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DIGITAL TRANSFORMATION, FINANCIAL LEVERAGE, BOARD SIZE ON THE PERFORMANCE OF MANUFACTURING COMPANIES IN INDONESIA

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ABSTRACT

This research is motivated by several studies which show that many developing countries have switched from traditional production methods to digitization which can improve financial performance. To establish whether this is also true in Indonesia, the researchers undertook a study to ascertain whether digital transformation increases financial performance. Besides digital transformation, we look at how internal variables affect financial performance. Return On Assets (ROA) is used to gauge financial performance in this research. Internal factors at our firm include Financial Leverage, Board Size, Firm Size, Book to Market Ratio, and Inventory Turnover. The research's objectives include: (1) Knowing whether there is a relationship between Digital Transformation and Return On Assets, (2) Knowing whether the firm's internal factors influence Return On Assets.

This research was conducted at manufacturing companies in Indonesia that was listed on the Indonesia Stock Exchange (IDX) between 2017 and 2021. The number of samples studied was 40 companies. The hypothesis testing with the panel data regression approach was employed as the research design. The research's findings indicate that digital transformation has a considerable negative effect on the return on assets. In contrast, past research has shown that digital transformation enhances the performance of manufacturing companies significantly. Financial leverage and inventory turnover are two other variables that have a substantial impact on return on assets. A rise in leverage leads to an increase in return on assets, but a decrease in inventory turnover leads to an increase in return on assets. From the test results it is recommended that managers to pay attention to the value of financial leverage to increase the value of profitability (ROA) and also inventory turnover to keep it low to improve firm performance.

Keywords: Digital Transformation, Financial Leverage, Inventory Turnover, Return on Asset, Manufacturing Enterprises

1.0 INTRODUCTION

The firm's good financial performance demonstrates that its operations are running effectively and efficiently. Firm performance is also a display of the firm's overall state

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during a given period of time, and it is the result or achievement that is influenced by the firm's operational activities in utilizing its resources. Financial performance is measured via financial data analysis, which is reflected in financial statements.

Many developing countries are moving away from traditional production methods and toward digitization. According to research, digital transformation improves the performance of manufacturing organizations (Wang et al., 2022). In a competitive world, businesses are adopting modern technology in manufacturing processes such as computers, smart devices, prototyping, and so on. Technological transformation increases performance by providing new ideas and techniques in the production process (Chege et al., 2020). Companies must incorporate innovation and technological change into their production processes and marketing (Chege et al., 2020). Thus, the utilization of technological devices can increase the firm's business level. Within a firm, digital transformation is an organizational shift to big data platforms, cloud, analytics, mobile and social media. Companies are increasingly adopting opportunities such as cloud, big data, analytics, social media, and mobile platforms in an effort to build digital business strategies with practitioners that aim to understand how companies can capitalize on digital opportunities and drive innovation and transformation across the enterprise.

Higher leverage can help enhance financial performance measures, however, the increased use of debt in a firm's capital structure increases the risk of financial distress and possible bankruptcy that may arise from default. Financial leverage provides value to the organization because of the tax shield of debt, interest on loans is tax deductible in the firm's capital structure. Financial leverage has a negative and significant link with firm performance; nevertheless, the impact of financial leverage on firm performance is lower for smaller companies than for larger companies (Danso et al., 2020).

Board size is one of the most important characteristics of the board that can have a significant impact on firm performance.(Rahman & Saima, 2018) conducted a study on listed manufacturing companies in Bangladesh and found a significant and positive relationship between board size and firm performance. Board size has a positive relationship with firm performance (Huynh et al., 2022).

Based on the background explanation above, the research titled "Digital Transformation, Leverage, and Board Size on Manufacturing Firm Performance" was carried out. The novelty of this research is in the addition of Financial Leverage and Board Sizes as independent variables that are thought to be related to firm performance.

2.0 LITERATURE REVIEW

The Return on Assets ratio is the most frequently highlighted element because this ratio shows the success of a firm in generating profits (Nakano & Nguyen, 2012). Many researchers use ROA as a measure of financial performance (Zampara et al., 2017; Naeem et al., 2017; Singh & Sharma, 2016; Garcia & Guerreiro, 2016; Tobash MI, 2016).

Companies are becoming more aware of the importance of adapting activities, strategies, and routines to current challenges. To maintain business continuity, the organization optimizes and increases the efficiency of business processes using digital tools. The process by which

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organizations respond to changing surroundings by transforming the value creation process through the use of digital technologies such as computing, artificial intelligence, cloud computing, and the internet is known as digital transformation (Vial, 2019). Digital transformation is a structural change process in which digital technology is integrated with business processes and existing organizational, operational, and business models are transformed or innovated through the use of digital technology (Yu et al., 2021). Regarding the impact of digital transformation, companies that have implemented digital transformation, taking advantage of digital information, communication, and computing technologies such as big data and cloud, can strengthen collaborative relationships between employees of different locations to reduce production costs and thereby improve business operation efficiency (Saarikko et al., 2020). In addition, Digital transformation increases the ability to predict corporate financial risks, which is one of the effective ways to warn of corporate financial risks (Hu, 2020).

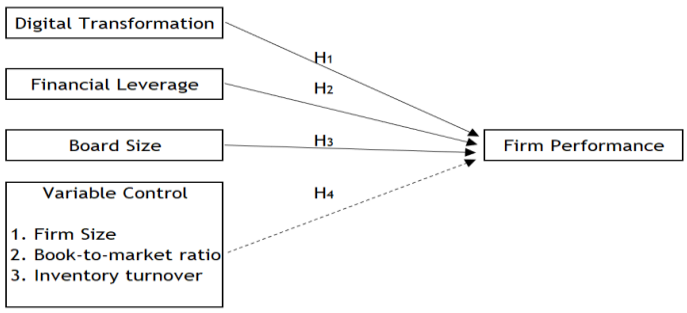
Larger Board Sizes can add versatility for companies which can significantly increase performance. A previous study has found that larger board size has a positive impact on firm performance because it provides more expertise and allows for more effective strategic decisions (Amer et al., 2014; Kutum, 2015; Muttakin et al., 2012). Another research of excessive board size can cause problems and reflect the inefficiency of the organizational structure of the institution (Pathan & Faff, 2013).

Financial Leverage has a negative and not significant impact on firm performance (Elizabeth Sugiarto Dermawan, 2019). The measurement of a firm's performance cannot only look at the increase or decrease in the value of financial leverage to fulfill obligations with the guarantee of firm equity. Financial Leverage has a positive or significant effect on Firm Performance (ROA) (Iqbal & Usman, 2018). (Shafiq et al., 2022) Financial Leverage shows that it has a significant relationship with the firm's performance (ROA).

Because firm performance is influenced by various factors, in order to exclude the influence of possible factors and relevant research (Guo & Xu, 2021), this research selects variables from the level of corporate characteristics and the level of corporate governance to be limited. The selected control variables are Firm Size (Size), the book-to-market ratio [MB], and inventory turnover [Turnover].

Based on the explanation above, the theoretical framework in this study is described as follows in Figure 1.

Figure 1. The theoretical framework of the study



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2.1 Hypothesis Development

2.1.1 The Influence of Digital Transformation On Firm Performance

Digital transformation can assist companies in developing new networks and increasing their international competitiveness. Digital transformation reduces organizational barriers (Lyytinen et al., 2016). Digital transformation has enhanced firm performance by lowering operational costs and raising innovation investment, demonstrating that low-cost empowerment and innovation empowerment are essential processes of digital transformation that affectfirm performance (Wang et al., 2022). Therefore, digital transformation is predicted to have an impact on firm performance. Based on this, the first hypothesis is formulated as follows:

H1: The Influence of Digital Transformation on Firm Performance

2.1.2 The Influence of Financial Leverage on Firm Performance

Financial Leveragehas a negative and insignificant effect on firm performance (Elizabeth Sugiarto Dermawan, 2019). Measuring a firm performance cannot be limited to the increase or reduction in the value of financial leverage used to fulfill obligations with firm equity as collateral. Financial leverage improves or has a major impact on firm performance (ROA) (Iqbal & Usman, 2018). (Shafiq et al., 2022)Financial leverage shows that it has a significant influence on firm performance (ROA). Based on this, the following hypothesis is formulated:

H2: The Influence of Financial Leverage on Firm Performance

2.1.3 The Influence of Board Size on Firm Performance

A larger board size has a positive impact on firm performance because it provides more expertise and can make effective strategic decisions (Amer et al., 2014; Kutum, 2015; Muttakin et al., 2012). Larger board size will result in poor communication and decision making which will reduce the firm's performance. Several researchers have found no significant association between board size and firm performance (Al-Matari et al., 2012; Masum & Khan, 2019). Based on this, a third hypothesis is formulated as follows:

H3: The Influence of Board Size on Firm Performance

2.1.4 The Influence of Control Variables (Firm Size [Size], Book-To-Market Ratio [Mb], Inventory Turnover [Turnover]) On Firm Performance

Firm performance is influenced by various factors, to exclude the influence of possible and relevant factors in research (Guo & Xu, 2021), the variables chosen are as follows: Firm Size, Book-to-market ratio, and Inventory Turnover. Previous research revealed that this effect is more significant in firms state-owned and manufacturing (Wang et al., 2022). Based on this, the fourth hypothesis is formulated as follows:

H4: The Influence of Control Variables Firm Size [Size], Book-to-market ratio [MB], Inventory Turnover [Turnover] on Firm Performance

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3.0 RESEARCH METHODS

3.1 Variables and Measurements

The hypothesis testing research strategy was used to assess the effect of the independent factors, namely Digital Transformation, Financial leverage, and Board Size, on the dependent variable, namely Return On Assets (ROA), in order to ease the process of reviewing research results. There are also control factors, such as Firm Size, Market Capitalization, and Inventory Turnover Rate.

The variables and measurements used in this research intend to determine the effect of the independent variable and the control variable on the dependent variable, each of which is measured as described below in Table 1. :

Table 1. Identification and Measurement of Variables

Variable Type	Variable Name	Symbol	Definition of Operational Variables	Referensi
Variable Dependent	Firm Performance	(ROA)	The ratio of the company's net income to total assets	(Wang et al., 2022)
Variable Independent	Digital Transformation	DT	The ratio of digital intangible assets to total intangible assets	(Wang et al., 2022)
	Financial leverage	Lev	The ratio of the company's year-end liabilities to total assets	(Wang et al., 2022)
	Board Size	Board	Number of board directors plus one to take the logarithm	(Wang et al., 2022)
Control Variable	Firm Size	SZ	Total company assets are taken as the logarithm	(Wang et al., 2022)
	Market capitalization book-to-bill ratio	MB	The ratio of a company market capitalization to a total asset	(Wang et al., 2022)
	Inventory turnover rate	Turnover	The ratio of the company's operating costs to the ending balance of inventories	(Wang et al., 2022)

3.2 Sampling Methodology

The data used in this research is secondary. Financial reports and annual reports for manufacturing sector companies listed on the IDX from 2017 to 2021 were gathered from the IDX's official website, www.idx.co.id, and the firm's official website. This research's population consists of the Indonesian manufacturing sector. Using the purposive sampling approach, 40 companies manufacturing sector that matched certain criteria were listed on the Indonesia Stock Exchange (IDX) for 2017-2021. The selection of data as research samples is based on the following criteria.

Table 2. Sampling Criteria

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Description	Number of Companies
Manufacturing firm listed on the Indonesia Stock Exchange for the 2017 -2021 period	193
Companies with incomplete annual reports	22
Companies that do not use the currency IDR	26
Incomplete companies based on data related to each variable in each firm	105
The number of companies that are eligible to be sampled	40

3.3 Descriptive Statistic Analysis

In this research, the phase of descriptive statistical analysis examines the explanation and depiction, including the presentation of data. Statistical measures including the size of the center, the size of the distribution, and the size of the distribution's location are discussed at this stage. This analysis aims to summarize the data so that it can provide an easy-to-understand description of information. This analysis was carried out by calculating the variations in the average (mean), median, and standard deviation of each variable, namely, firm performance (dependent variable), Digital Transformation, Financial Leverage, Board Size (independent variable), Firm Size (size), book-to-market ratio [MB], inventory turnover [Turnover] (control variable).

3.4 Regression Analysis

Based on the conceptual framework compiled, to analyze the effect of disclosure of Digital Transformation, Financial Leverage, Board Size (independent variable), Firm Size (Size), book-to-market ratio (MB), inventory turnover (Turnover) on Return On Assets. The panel data regression model can be seen as follows:

$$ROA_{i,t} = \alpha_0 + \alpha_1 DT_{i,t} + \gamma X_{i,t} + \sum YEAR + \sum IND + \varepsilon_{i,t}$$

Description:

ROAi,t= The performance of the firm i in year t
DTi,t = Digital transformation of firm i in year t
Xi,t = the set of all control variables
YEAR = year
IND = industry
εi,t = random error
α0 = constant
α1 = estimation coefficient

4.0 METHODOLOGY

4.1 Data Testing Method

The panel data regression method was utilized to analyze the data in this study. The purpose of this method is to investigate and assess the impact of Digital Transformation, Financial Leverage, and Board Size on ROA (Return On Assets) in the manufacturing sector listed on the Indonesia Stock Exchange (IDX).

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4.2 Model Conformance Test

The panel data regression included three-panel data models: common effect, fixed effect, and random effect. The available data is then processed and tested using e-views 12 software.The model tests used to determine the correct model in panel data regression analysisare theChow test, Hausman test, and F Test.

4.2.1 Chow Test

The Chow test is used to see which model is more appropriate to use between the common effect and the fixed effect. The Chow test is based on the null hypothesis that there is no individual heterogeneity and the alternative hypothesis is that there is heterogeneity in cross-sections. In this test the following hypothesis is carried out

Table 3. Chow Test Result

Chow Test				
Effects Test	**Model**	**Prob.**	**Hypothesis**	**Conclusion**
Cross-Section Chi-Square	Model 1 (Return on Assets)	0.0000	Ha Accepted	Fixed Effects Model

Table 3 above shows that the value of Prob. Cross-Section Chi-Square model 1 of 0.0000 < 0.05, Ha Accepted It can be concluded that the best model chosen is the Fixed Effect Model.

4.2.2 Hausman Test

The Hausman test is demonstrated to determine which model is better and more appropriate for use in research. The Hausman test results can be used to choose between two models: the fixed effect model and the random effect model. The Hausman test is also used to determine whether the model utilized has heterogeneity in the characteristics of each model that will be chosen between the fixed effect and random effect models. The following is the processed result with e-views 12 software from the hausman test:

Table 4. Hausman Test Result

Hausman Test				
Effects Test	**Model**	**Prob.**	**Hypothesis**	**Conclusion**
Cross-Section Random	Model 1 (Return on Assets)	0.0293	Ha Rejected	Fixed Effects Model

Table 4 above shows that the value of Prob. Cross-Section Random model 1 is 0.0293 < 0.05, and Ha is Rejected. It can be concluded that the best-selected model is the Fixed Effects Model.

4.2.3 F Test (Simultaneously)

The F test seeks to determine if the independent variables (Digital Transformation, Financial Leverage, Board Size) and control variables (Firm Size (Size), book-to-market ratio [MB], inventory turnover [Turnover]) have a simultaneous effect on the dependent variable (Performance firm). The F test also determines whether the regression model is viable to use.

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The following is the processed result with e-views 12 software from the simultaneous test results (F-Test):

Table 5. F Test Result

SimulantTest (F-Test)				
Effects Test	**Model**	**Prob.**	**Hypothesis**	**Conclusion**
Prob. (F-Statistic)	Model 1 (Return on Assets)	0.0000	Ha Accepted	Significant Effect

Table 5 above shows that the value of the Prob (F-Statistic) in model 1 is 0.0000 < 0.05, Ha is accepted. It can be concluded that all the independent variables simultaneously have a significant effect on the dependent variable.

4.3 Goodness Of Fit Test

The goodness of fit test was used to determine how well the independent variable explained the behavior of the dependent variable. The magnitude of the adjusted r-squared value in the regression model demonstrates this test. If the adjusted r-square is close to 1, it suggests that the model's independent variables can explain the dependent variable.

Table 6. Goodness of Fit Result

Coefficient of Determination		
Testing	**Model**	**Value**
Adjusted R-Squared	Model 1 (Return on Assets)	0. 9270

Based on the results of table 6 above, the value of Adjust R-Squared in model 1 is 0.9270 or 92.70%. Shows that all the independent variables can explain the dependent variable of 92.70%, and the remaining 7.30% is explained by other variables outside the model.

5.0 RESULT AND DISCUSSION

5.1 Descriptive Statistics

Descriptive statistics is a data processing method that employs minimum, maximum, mean, and standard deviation to create an overview or description of data. To see the highest and lowest values of each variable, utilize the maximum and minimum values. The mean value is used to determine the midpoint of each variable. The standard deviation value is used to determine the degree of homogeneity of each variable. Descriptive statistics use a statistical approach to describe data for each variable, notably ROA, DT, Lev, Board, SZ, MB, and Turnover. Table 7 displays the findings of the descriptive statistical analysis.

Table 7. Descriptive Statistics Analysis Result

Variable	Observations	Mean	Median	Maximum	Minimum	Std. Dev.
ROA	200	0.078640	0.055197	0.946783	-0.208167	0.134759

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DT	200	0.005790	0.000000	0.294035	0.000000	0.033119
LEV	200	0.419188	0.423243	0.783046	0.102383	0.167509
BOARD	200	1.799144	1.791759	2.564949	1.098612	0.380798
SIZE	200	15.05611	14.67889	19.00488	11.96415	1.595383
MB	200	22.25132	0.935952	996.9706	0.025553	130.3105
IT	200	413.3850	12.82411	47239.54	0.003145	3590.056

The results of the table of descriptive statistical data above show that the ROA variable in manufacturing companies in Indonesia has an average value of 0.078640, a maximum value of 0.946783, a minimum value of -0.208167, and a Standard Deviation value of 0.134759.

According to the descriptive statistical data table above, the DT Variable in Indonesian manufacturing companies has an average value of 0.005790, a maximum value of 0.294035, a minimum value of 0.000000, and a standard deviation of 0.033119.

According to the descriptive statistical data table above, the LEV variable in Indonesian manufacturing companies has an average value of 0.419188, a maximum value of 0.783046, a minimum value of 0.102383, and a standard deviation value of 0.167509.

According to the descriptive statistical data table above, the BOARD variable in Indonesian manufacturingcompanies has an average value of 1.799144, a maximum value of 2.564949, a minimum value of 1.098612, and a standard deviation value of 0.380798.

According to the descriptive statistical data table above, the SIZE variable in Indonesian manufacturing companies has an average value of 15.05611, a maximum value of 19.00488, a minimum value of 11.96415, and a standard deviation of 1.595383.

According to the descriptive statistical data table above, the MB variable in Indonesian manufacturing companies has an average value of 22.25132, a maximum value of 996.9706, a minimum value of 0.003145, and a standard deviation value of 130.3105.

According to the results of the descriptive statistical data table above, the IT variable in manufacturing companies in Indonesia has an average value of 413.3850, a maximum value of 47239.54, a minimum value of -0.039229, and a Standard Deviation value of 3590.056.

5.2 Data Analysis

5.2.1 Linier Regression Analysis

Multiple regression tests on panel data were employed in this research's data analysis. There are three models that can be employed in panel data research: the common effect model, the fixed effect model, and the random effect model. A regression model test is performed prior to carrying out the regression test. The results of the regression model test in this research using the random effect model. The multiple regression test seeks to determine whether or

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not DT, Lev, and Board affect ROA when compared to the control variables SZ, MB, and Turnover.

The results of processing multiple regression statistics produce a regression model equation, namely:

ROAit = -0.000558 - 0.804441 DTit + 0.203626 LEVit + 0. 007193 BOARDit - 0.000934 SIZEit - 0,0000105 MBit – 0,000000353 ITit

5.2.2 Hypothesis Test (T-Test)

Hypothesis testing can be performed with a significance threshold of 0.05 (α = 5%). The hypothesis is accepted or rejected based on the following criteria: if the probability value is > 0.05, the hypothesis is rejected (the regression coefficient is not significant). This means that the independent factors significantly influence the dependent variable. The hypothesis is accepted if the probability value is ≤ 0.05. (Significant regression coefficient). This means that partially the independent variable significantly influences the dependent variable.

Table 8. Hypothesis test result

Model 1 Fixed Effects Model Variable Dependent: Return on Assets				
Variables	**Coefficient**	**Prob.**	**Hypothesis**	**Conclusion**
C	-0.000558	0.9973		
Digital Transforming	-0.804441	0.0000	Ha Accepted	Significant effect
Leverage	0.203626	0.0013	Ha Accepted	Significant effect
Board	0.007193	0.7074	Ha Rejected	No Effect
Size	-0.000934	0.9350	Ha Rejected	No Effect
Market to Book	-1.05E-05	0.5682	Ha Rejected	No Effect
Inventory Turnover	-3.53E-07	0.0000	Ha Accepted	Significant effect

5.4 Discussion and Research Result

There is an influence of Digital Transformation (DT) on Return on Assets

Based on the results of the analysis in table 8. above, shows that there is an influence significant effect of Digital Transformation on Financial Performance as measured by ROA a probability value of 0.0000 is obtained with a coefficient of -0.804441. Probability value greater than 0.005 so that it can be said that there is a significant negative effect between DT variable and with ROA variable. This indicates that the decrease in DT causes an increase in return on assets (ROA) and otherwise.

There is influence Leverage (LEV) on Return on Assets

Based on the results of the analysis in table 8. above, a probability value of 0.0013 is obtained with a coefficient of 0.203626. The Lev coefficient shows a positive result. The probability value is smaller than 0.05 soit can be said that there is a significant positive effect between LEV variable and with ROA variable. This suggests that Leverage increase causes an increase in return on assets (ROA) and otherwise.

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There is an influence Board on Return on Assets

Based on the test results obtained a probability value of 0.7074 with a coefficient of 0.007193. The board coefficient shows a positive result. The probability value is greater than 0.05 so it can be said that there is no influence between the Board variable and the ROA variable.

There is an influence of Firm Size on Return on Assets

Based on the test results obtained a probability value of 0.9350 with a coefficient of -0.000934. The Firm Size coefficient shows a negative result. The probability value is greater than 0.005 so it can be said that there is no influence between the variable firm size and the ROA variable

There is an influence Market to Book on Return on Assets

Based on the test results obtained a probability value of 0.5682 with a coefficient of -1.05E-05. The MB coefficient shows a negative result. The probability value is greater than 0.05 so it can be said that there is no influence between the MB variable and the variable ROA

There is an influence of Inventory Turnover on Return on Assets

Based on the test results obtained a probability value of 0.0000 with a coefficient of -3.53E-07. The turnover coefficient shows a negative result. The probability value is smaller than 0.005 so it can be said that there is a significant negative effect between variable Turnover and ROA. This shows that Inventory decreased Turnover causes an increase in return on assets (ROA) and otherwise.

6.0 CONCLUSION AND IMPLICATIONS

6.1 Conclusion

Based on the results of research that examined the effect of Digital Transformation and internal factors measured by (DT, Lev, and Board) on the financial performance of companies in Indonesia's manufacturing sector, with Size, MB, and Turnover as control variables, the following conclusions can be drawn: (1) Digital Transformation (DT) has a significant negative influence on financial performance which is measured by ROA. (2) Financial Leverage (Lev) has a positive and significant influence on financial performance as measured by ROA. (3) Board Size (Board) does not influence financial performance which is measured by ROA. (4) Firm Size (Size) does not influence financial performance which is measured by ROA. (5) Book-to-market ratio [MB] does not influence financial performance as measured by ROA. (6) Inventory turnover [Turnover] has a negative and significant influence on financial performance which is measured by ROA.

6.2 Implications

According to the research findings, the variables Digital Transformation, Financial Leverage, and Inventory Turnover influence the financial performance as assessed by ROA in Indonesian manufacturing companies. As a result, the managerial implications of this research can benefit the following parties:

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1. For Managers

This research can provide implications for manufacturing companies and knowledge regarding issues that must be considered in corporate management. According to the findings of this research, managers should improve financial performance by considering the value of Financial Leverage to raise the value of profitability (ROA). Additionally, firm management also pays attention to inventory turnover so that it remains low to improve firm performance.

2. For Investors

Investors can also use this research to examine the financial performance of manufacturing companies, particularly those related to profitability. Investors are expected to supervise management for the invested capital to achieve a high rate of return.

6.3 Research Limitations and Suggestion

According to the research, this research has several limitations, including:(1) This research only discusses Digital Transformation, Financial Leverage, Board Size, Firm Size, Book-to-market ratio, Inventory turnover, and financial performance as measured by ROA.(2) The research's limitations include the usage of just manufacturing sector companies listed on the IDX from 2017 to 2021.

From the results of the research and discussion as well as the limitations that have been put forward by the researcher, the suggestions that can be recommended for further research are: (1) Future researchers are expected to be able to add or use other dependent variables so that other variables that can affect firm performance can be exposed. Aside from that, other measurements can be used to assess firm performance. (2) Future researchers should be able to add samples in the form of companies from the index, business types, or other sectors.

APPENDIX

Appendixes, if needed, appear before the acknowledgment.

Appendix 1. List of manufacturing companies and financial reports listed on the Indonesia stock exchange

Manufacturing Sector		
No	**Issuer Code**	**Company Name**
1	ADES	Akasha Wira International Tbk
2	ALTO	Tri Banyan Tirta Tbk
3	BTEK	Bumi Teknokultura Unggul Tbk
4	BUDI	PT Budi Starch & Sweetener Tbk
5	CEKA	PT Wilmar Cahaya Indonesia Tbk
6	CLEO	PT Sariguna Primatirta Tbk

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7	DLTA	Delta Djakarta Tbk
8	ICBP	Indofood CBP Sukses Makmur Tbk
9	INDF	Indofood Sukses Makmur Tbk
10	MLBI	Multi Bintang Indonesia Tbk
11	MYOR	Mayora Indah Tbk
12	GGRM	Gudang Garam Tbk
13	DVLA	Darya-Varia Laboratoria Tbk
14	KLBF	Kalbe Farma Tbk
15	MERK	Merck Tbk
16	TSPC	Tempo Scan Pacific Tbk
17	KINO	PT Kino Indonesia Tbk
18	MBTO	Martina Berto Tbk
19	UNVR	Unilever Indonesia Tbk
20	CINT	PT Chitose Internasional Tbk
21	KICI	Kedaung Indah Can Tbk
22	INTP	Indocement Tunggal Prakarsa Tbk
23	SMGR	Semen Indonesia (Persero) Tbk
24	ARNA	Arwana Citramulia Tbk
25	MLIA	Mulia Industrindo Tbk
26	GDST	Gunawan Dianjaya Steel Tbk
27	INAI	Indal Aluminium Industry Tbk
28	AGII	PT Samator Indo Gas Tbk
29	DPNS	Duta Pertiwi Nusantara Tbk
30	BRNA	Berlina Tbk
31	IMPC	PT Impack Pratama Industri Tbk
32	YPAS	Yanaprima Hastapersada Tbk
33	CPIN	Charoen Pokphand Indonesia Tbk
34	SIPD	PT Sreeya Sewu Indonesia Tbk

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35	KDSI	Kedawung Setia Industrial Tbk
36	SPMA	Suparma Tbk
37	ASII	Astra International Tbk
38	AUTO	Astra Otoparts Tbk
39	BOLT	PT Garuda Metalindo Tbk.
40	SMSM	Selamat Sempurna Tbk

Appendix 2 Results E-views 12

Deskriptif

	ROA	DT	LEV	BOARD	SIZE	MB	IT
Mean	0.078640	0.005790	0.419188	1.799144	15.05611	22.25132	413.3850
Median	0.055197	0.000000	0.423243	1.791759	14.67889	0.935952	12.82411
Maximum	0.946783	0.294035	0.783046	2.564949	19.00488	996.9706	47239.54
Minimum	-0.208167	0.000000	0.102383	1.098612	11.96415	0.025553	0.003145
Std. Dev.	0.134759	0.033119	0.167509	0.380798	1.595383	130.3105	3590.056
Skewness	3.008208	6.635258	0.089668	-0.311814	0.552232	6.358598	11.83973
Kurtosis	18.84862	48.11920	2.095978	2.311115	2.541625	42.53945	149.5285
Jarque-Bera	2394.799	18432.07	7.078474	7.195625	11.91622	14375.79	183594.3
Probability	0.000000	0.000000	0.029035	0.027384	0.002585	0.000000	0.000000
Sum	15.72796	1.157925	83.83756	359.8289	3011.222	4450.264	82677.01
Sum Sq. Dev.	3.613864	0.218276	5.583807	28.85637	506.5038	3379186.	2.56E+09
Observations	200	200	200	200	200	200	200

Common Effects Model

Dependent Variable: ROA
Method: Panel Least Squares
Date: 01/13/23 Time: 16:00
Sample: 2017 2021
Periods included: 5
Cross-sections included: 40
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.011695	0.096626	0.121033	0.9038
DT	1.423464	0.297428	4.785904	0.0000
LEV	-0.105378	0.058507	-1.801114	0.0732
BOARD	0.010800	0.036498	0.295903	0.7676
SIZE	0.005501	0.008383	0.656150	0.5125
MB	2.43E-05	8.34E-05	0.291775	0.7708
IT	2.12E-07	2.55E-06	0.083164	0.9338

Root MSE	0.124930	R-squared	0.136244
Mean dependent var	0.078640	Adjusted R-squared	0.109392
S.D. dependent var	0.134759	S.E. of regression	0.127175
Akaike info criterion	-1.252128	Sum squared resid	3.121496
Schwarz criterion	-1.136887	Log likelihood	132.2128
Hannan-Quinn criter.	-1.205411	F-statistic	5.073802
Durbin-Watson stat	0.475806	Prob(F-statistic)	0.000074

Fixed Effects Model

Dependent Variable: ROA
Method: Panel EGLS (Cross-section weights)
Date: 01/13/23 Time: 16:02
Sample: 2017 2021
Periods included: 5
Cross-sections included: 40
Total panel (balanced) observations: 200
Linear estimation after one-step weighting matrix
White period (cross-section cluster) standard errors & covariance (no d.f. correction)
Standard error and t-statistic probabilities adjusted for clustering

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000558	0.161278	-0.003463	0.9973
DT	-0.804441	0.139211	-5.778587	0.0000
LEV	0.203626	0.058726	3.467385	0.0013
BOARD	0.007193	0.019021	0.378160	0.7074
SIZE	-0.000934	0.011373	-0.082122	0.9350
MB	-1.05E-05	1.83E-05	-0.575611	0.5682
IT	-3.53E-07	6.44E-08	-5.475649	0.0000

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

Root MSE	0.070425	R-squared	0.943565
Mean dependent var	0.178085	Adjusted R-squared	0.927075
S.D. dependent var	0.303742	S.E. of regression	0.080256
Sum squared resid	0.991927	F-statistic	57.21838
Durbin-Watson stat	1.824762	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.884689	Mean dependent var	0.078640
Sum squared resid	1.139492	Durbin-Watson stat	1.144175

Random Effects Model

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 01/13/23 Time: 16:01
Sample: 2017 2021
Periods included: 5
Cross-sections included: 40
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.131315	0.159665	-0.822442	0.4118
DT	0.581066	0.444186	1.308158	0.1924
LEV	0.094843	0.078459	1.208816	0.2282
BOARD	0.037605	0.050183	0.749359	0.4546
SIZE	0.006589	0.012800	0.514776	0.6073
MB	1.13E-06	0.000130	0.008731	0.9930
IT	-1.31E-07	2.05E-06	-0.063768	0.9492

Effects Specification

	S.D.	Rho
Cross-section random	0.097388	0.5643
Idiosyncratic random	0.085582	0.4357

Weighted Statistics

Root MSE	0.085802	R-squared	0.033025
Mean dependent var	0.028764	Adjusted R-squared	0.002964
S.D. dependent var	0.087473	S.E. of regression	0.087344
Sum squared resid	1.472381	F-statistic	1.098585
Durbin-Watson stat	0.897552	Prob(F-statistic)	0.364655

Unweighted Statistics

R-squared	0.067023	Mean dependent var	0.078640
Sum squared resid	3.371652	Durbin-Watson stat	0.391956

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Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.979173	(39,154)	0.0000
Cross-section Chi-square	203.585479	39	0.0000

Cross-section fixed effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 01/13/23 Time: 16:01
Sample: 2017 2021
Periods included: 5
Cross-sections included: 40
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.011695	0.096626	0.121033	0.9038
DT	1.423464	0.297428	4.785904	0.0000
LEV	-0.105378	0.058507	-1.801114	0.0732
BOARD	0.010800	0.036498	0.295903	0.7676
SIZE	0.005501	0.008383	0.656150	0.5125
MB	2.43E-05	8.34E-05	0.291775	0.7708
IT	2.12E-07	2.55E-06	0.083164	0.9338

Root MSE	0.124930	R-squared	0.136244
Mean dependent var	0.078640	Adjusted R-squared	0.109392
S.D. dependent var	0.134759	S.E. of regression	0.127175
Akaike info criterion	-1.252128	Sum squared resid	3.121498
Schwarz criterion	-1.136687	Log likelihood	132.2128
Hannan-Quinn criter.	-1.205411	F-statistic	5.073802
Durbin-Watson stat	0.475806	Prob(F-statistic)	0.000074

Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.028893	6	0.0293

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
DT	-0.764991	0.581086	0.378698	0.0287
LEV	0.323008	0.094843	0.006657	0.0052
BOARD	0.007157	0.037605	0.003214	0.5912
SIZE	0.014295	0.006589	0.000638	0.7603
MB	-0.000013	0.000001	0.000000	0.9519
IT	-0.000001	-0.000000	0.000000	0.4025

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 01/13/23 Time: 16:01
Sample: 2017 2021
Periods included: 5
Cross-sections included: 40
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.279887	0.408754	-0.684731	0.4945
DT	-0.764991	0.758947	-1.007964	0.3151
LEV	0.323008	0.113194	2.853577	0.0049
BOARD	0.007157	0.075711	0.094532	0.9248
SIZE	0.014295	0.028311	0.504918	0.6143
MB	-1.34E-05	0.000273	-0.048896	0.9611
IT	-6.07E-07	2.12E-06	-0.285661	0.7755

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.075098	R-squared	0.687888
Mean dependent var	0.078640	Adjusted R-squared	0.596686
S.D. dependent var	0.134759	S.E. of regression	0.085582
Akaike info criterion	-1.880055	Sum squared resid	1.127931
Schwarz criterion	-1.121442	Log likelihood	234.0055
Hannan-Quinn criter.	-1.573056	F-statistic	7.542498
Durbin-Watson stat	1.130343	Prob(F-statistic)	0.000000

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The preferred spelling of the word “acknowledgment” in American English is without an “e” after the “g.” Use the singular heading even if you have many acknowledgments.

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