common Effect Model, Fixed Effect Model, or Random Effect Model—was the most suitable one. After that, the models were checked using the F-test to look at the

combined impact of all variables, the t-test to check how each separate variable affects the main outcome, and the Adjusted R^2 to see how well the models explain the differences in the companies' financial results (Anuno et al., 2024). To handle possible issues with unequal variance and correlation over time, strong standard errors were used, which helps give more trustworthy results (Tran et al., 2026).

The sample selection process for this research can be seen in Table 1.

Table 1
Sample Selection

No	Information	Amount
1	Manufacturing companies consistently listed on the Indonesia Stock Exchange (IDX) during the observation period (2021–2025).	383
2	Companies that did not consistently publish complete audited financial statements and annual reports throughout the observation period.	(139)
3	Companies whose financial statements did not clearly disclose information related to digital transformation.	(208)
Total sample companies		36
Total observations (36 companies × 5 years)		180

Source: Processed Data, 2026

RESULTS AND DISCUSSION

Hausman Test

The results of the Hausman test can show either random effects or fixed effects. The Hausman test will be used in this study to find out which model is more accurate and performs better (Baltagi et al., 2024). In addition, the Hausman test is used to determine if each model shows heterogeneity (Dung et al., 2026). The formula test is as follows:

H0: Common Effect Model

Ha: Fixed Effect Model

Decision:

If the probability value from the random cross-section is 5% or higher, then the null hypothesis is considered acceptable. This means the right model to use is the Common Effects Model. If the probability value for the random cross-section is less than 0.05 ($\alpha = 5\%$), then the null hypothesis is rejected. This means the right model to use is the Fixed Effects Model. According to the Hausman test results, the probability of the Fixed Effects Model is 0.0000, which is less than 0.05. This means we accept the alternative hypothesis and reject the null hypothesis. So, the correct model to use is the Fixed Effects Model. (Phuong Dung et al., 2026)

Panel Data Regression Test

Chow Test - Pooled OLS/Common Effect Model

The Chow test helps figure out if a model with common effects or a model with fixed effects is better to use. If the probability value is less than 0.05, we reject H_0 and use the fixed-effect model; if it's more than 0.05, we accept H_0 and use the common-effect model (Dung et al., 2026).

Table 2
Results of the Chow Test

Variable	Probability	Effect Test
ROA	0.0000	Cross-section F
ROA	0.0000	Cross- section Chi-square
CRR	0.0000	Cross-section F
CRR	0.0000	Cross-section Chi-square

Source: Processed Data, 2026

Based on the Chow test results for Equation 1, where ROA is the dependent variable, the cross-sectional F-statistic probability value was 0.0000, which is lower than the significance level of 0.05. So, the null hypothesis is rejected and the alternative hypothesis is accepted, which means the Fixed Effects Model (FEM) is the better model to use.

The Chow test on Equation 2, which uses CRR as the main variable, showed a cross-section F probability of 0.0000. This value is below the 0.05 significance level. So, we reject the null hypothesis and accept the alternative hypothesis, which means the best model to use is the Fixed Effects Model (FEM).

Hausman Test

This test is meant to figure out which model works better—the Fixed Effects Model or the Random Effects Model. If the probability value is less than 0.05, we reject H₀, which means the fixed effects model is the best choice; if the probability value is more than 0.05, we accept H₀, so the random effects model is the best option (Dung et al., 2026).

Table 3
Results of the Hausman Test

Variable	Probability	Test Summary
ROA	0.0029	Cross-section Random
CRR	0.0002	Cross-section Random

Source: Processed Data, 2026

The Hausman test on Equation 1, which uses ROA as the main outcome, gave a probability result of 0.0029. This value is lower than the standard threshold of 0.05, indicating statistical significance. So, we reject the null hypothesis and accept the alternative hypothesis, which means the best model to use is the Fixed Effects Model (FEM).

The Hausman test on Equation 2, which uses CRR as the main outcome, gave a probability result of 0.0002. This value is lower than the standard threshold of 0.05, indicating statistical significance. So, H₀ is rejected and H_a is accepted, which means the best model to use is the Fixed Effects Model (FEM).

Lagrange Multiplier Test

The Lagrange Multiplier (LM) test was used to decide between the Common Effects Model (CEM) and the Random Effects Model (REM). However, the results from the Chow and Hausman tests show that both equations, which use ROA and CRR as the main variables, suggest the Fixed Effects Model (FEM) is the best choice (Phuong Dung et al., 2026).

Goodness-of-Fit Test (Adj. R²)

A test was done to see how well the independent variables explain the changes in the dependent variables, which are ROA and CRR. The adjusted R squared value was used to show how strongly the variables are related (Rahmadhani et al. 2026)

Table 4
Results of the Goodness-of-Fit Test

Description	ROA	CRR
R-squared	0.856138	0.994492
Adjusted R-squared	0.813396	0.992855
Prob(F-statistic)	0.000000	0.000000

Source: Processed Data, 2026

The results from the Goodness-of-Fit test for Equation 2 showed an adjusted R-squared value of 0.992855. This means that the factors studied explain 99.29% of the changes in CRR, and the remaining 0.71% is due to other factors not included in the research. So, the model helps explain the dependent variable, which is CRR, in a meaningful way.

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Simultaneous Test (F-Test)

The test is used to check if all the independent variables together have a significant effect on the dependent variables, which are ROA and CRR. This test also checks if the panel regression model used is accurate and reliable. If the F-test result is below 0.05, it shows that the independent variables together influence the dependent variable, and the regression model is considered reliable for use. If the F-test's significance level is higher than 0.05, it shows that the independent variables together don't influence the dependent variables much, so the regression model isn't a good fit for the data. The F-test checks how well the regression model's predictions match the real data values, which shows how good the model is at fitting the data. The F-test used in this study has a significance level of 5% (Rahmadhani et al., 2026)

Table 5
Simultaneous Test Results for the ROA Model

Description	ROA	CRR
R-squared	0.856138	0.994492
Adjusted R-squared	0.813396	0.992855
Prob(F-statistic)	0.000000	0.000000

Source: Processed Data, 2026

According to the F-test results, the p-value for ROA, calculated from the F-statistic, is 0.000000, which is less than 0.05. This means that the null hypothesis is rejected. Therefore, it can be concluded that all the independent variables in the model together have a significant impact on ROA. So, the panel regression model is a good fit for explaining how ROA varies.

The F-test results show that the p-value for CRR is 0.000000, which is less than 0.05. This means we reject the null hypothesis, so it can be concluded that all the

independent variables in the model together have a significant effect on CRR. The panel regression model used is also suitable for explaining the differences in CRR.

Descriptive Statistical Analysis

A descriptive analysis was done to give a first look at the features of the data for each variable in the study. The descriptive statistics include the average, highest value, lowest value, and how spread out the numbers are for each variable. (Rahmadhani et al., 2026)

The variables analyzed include return on assets (ROA) and cost of revenue ratio (CRR), while the independent variables used are digital transformation (DT) and fixed asset turnover (FAT). Meanwhile, the control variables in this study include revenue growth rate (GROWTH), financial leverage (LEV), firm age (AGE), and firm size (SIZE). The results of this descriptive analysis will provide information on general trends and data distribution prior to further testing.

The data from manufacturing companies used in this study are as follows:

Table 6
Industry Type

Industry Type	Number	Percentage
Basic Materials	10	27.8%
Consumer Cyclical	12	33.3%
Consumer Non-Cyclicals	14	38.9%
Total	36	100%

Source: Processed Data, 2026

The results of the descriptive statistical analysis of the ROA variable show a mean of 0.070030 and a median of 0.064553. The maximum value of 0.381727 was recorded by PT Unilever Indonesia Tbk in 2025, and the minimum value of -0.269408 was recorded by PT Champ Resto Indonesia Tbk in 2021, indicating that some companies incurred losses during the study period. The standard deviation of 0.081052, which is greater than the mean, indicates that the companies' profitability levels exhibit considerable variation. These results suggest that profitability levels among the companies in the sample show a high degree of dispersion or variation, meaning that the companies' ability to generate profits from their assets tends to be uneven.

The CRR variable has a mean of -0.157469 and a median of -0.558371. The maximum value of 1.138989 was achieved by PT Kino Indonesia Tbk in 2022, while the minimum value of -1.075286 was recorded by PT Garudafood Putra Putri Jaya Tbk in 2025. The standard deviation of 0.730417 indicates that the CRR data exhibits a significant degree of variation across companies during the study period. This suggests that the level of operational cost efficiency among the companies in the sample remains highly variable, meaning that their ability to control costs relative to revenue has not yet demonstrated a consistent level of efficiency.

The digital transformation variable has a mean of 24.905240 and a median of 25.309890. The maximum value of 31.694710 was recorded by PT Indofood Sukses Makmur Tbk in 2021, and the minimum value of 12.421610 was recorded by PT FKS Multi Agro Tbk in 2021. The standard deviation of 4.024258, which is smaller than the mean, suggests that the level of digital transformation across companies is relatively homogeneous. This indicates that most companies have levels of digital transformation adoption that are not significantly different, although there are some companies with higher levels of digital transformation compared to others.

The fixed asset turnover variable has a mean of 2.685965 and a median of 1.634044. The maximum value of 18.800180 was recorded by PT Enseval Putera Megatrading Tbk in 2025, and the minimum value of 0.014162 was recorded by PT Estika Tata Tiara Tbk in 2022. The standard deviation of 3.104782 indicates that the variation in fixed asset turnover values across companies is relatively high compared to the average, suggesting that companies' ability to utilize fixed assets to generate sales varies significantly. It can be concluded that the ability of companies to utilize fixed assets to generate sales exhibits a fairly high degree of variation. Thus, the effectiveness of fixed asset utilization among the companies in the study sample tends to be uneven, with some companies being highly efficient and others less efficient in utilizing their fixed assets to generate sales.

The revenue growth variable has a mean of 1.266846 and a median of 1.050972. The maximum value of 15.639920 was recorded by PT Estika Tata Tiara Tbk in 2023, and the minimum value of 0.195477 was recorded by PT Estika Tata Tiara Tbk in 2021. The standard deviation of 1.402775, which is greater than the mean, indicates significant differences in revenue growth among companies. These results suggest that revenue growth rates vary considerably across companies. Thus, revenue growth among the companies in the study sample tends to be uneven, with some companies experiencing very high revenue growth and others experiencing relatively low revenue growth.

The financial leverage variable has a mean of 0.453415 and a median of 0.452344. The maximum value of 1.432978 was recorded by PT Estika Tata Tiara Tbk in 2022, and the minimum value of 0.101260 was recorded by PT Ultrajaya Milk Industry Tbk in 2025. The standard deviation of 0.214903, which is smaller than the mean, indicates that the companies' leverage ratios do not vary significantly. It can be concluded that the leverage ratios among the companies in the study sample are relatively homogeneous. Thus, the extent to which companies use debt as a source of financing tends not to differ significantly from one company to another.

The firm size variable has a mean of 29.377930 and a median of 29.634830. The maximum value of 33.860250 was recorded by PT Astra International Tbk in 2025, and the minimum value of 19.949910 was recorded by PT FKS Multi Agro Tbk in 2023. "The standard deviation of 2.669738 indicates that the level of dispersion of firm size data based on total assets is relatively low compared to the mean, suggesting that firm sizes in the research sample are relatively homogeneous. Thus, the companies in the sample have relatively comparable asset sizes, meaning there are no significant differences in size among them.

The firm age variable has a mean of 31.844440 years and a median of 30 years. The maximum value of 92 years was recorded for PT Unilever Indonesia Tbk in 2025, and the minimum value of 1 year was recorded for PT Era Mandiri Cemerlang Tbk in 2021, indicating a significant variation in firm age. The standard deviation is 22.901740, indicating that the ages of the companies in the sample are highly varied. It can be concluded that company age exhibits a relatively high degree of dispersion. Thus, the companies in the research sample have varying levels of maturity and operational experience, ranging from relatively new companies to those that have been in operation for a long time.

Descriptive statistical analysis was conducted to provide an overview of the characteristics of the research variables before proceeding with the regression analysis. This analysis describes the distribution of the data through measures of central tendency and dispersion, including the mean, median, maximum, minimum, and standard deviation. The variables analyzed consist of financial performance, measured by Return

on Assets (ROA) and Cost-to-Revenue Ratio (CRR), digital transformation, fixed asset turnover, revenue growth, financial leverage, firm size, and firm age. The descriptive statistics for all variables are presented in Table 7.

Table 7
Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev
ROA	0.070030	0.064553	0.381727	-0.269408	0.081052
CRR	-0.157469	-0.558371	1.138989	-1.075286	0.730417
DT (Rp)	24.90524	25.30989	31.69471	12.42161	4.024258
FAT	2.685965	1.634044	18.80018	0.014162	3.104782
GROWTH	1.266846	1.050972	15.63992	0.195477	1.402775
LEV	0.453415	0.452344	1.432978	0.101260	0.214903
AGE (years)	31.84444	30.00000	92.00000	1.000000	22.90174
SIZE (Rp)	29.37793	29.63483	33.86025	19.94991	2.669738

Source: Processed Data, 2026

Individual Test (T-Test)

This test is done to check if each independent variable makes a significant difference in the dependent variable. The rule for making a decision is this: if the significance level (sig) from the t-test is below 0.05, then we reject H₀, which means the independent variable does affect the dependent variable. If the significance level from the t-test is higher than 0.05, we accept the null hypothesis, which means the independent variable does not influence the dependent variable (Rahmadhani et al., 2026).

The Effect of Digital Transformation on Financial Performance

ased on the empirical results, digital transformation has a significant negative association with ROA, as indicated by a probability value of $0.0160 < 0.05$ and an estimated coefficient of -0.012949. This implies that a higher level of digital transformation is linked to a decline in return on assets. These findings differ from Dung et al (2026), who reported that digital transformation exerts a significant favorable influence on ROA because firms with more advanced digitalization tend to operate more efficiently and achieve better performance outcomes.

However, this aligns with the findings of Tran et al. (2026), who argued that although decisions related to production technology often require substantial upfront investment, firms should still prioritize long-term capital allocation for technological innovation. In particular, the adoption of modern, automation-based, or high-tech machinery can represent a strategically valuable choice. By contrast, technologies that require lower initial expenditure often generate higher operating costs because they are less efficient in practice.

When digital transformation is examined in relation to CRR, the probability value is $0.0278 < 0.05$ with an estimated coefficient of 0.007766. This means that digital transformation has a significant favorable impact on CRR. The result is consistent with (Dung et al, 2026), who found that digital transformation contributes to higher efficiency in the cost-to-revenue ratio, especially in firms that have implemented comprehensive digital systems compared with those with only limited digital adoption.

However, Herlanlam et al. (2026) noted that digital transformation may improve operational efficiency and strengthen ROA in the long run, but its benefits are usually not immediate. In many cases, the positive outcomes only become visible after two to three years, because firms first need to absorb the substantial initial investment before cost efficiencies begin to emerge.

The Effect of Fixed Asset Turnover on Financial Performance

The analysis shows that fixed asset turnover does not have a significant relationship with ROA, as reflected by a probability value of $0.1175 > 0.05$ and an estimated coefficient of 0.008313. This finding is not consistent with (Khoer et al, 2024), who reported that fixed asset turnover has a significant beneficial impact on firm performance.

In contrast, fixed asset turnover has a significant positive relationship with CRR, with a probability value of $0.0170 < 0.05$ and an estimated coefficient of 0.03185. This result supports Tran et al. (2026), who emphasized that firms need to strengthen the efficiency of fixed asset utilization through better asset management. Such efforts may include disposing of unproductive fixed assets and making more rational and efficient decisions in acquiring new assets..

The Effect of Revenue Growth Rate on Financial Performance

Revenue growth rate has a significant positive association with ROA, as shown by a probability value of $0.0040 < 0.05$ and a coefficient of 0.006973. This indicates that stronger revenue growth tends to improve financial performance. This result is consistent with Nguyen and Nguyen (2025) who stated that higher sales growth allows companies to earn greater profits, thereby enhancing performance.

However, revenue growth rate does not have a significant relationship with CRR, as the probability value is $0.1620 > 0.05$. This finding differs from (Dung et al, 2026) who argued that both digital transformation and revenue growth are positively related to financial performance.

The Effect of Financial Leverage on Financial Performance

Financial leverage shows a significant negative association with ROA, with a probability value of $0.0009 < 0.05$ and a coefficient of -0.138273. This suggests that higher leverage tends to reduce profitability. The result is consistent with Dung et al. (2026), who found that financial leverage is negatively related to financial performance.

For CRR, however, financial leverage does not show a significant relationship, as the probability value is $0.6697 > 0.05$. This result differs from Ifunanya et al. (2026), who reported that financial leverage has an adverse effect on financial performance.

This pattern suggests that although firms may increasingly utilize their fixed assets to generate sales, such efforts also raise operating costs. As a result, the cost-to-revenue ratio may rise as well. In other words, greater asset utilization does not always translate into better efficiency, because the additional revenue generated may be accompanied by equally high or even higher costs.

The Effect of Firm Size on Financial Performance

Firm size does not have a significant relationship with ROA, as indicated by a probability value of $0.2382 > 0.05$. The coefficient is negative, but the effect is not statistically significant. This outcome contrasts with Tran et al. (2026), who found that firm size has a significant positive effect on ROA. In this study, company size does not appear to be a

decisive factor in determining profitability. Firms with larger total assets are not necessarily able to generate higher returns than firms with smaller asset bases..

On the other hand, firm size has a significant positive relationship with CRR, with a probability value of $0.0003 < 0.05$ and a coefficient of 0.053820. Since a lower CRR indicates greater efficiency, this result suggests that larger firms tend to manage costs relative to revenue more efficiently. Tran et al. (2026) On the other hand, firm size has a significant positive relationship with CRR, with a probability value of $0.0003 < 0.05$ and a coefficient of 0.053820. Since a lower CRR indicates greater efficiency, this result suggests that larger firms tend to manage costs relative to revenue more efficiently.

The Effect of Firm Age on Financial Performance

Firm age does not have a significant relationship with ROA, as the p-value is $0.5885 > 0.05$. This result is not in line with Shawat et al. (2024), who found that firm age has a significant positive effect on ROA, although the strength of the relationship may depend on managerial quality and the company's operational context.

For CRR, firm age shows a significant negative association, with a probability value of $0.0023 < 0.05$ and a coefficient of -0.002359. Ramadhani and Nurullah (2025), who reported a positive relationship between firm age and financial performance. However, a longer operating history does not automatically guarantee higher efficiency, because older firms may face resistance to change, bureaucratic procedures, and limited innovation.

The findings indicate that the older a company is, the lower its CRR tends to be. This suggests that firms with longer experience are generally better at managing operations, controlling costs, and maintaining efficiency relative to revenue generation..

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Table 8
Results of the Partial t-Test for the ROA Model

Variable	Coefficient	Probability	Conclusion
DT	-0.012949	0.0160	Has a negative and significant effect on Return on Assets (ROA)
FAT	0.008313	0.1175	Has no significant effect on Return on Assets (ROA)
GROWTH	0.006973	0.0040	Has a positive and significant effect on Return on Assets (ROA)
LEV	-0.138273	0.0009	Has a negative and significant effect on Return on Assets (ROA)
AGE	0.000888	0.5885	Has no significant effect on Return on Assets (ROA)
SIZE	-0.018785	0.2382	Has no significant effect on Return on Assets (ROA)

Source: Processed Data, 2026

Table 9
Results of the Partial t-Test for the CRR Model

Variable	Coefficient	Probability	Conclusion
DT	0.007766	0.0278	Has a positive and significant effect on the Cost to Revenue Ratio (CRR)
FAT	0.003185	0.0170	Has a positive and significant effect on the Cost to Revenue Ratio (CRR)
GROWTH	-0.002714	0.1620	Has no significant effect on the Cost to Revenue Ratio (CRR)
LEV	0.011386	0.6697	Has no significant effect on the cost to Revenue Ratio (CRR)
AGE	-0.002359	0.0023	Has a negative and significant effect on the Cost to Revenue Ratio (CRR)
SIZE	0.053820	0.0003	Has a positive and significant effect on the Cost to Revenue Ratio (CRR)

Source: Processed Data, 2026

CONCLUSION AND SUGGESTION

This study offers practical implications for investors, corporate leadership and the progress of scientific understanding. For investors, the study shows that companies which grow their revenue quickly usually do better financially. When making investment choices, it's important to consider how much is being spent on digital transformation and how much debt is being used. Putting too much money into digital changes early on and having a lot of debt can hurt a company's ability to make a profit. Additionally, investors may consider companies with higher operational efficiency—as reflected by a lower Cost to Revenue Ratio (CRR) achieved through efficient asset management, proportionate investment in digital transformation, and companies with a longer operational track record.

For company management, the research findings highlight the importance of increasing the revenue growth rate as a source of internal funding to support investment in productive assets without increasing reliance on debt. On the other hand, the implementation of digital transformation should be carried out gradually, selectively, and tailored to the company's needs so that efficiency gains can be achieved without imposing an excessive investment burden in the early stages. This strategy is expected to boost profitability while improving the company's operational efficiency.

From an academic perspective, this study enriches the literature on the determinants of financial performance in manufacturing companies by using two financial performance indicators: Return on Assets (ROA) and Cost to Revenue Ratio (CRR). The findings indicate that factors influencing profitability do not always have the same impact on operational efficiency. Therefore, the use of more than one financial performance proxy provides a more comprehensive understanding of a company's financial condition and can serve as a foundation for future research to develop broader research models across different sectors and variables (Ahmed & Hamad, 2026).

This study has several limitations that should be acknowledged. First, the scope of the study is limited to manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2025 period. Therefore, the findings may not be generalizable to firms operating in other industrial sectors. Second, the study includes only six independent variables, namely digital transformation, fixed asset turnover, revenue growth rate, financial leverage, firm size, and firm age. Consequently, other factors that may also influence corporate financial performance were not incorporated into the research model. Third, financial performance is measured using only two proxies, namely

Return on Assets (ROA) and the Cost to Revenue Ratio (CRR). As a result, the study does not fully capture corporate performance from broader perspectives, such as market-based performance or firm value.

Furthermore, the use of panel data regression with the Fixed Effects Model (FEM) has inherent limitations in capturing dynamic relationships and addressing potential endogeneity among variables that may arise in long-term relationships (Harman & Çakmak, 2026). Therefore, the study complemented its analysis by employing the System Generalized Method of Moments (System GMM) as a robustness check to address potential endogeneity issues and capture the dynamic relationships among the variables (Dincă & Akomeah, 2026).

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