

## Factors Affecting Firm Efficiency Of Manufacturing Companies Listed In Indonesia Stock Exchange

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**Abstrak:** Penelitian ini bertujuan untuk menganalisis pengaruh rasio keuangan terhadap efisiensi perusahaan. Penelitian ini dilakukan dengan menggunakan sampel data 29 perusahaan manufaktur di sub sektor aneka industri yang terdaftar di Bursa Efek Indonesia (BEI) dalam periode pelaporan 5 tahun (2016 – 2020). Teknik pengambilan sampel menggunakan *purposive sampling* dan menggunakan metode analisis regresi data panel. Variabel independen dalam penelitian ini terdiri dari *leverage*, *tangibility*, *working capital*, *liquidity*, *productivity*, dan *profitability*, sedangkan variabel dependennya adalah *firm efficiency*. Hasil penelitian menunjukkan bahwa *leverage*, *tangibility*, *liquidity*, dan *productivity* berpengaruh negatif signifikan terhadap *firm efficiency*, sedangkan *working capital*, *gross profit*, dan *return on asset* tidak berpengaruh terhadap *firm efficiency*. Temuan ini diharapkan dapat menjadi acuan bagi perusahaan manufaktur di i sub sektor aneka industri dalam meningkatkan efisiensi perusahaan.

**Kata Kunci:** Firm Efficiency, Leverage, Tangibility, Working Capital, Liquidity, Productivity, Profitability.

**Abstract:** This study aims to analyze the effect of financial ratios on company efficiency. This study was conducted using a data sample of 29 manufacturing companies in the various industrial sub-sectors listed on the Indonesia Stock Exchange (IDX) within a reporting period of 5 years (2016 – 2020). The sampling technique uses purposive sampling and uses panel data regression analysis methods. The independent variables in this study consist of leverage, tangibility, working capital, liquidity, productivity, and profitability, while the dependent variable is firm efficiency. The results show that leverage, tangibility, liquidity, and productivity have a significant negative effect on firm efficiency, while working capital, gross profit, and return on equity have no effect on firm efficiency. This finding is expected to be a reference for manufacturing companies in the various industrial sub-sectors in improving company efficiency.

**Keywords:** Firm Efficiency, Leverage, Tangibility, Working Capital, Liquidity, Productivity, Profitability.

## INTRODUCTION

In Malaysia, after recovering from the global economic crisis and showing signs of a strong recovery in 2010 (Alarussi, 2021), Malaysian companies continue to struggle to compete effectively in emerging markets. Today, stability and sustainability are the main challenges facing companies in Malaysia. This is fundamental because the company must have more knowledge about the internal and external environment in which the company operates. Achieving efficiency in company operations is the current goal of Malaysian companies which depends on the ability of managers to identify efficiency status such as related financial ratios as indicators.

According to the World Bank, since the Asian financial crisis, the growth of the manufacturing sector in Indonesia has decreased, the real appreciation of the Rupiah currency, rising unit costs of labor and shrinking profits have made the manufacturing sector in Indonesia less competitive than its neighbors in Asia. Productivity growth in Indonesia is also lagging behind its competitors. These challenges give rise to a large portion of small and unproductive manufacturing companies. ([www.worldbank.org](http://www.worldbank.org)).

The manufacturing sector in Indonesia is starting to bounce back. Currently the government is targeting the manufacturing sector as one of the supporters of Indonesia's economic growth. According to Kompas, apart from its role in the largest GDP contributor, the manufacturing sector is still recognized as an industrial sector with a large employment absorption and this industry has the potential to become a source of new economic growth ([www.pressreader.com](http://www.pressreader.com)). During the last period, several studies have considered efficiency in firms and their relationship to financial ratios. Financial ratios add valuable information that enhances the ability to assess a company's financial situation. Different analyzes are used to analyze the company's financial position such as cross-sectional analysis and comparative analysis (Alarussi, 2021).

Efficiency shows the extent to which the company uses its resources to improve company performance (Wilson, Wnuk, Silvander, & Gorschek, 2018). In determining the efficiency of a company, many ratios can be used as a measuring tool, but many academic studies agree that total asset turnover is used as a measure of efficiency, because it can show the extent to which a company uses its assets to generate revenue (Alarussi & Alhaderi, 2018). Companies that run their business efficiently will have a larger market share and higher profits because of their low production costs and lower required rate of return.

Leverage can describe the extent to which the company's ability to cover long-term and short-term debt payments using the company's own assets. The greater the debt, the greater the possibility of the company's failure to be unable to pay its debts so that it is at risk of bankruptcy which causes the company to be inefficient if not managed properly. Financial leverage is measured by the debt to asset ratio, namely total debt divided by total assets (Alarussi, 2021).

Tangibility used as collateral in the company's capital structure decisions because the higher the proportion of tangible assets the lower the creditor risk, and along with the high value

of assets at the time of bankruptcy and liquidation (Dada & Ghazali, 2016). A company that has a lot of assets tends to rely more on debt financing because the finance costs are lower.

One of the most important elements in ensuring a company can last longer or not in business is working capital. A company that is not able to maintain a satisfactory level of working capital is likely to go bankrupt. This working capital plays a role in determining the company's operational efficiency and has a positive relationship to firm efficiency (Alarussi, 2021). If a management wisely uses a larger working capital as an internal source, it can increase the profitability and efficiency of the company.

Liquidity refers to the company's ability to convert assets into cash in a fast time to pay off its financial obligations (Waqas & Md. Rus, 2018). Alarussi, (2021) also finds that liquidity facilitates efficiency, in the sense that the market's capacity to accommodate order flows is greater when the market is more liquid. Based on the results of previous studies indicate that liquidity has a negative effect on firm efficiency. Although liquidity is important to pay off the company's short-term obligations, but the company has a lot of liquidity, so liquidity does not affect the company's efficiency.

Productivity shows how far the company uses its fixed assets to generate income. Fixed assets are part of the company's assets. So if the company manages to manage its fixed assets properly, the income or returns generated will be large or increase. This will increase the level of efficiency within the company (Alarussi, 2021).

Profitability used to measure how efficient the company's overall performance is to gain profits by using available resources. Profitability is one of the most important factors that indicate management success, shareholder satisfaction, attractiveness to investors, and company sustainability (Bekmezci, 2015). Based on research conducted by Alarussi, (2021) shows that profitability has a positive influence on firm efficiency. Nazmoon (2018) states that profitable companies are more efficient and the costs incurred are lower.

Based on the background and previous research conducted by Alarussi (2021) in Malaysia for companies listed on the Malaysia Stock Exchange, namely to determine the effect of the six variables on the efficiency ratio in manufacturing companies. These variables are leverage, tangibility, working capital, liquidity, productivity, and profitability. So the researchers are interested in doing it again in Indonesia. Therefore, this research is entitled "Factors Affecting Company Efficiency in Manufacturing Companies Listed on the Indonesia Stock Exchange".

## **THEORITICAL REVIEW**

Firm efficiency defined as firms operating at cost or production limits, while an inefficient company is a company that operates above the cost limit or below the production limit. In a general sense, efficiency is defined as the quality of being able to do task without wasting time, space or energy and making things more efficient and relevant. Efficiency is also defined as performance that determines the level of conformity with the goals and targets of the activities carried out by the company or organization to achieve strategic goals and objectives (Günay &

Dulupçu, 2019). Efficiency is used to assess how well the company utilizes its assets to generate revenue (Alarussi and Alhaderi, 2018). Efficiency is important for companies if they want to achieve sustainability and competitive advantage in the market, especially with a very large population growth with limited resources. When a company operates its business efficiently, it has a larger market share as well as higher profits due to low production costs. An efficient company will perform better than an inefficient company in all respects (Azad, Raza, & Zaidi, 2018).

Kalaivani & Jothi, (2017) argue that efficiency can be measured by the asset turnover ratio. This ratio can also be used to improve company efficiency and help investors and creditors to see the company's operations and profitability. In other words, a higher ratio is always more profitable because it shows the company is using its assets efficiently, while a lower ratio indicates the company is not using its assets efficiently and may have problems in management or production. According to resource-based theory, organizational resources are valuable, which are difficult to imitate, rare and cannot be replaced, so organizations must use them efficiently to achieve competitive advantage. Companies that have low operating efficiency tend to face high failure rates. In Alarussi's (2021) research it is stated that efficiency levels increase among small and medium-sized enterprises (SMEs) with more investment in technological and manpower capabilities. However, the level of efficiency will decrease with unskilled labor.

Leverage is the company's ability to pay off the company's financial obligations, both short and long term (Saputri & Geovani, 2021). Leverage can also be interpreted as the amount of debt used by the company to finance its assets (Alarussi, 2021). This is part of the company's capital structure, as in most cases, the organization's internal resources are often insufficient to meet business needs and growth, so managers must look for other options for obtaining funds. The choice between debt and equity is not an easy decision because it shows a trade-off between business and financial risk. Based on the trade-off theory, The company will look for the optimal debt size based on the comparison between the benefits of a tax shield and the losses of bankruptcy. Leverage can provide incentives for company managers to work more efficiently, namely making the company commit to loan repayments and thereby reducing cash flow and encouraging the company's managerial work commitment. Leverage is measured using the debt to asset ratio, namely total debt divided by total assets, this ratio measures the percentage of total funds provided by creditors. Based on research conducted by Alarussi, (2021) shows that there is a negative influence between *leverage* to firm efficiency. It is explained that the more loans, the company faces a higher risk because the use of its assets is not wise to make sales. This supports the argument of choosing debt and equity, when the company chooses more loans to finance the company, it does not affect the company's ownership but affects the level of financial risk.

Tangibility is a physical asset or property that has a physical form and can be seen or touched, such as equipment, machinery, land and buildings owned by the company and used to produce products (Lei, Qiu, & Wan, 2018). Tangible assets are assets that have a long life and are used for the company's operations in the long term. Tangibility relates to the amount of

wealth (assets) that can be used as collateral. If a company has fixed assets (tangible) with a large amount, then these assets can be used as collateral for investors or creditors (debtholders). And if the debt is collateralized, then the risk of the lender who bears the agency costs of the debt will be reduced. Tangible assets also serve as collateral for the payment of promised debts and can reduce conflicts between managers and shareholders. If the company has more intangible assets, then the cost of controlling capital expenditures is higher because monitoring is difficult. In research (Alarussi, 2021), tangibility is measured by the ratio of fixed assets to the company's total assets. Companies that have more tangible assets tend to rely more on debt financing because they can get low financial costs, because tangible assets serve as collateral for loans (Chauhan & Banerjee, 2018). Thus, companies with higher tangible assets can invest more funds into working capital. Tangibility has a negative effect on firm efficiency according to the results of a study by Jaishi & Paudel (2019). The high tangibility ratio shows the inefficiency of the company if the company has more fixed assets, it will be a burden if it is not used effectively.

Working capital is the difference between current assets and current liabilities in the company's financial position (Altaf & Ahmad, 2019) and each company must manage its expenses to increase its returns. Companies that have working capital can ensure the effectiveness and efficient utilization of business investments in fixed assets. Working capital has an important role in determining the company's operational efficiency for long-term business continuity (Alarussi, 2021). Excessive working capital can harm the company because it causes large funds to accumulate without being used productively and can lead to inefficiency or waste in company operations. Based on agency theory, if large working capital will cause greater conflict between management and shareholders, which will lead to higher agency costs (Boshkoska, 2015). However, if management wisely uses its working capital, this will lead to a reduction in agency costs, increasing profitability and efficiency ratios in the company. Optimally managed working capital can achieve a trade-off between risk and efficiency that can maximize firm value (Chauhan & Banerjee, 2018). According to the results of the study by Alarussi & Alhaderi (2018), working capital has a positive influence on firm efficiency. This strong positive relationship can be explained as every firm has to wisely manage day-to-day expenditure to increase its yield. It also shows that companies with high working capital can achieve high company efficiency.

Liquidity Another definition is the company's ability to pay off short-term debt (Alarussi and Ahaderi, 2018). It has been argued that in order for a business to survive, it must have a level of liquidity that is neither excessive nor inadequate. A little liquidity can put the company at risk of bankruptcy, but too much cash in a company can result in poor resource utilization and the business has the possibility of not getting the expected return on assets (Alarussi, 2021). Liquidity can also be interpreted as the condition of a business organization to determine its ability to meet the needs of long-term debt and short-term debt (Guerreri & Lorenzoni, 2017). Liquidity can help companies to avoid certain situations such as selling assets at low prices and can reduce the possibility of bankruptcy (Schwarz, 2017). This study was conducted to analyze the effect of liquidity on firm efficiency. Liquidity is measured by the current ratio which

presents the company's ability to meet its short-term responsibilities (Gitman, 2015). Liquidity as measured by the current ratio shows a negative relationship with firm efficiency. Although liquidity can pay off the company's short obligations, but the company has a lot of liquidity, it can affect the company's efficiency because the company loses value for money if it is not used properly.

Productivity is the ability of an organization to use fixed assets to generate more sales, thereby generating more returns. Productivity can show how well a company or organization uses its resources when producing goods and services (Günay & Dulupçu, 2019). The fixed asset turnover ratio is one of the productivity measurement ratios, which is to determine the effectiveness in generating net sales income from investments in net properties (Alarussi, 2021). Based on the resource-based theory proposes that firm that have fixed assets can use their strategic resources to increase returns and increase the company's capabilities. Productivity is measured by fixed asset turnover, fixed asset turnover shows how well the company uses its fixed assets to generate income. In other words, if the ratio is high, it means the company is spending less money in fixed assets for each sales revenue. Meanwhile, the lower fixed asset turnover means the company has made excessive investments in fixed assets. From the results of previous studies, productivity has a positive effect on firm efficiency. This positive result is explained that fixed assets are part of the company's assets and If the company successfully manages its fixed assets to generate more returns, it will increase the level of efficiency within the company.

Profitability is the ability of a business to generate profits from economic activities and by using its resources (Al\_arussi and Alhadiry, 2018). Profitability can show how well the company's performance is in maintaining or developing its business in the future. Profitability is also one of the most important factors in determining management success, shareholder satisfaction, investor attractiveness, company efficiency, and company sustainability. Companies that have cost inefficiency can affect the company's financial performance, so that it can reduce its value and slow down the company's growth (Ilyas & Rajasekaran, 2019). It has been argued that if profitability is higher in a firm, it will reduce agency costs and motivate management to exert considerable effort in increasing efficiency by using firm assets wisely to generate revenue. Profitability in this study was measured using two measuring tools, namely gross profit and return on equity. Gross profit is a measurement of the percentage of revenue after deducting the costs associated with the company's services. Return on Equity is a measurement to determine the company's ability to generate profits for investors, so it can be calculated by comparing net income with equity (Alarussi, 2021). The results of a study conducted by Nazmoo (2018) state that profitability has a positive influence on firm efficiency. This positive effect indicates that the variable gross profit and return on equity have a role in increasing the efficiency of the company. Company managers will motivate to increase efficiency if the results of their efforts can generate more profits. In addition, if the level of efficiency increases, it will lead to lower costs, so that it will increase the level of company profitability.

### Hypothesis

The hypotheses used in this study include:

- H1 : Leverage has a negative effect on firm efficiency
- H2: Tangibility has a negative effect on firm efficiency
- H3 : Working capital has a positive effect on firm efficiency
- H4 : Liquidity has a negative effect on firm efficiency
- H5 : Productivity has a positive effect on firm efficiency
- H6: Profitability has a positive effect on firm efficiency

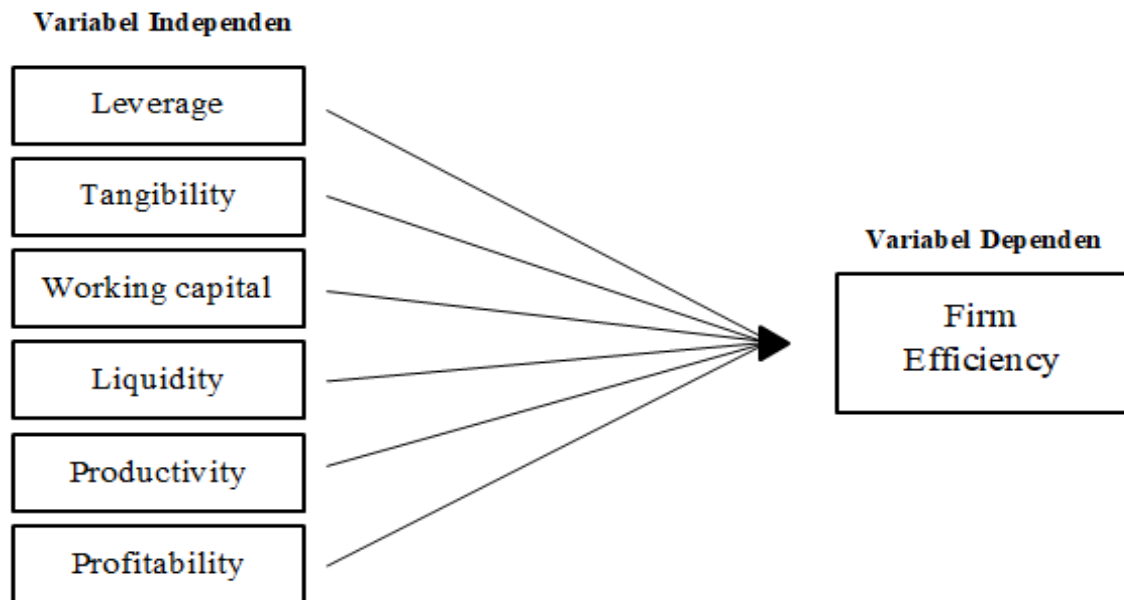


Figure 1. Research Model

### METHODS

This study uses a quantitative approach through statistical analysis which is used to test the hypothesis of the independent variables, namely leverage, tangibility, working capital, liquidity, productivity, and profitability on the dependent variable, namely firm efficiency. This study also analyzes manufacturing companies listed on the Indonesia Stock Exchange in the period 2016 - 2020. The analytical tool used to process the data is IBM SPSS Statistics 26 Software to perform panel data regression.

The data collection method used in this study is secondary data or data obtained indirectly from published sources. The data is obtained from the financial and annual reports of manufacturing companies on the Indonesia Stock Exchange website ([www.idx.co.id](http://www.idx.co.id)) for five years from 2016-2020. This study uses purposive sampling, which is a sampling technique with

certain criteria in accordance with the required information. Manufacturing companies that are used as research samples must meet several criteria, including: (1) Multi-industry sub-sector manufacturing companies listed on the Indonesia Stock Exchange for the 2016-2020 period; (2) The company issues financial statements during the research period. (3) The company has the data needed for the variables to be studied.

**Table 1.** Variable Measurement

| Variable Type        | Variable Name   | Symbol         | Measurement   | Reference       |
|----------------------|-----------------|----------------|---|-----------------|
| Dependent Variable   | Firm Efficiency | ASTRVR         | $\frac{\text{Net Sales}}{\text{Total Asset}}$   |                 |
|                      | Leverage        | LVGRTO         | $\frac{\text{Total Loan}}{\text{Total Asstet}}$   |                 |
|                      | Tangibility     | FXTOASTRTO     | $\frac{\text{Fixed Asset}}{\text{Total Asset}}$   |                 |
| Independent Variable | Working Capital | LGWC           | $\frac{\text{Current Asset} - \text{Current Liabilities}}{\text{Current Liabilities}}$                  | Alarussi (2021) |
|                      | Liquidity       | CRTRTO         | $\frac{\text{Current Asset}}{\text{Current Liabilities}}$   |                 |
|                      | Productivity    | FXDASTRTO      | $\frac{\text{Net sales}}{\text{Fixed Asset}}$   |                 |
|                      | Profitability   | GRSPRFT<br>ROE | $\frac{\text{Net Sales} - \text{COGS}}{\text{Net Profit}}$<br>$\frac{\text{Net Profit}}{\text{Equity}}$ |                 |

## RESULT

**Normality Test.** This test is used to detect whether the residuals are normally distributed or not, namely by statistical test analysis. In this study, the normality of the data was tested using the Kolmogorov-Smirnov test by looking at the significance of the resulting residuals..The test hypotheses used are:

H<sub>0</sub>: Distribution is not normal.

H<sub>a</sub>: Normal distribution.



If Asymp. Sig. (2-sided test) gives a result of less than 5 percent, then  $H_0$  is rejected and  $H_a$  is accepted. So that the conclusions obtained in this study data are normally distributed. The following are the results of the research conducted (Table 2):

**Table 2.** Normality Test

| Dependent       | Asymp. Sig. (2-sided test) | Decision                               |
|-----------------|----------------------------|--|
| Firm Efficiency | 0.000                      | $H_0$ is rejected, normal distribution |

Source: IBM SPSS Statistics 26 Output Panel Data Regression.

The results shown in the table show that the Asymp value. Sig. (2-sided test) of 0.000 where the value is smaller than 0.05 so that the provision of  $H_0$  is rejected and it is concluded that the assumption of a normal distribution.

**Multicollinearity Test.** This test is used to determine whether there is a relationship or influence between the independent variables, namely leverage, tangibility, working capital, liquidity, productivity, and profitability. Multicollinearity states the relationship between independent variables. Regression is free from multicollinearity if the VIF value is less than 10 and the tolerance value is more than 0.10.

The following is the hypothesis of the Multicollinearity Test:

$H_0$  : There is no multicollinearity

$H_a$  : There is multicollinearity

If the results of VIF more than 10 and Tolerance less than 0.10 then  $H_0$  is rejected. That is,  $H_a$  is accepted and there is multicollinearity, but if the results of VIF less than 10 and Tolerance more than 0.10 then  $H_0$  is accepted. That is,  $H_a$  is rejected and there is no multicollinearity.

**Table 3.** Multicollinearity Test Results

| Independent Variable | Tolerance | VIF   | Conclusion           |
|----------------------|-----------|-------|----------------------|
| Leverage             | 0.703     | 1.423 | No multicollinearity |
| Tangibility          | 0.731     | 1.368 | No multicollinearity |
| Working Capital      | 0.535     | 1.868 | No multicollinearity |
| Liquidity            | 0.904     | 1.107 | No multicollinearity |
| Productivity         | 0.833     | 1,200 | No multicollinearity |

|                  |       |       |                      |
|------------------|-------|-------|----------------------|
| Gross Profit     | 0.647 | 1.545 | No multicollinearity |
| Return on Equity | 0.936 | 1.069 | No multicollinearity |

Source: IBM SPSS Statistics 26 Output Panel Data Regression.

**Heteroscedasticity Test.** This test is conducted to determine whether in a regression model there are similarities or differences in variance from the residuals of one observation to another observation. If the residual variance from one observation to another observation remains, it is called homoscedasticity and if it is different it is called heteroscedasticity. The way to find out whether or not heteroscedasticity is present can be seen by the presence or absence of certain patterns on the scatterplot graph. Based on the research that has been done, that the result is that there is no clear pattern in which the points spread above and below the number 0 on the Y axis, so it can be said that there is no heteroscedasticity.

**F Test.** F test aims to determine whether the independent variables (leverage, tangibility, working capital, liquidity, productivity, and profitability) have a significant effect on the dependent variable (firm efficiency). Based on the results of the model test, it is known that the significance of F shows a value of 0.000 less than 0.05. Based on the test results, it can be seen that the independent variables, namely leverage, tangibility, working capital, liquidity, productivity, and profitability have an effect on the dependent variable, namely firm efficiency, so it can be concluded that the regression model is feasible to be used in this study.

**Goodness of Fit Test (Adjusted R<sup>2</sup>).** At this testing stage, it is used to determine how much influence the independent variable has in explaining the dependent variable. This test was analyzed through the value of Adjusted R<sup>2</sup> (0 less than Adjusted R<sup>2</sup> less than 1) in the panel data regression model. The results showed the value of Adjusted R<sup>2</sup> was 0.249. This means that independent variables such as leverage, tangibility, working capital, liquidity, productivity, and profitability are able to explain the variation in the dependent variable, namely firm efficiency of 24.9 percent. The rest, 75.1 percent explained that the company's efficiency is influenced by other variables that are not included in this model. These results indicate that there is a weak relationship between leverage, tangibility, working capital, liquidity, productivity, and profitability with firm efficiency.

**Regression Model.** Based on previous research (Alarussi, 2021), this study uses panel data regression analysis to examine the effect of independent variables including leverage, tangibility, working capital, liquidity, productivity, and profitability on the dependent variable, namely firm efficiency. The results of the regression equation in this study can be concluded as follows:

$$\begin{aligned}
 \text{ASTROVR}_{it} = & \alpha_0 + \beta_1 \text{LVGRTO}_{it} + \beta_2 \text{FXDTRTO}_{it} + \beta_3 \text{LGWC}_{it} + \beta_4 \text{CRTRTO}_{it} \\
 & + \beta_5 \text{FXDASTRTO}_{it} + \beta_6 \text{GRSPRFT}_{it} + \beta_7 \text{ROE}_{it} + e_{it} \quad \dots (1)
 \end{aligned}$$

Description:

- ASTROVRit = Firm Efficiency
- LVGRTOit = Leverage
- FXDTRTOit = Tangibility
- LGWCit = Working Capital
- CRTRTOit = Liquidity
- FXDASTRTOit = Productivity
- GRSPRFTit = Profitability
- ROEit = Profitability
- eit = Error team

**Descriptive Statistical Analysis.** Descriptive analysis describes a summary of research data, namely the results of the minimum, maximum, mean, and standard deviation values for each variable. The minimum value is the lowest value of the variable, while the maximum value is the highest value of the variable. The mean value shows the average value of each research variable. The standard deviation is the distribution of research data that shows whether it is homogeneous or heterogeneous and fluctuates. The following are the results of descriptive statistics of the research variables used:

**Table 4.** Descriptive Statistical Results

| Variable         | N   | Mean       | Min.        | Max.        | Std. Dev   |
|------------------|-----|------------|-------------|-------------|------------|
| Firm Efficiency  | 145 | 0.92044    | 0.00590     | 2.18668     | 0.42580    |
| Leverage         | 145 | 0.25606    | 0           | 1.2076      | 0.23020    |
| Tangibility      | 145 | 0.48128    | 0.00121     | 0.76890     | 0.16788    |
| Working Capital  | 145 | 8.54075    | 6.49390     | 10.66812    | 0.73692    |
| Liquidity        | 145 | 4.12139    | 0.60160     | 303.28195   | 25.05443   |
| Productivity     | 145 | 3.13929    | 0.252491    | 111.15917   | 9.24143    |
| Gross Profit     | 145 | 2019394537 | -1521583215 | 50769000000 | 8015621834 |
| Return on Equity | 145 | 0.06803    | -0.40411    | 2.61500     | 0.25415    |

Source: IBM SPSS Statistics 26 Output Panel Data Regression.

**DISCUSSION**

**Panel Data Regression Analysis.** This study uses panel data regression analysis to examine the effect of leverage, tangibility, working capital, liquidity, productivity, and profitability on firm efficiency. The results of the panel data regression equation in this study can be described as follows.

$$\text{ASTROVR} = 1.103 - 0.491\text{LVGRTO} - 1.291\text{FXDTRTO} - 0.072\text{LGW} - 0.006\text{CRTRTO} - 0.009\text{FXDASTRTO} + 2.420\text{E} - 13\text{GRSPRFT} + 0.075\text{ROE} \dots\dots\dots (2)$$

**T Uji test.** T test aims to test whether independent variables, such as leverage, tangibility, working capital, liquidity, productivity, and profitability have a significant effect on the dependent variable, namely firm efficiency. The criteria of the T-test are if the significance of t less than 0.05 then H<sub>0</sub> is rejected and if the significance of t is more than 0.05 then H<sub>0</sub> is accepted. From the test results, the results are shown in Table 5.

**Table 5.** Test results

| Independent Variable | Dependent Variable |                         |            |
|----------------------|--------------------|-------------------------|------------|
|                      | Coefficient        | Firm Efficiency P-value | Conclusion |
| Coefficient          | 1.103              | -                       | -          |
| Leverage             | -0.491             | 0.002                   | Accepted   |
| Tangibility          | -1.291             | 0.000                   | Accepted   |
| Working Capital      | -0.072             | 0.211                   | Rejected   |
| Liquidity            | -0.006             | 0.000                   | Accepted   |
| Productivity         | -0.009             | 0.015                   | Rejected   |
| Gross Profit         | 2.420E-13          | 0.960                   | Rejected   |
| Return on Equity     | 0.075              | 0.551                   | Rejected   |

Source: IBM SPSS Statistics 26 Output Panel Data Regression.

Based on hypothesis testing with the T test in the table above, leverage has a p-value of 0.002 less than 0.05 with a coefficient of -0.491 which indicates that leverage has a significant negative effect on firm efficiency. The results of this study are in line with research conducted (Alarussi, 2021) that leverage has a negative effect on firm efficiency. It is explained that the

more loans, the company faces a higher risk because the use of its assets is not wise to make sales.

Tangibility has a p-value of 0.000 less than 0.05 with a coefficient of -1.291 which indicates that tangibility has a significant negative effect on firm efficiency. These results are in line with research conducted by Alarussi, (2021) and Jaishi & Paudel, (2019) that tangibility has a negative effect on firm efficiency. This negative effect explains that the higher the tangibility ratio, the higher the company's inefficiency. If the company has more fixed assets, it will be a burden if it is not used effectively.

Working Capital has a p-value of 0.211 more than 0.05 which indicates that working capital has no effect on firm efficiency. This result contradicts the research conducted by Alarussi (2021) which states that working capital has a positive effect on firm efficiency. This means that the size of a company's working capital does not affect the company's efficiency. Because the assets owned by the company have more immovable possibilities compared to account balances or cash, while the amount of debt is higher than assets.

Liquidity has p-value 0.000 less than 0.05 with a coefficient of -0.006 which indicates that liquidity has a significant negative effect on firm efficiency. The results of this study are also in line with research conducted by Alarussi (2021) which states that liquidity has a negative effect on firm efficiency. This negative effect shows that although liquidity can pay off the company's short obligations, the company has a lot of liquidity, it can affect the company's efficiency because the company loses value for money if it is not used properly.

Productivity has p-value is 0.015 less than 0.05 with a coefficient of -0.009 which indicates that productivity has a negative and significant effect on firm efficiency. This result contradicts the research by Alarussi (2021) that productivity has a positive effect on firm efficiency. This negative result can be interpreted that every additional product makes goods pile up and will increase the company's burden, so this affects the company's efficiency.

Profitability measured using gross profit and return on equity with a p-value respectively 0.960 and 0.551, where more than 0.05 which indicates that gross profit and return on assets have no effect on firm efficiency. This result contradicts Alarussi's (2021) research that profitability has a positive effect on firm efficiency. This indicates that the size of the company's profitability level does not affect the company's efficiency. Due to the possibility of losses owned by the company which is greater than the profits obtained by the company, so the size of profitability does not affect the efficiency of the company.

## CONCLUSION

This research is to analyze the effect of leverage, tangibility, working capital, liquidity, productivity, and profitability on firm efficiency in the Multi-Industry sub-sector manufacturing companies listed on the Indonesia Stock Exchange during 2016 - 2020. Based on the results of the research conducted, there are several conclusions, namely: (1) Leverage has a negative effect on firm efficiency. (2) Tangibility has a negative effect on firm efficiency. (3) Working

capital has no effect on firm efficiency. (4) Liquidity has a negative effect on firm efficiency. (5) Productivity has a negative effect on firm efficiency. (6) Gross profit has no effect on firm efficiency. (7) Return on equity has no effect on firm efficiency. Based on the results of the research, conclusions, and limitations to this study,

Thus, the managerial implications of this research can be described as follows, (1) For companies, company efficiency has a very important role in improving the performance of a company. Company efficiency can be used to assess how well a company uses its assets to generate revenue. For this reason, the manager of a manufacturing company must pay attention to what factors can affect the company's efficiency so that it can improve its performance. (2) For investors, before deciding to invest, they should pay attention to what factors can provide benefits and help reduce risk. By looking at the financial ratios owned by the company, it will make it easier for investors to decide to invest.

**Suggestions.** Based on the results of the research conducted, this study has several limitations, such as the only independent variables are leverage, tangibility, working capital, liquidity, productivity, and profitability. Therefore, suggestions for further research are to add other independent variables to test their effect on firm efficiency, such as firm size and firm risk (Rahim & Shah, 2019).

## REFERENCE

- Akhter, N. (2018). The Impact of Liquidity and Profitability on Operational Efficiency of Selected Commercial Banks in Bangladesh: A Panel Data Study. *Global Journal of Management and Business Research*, 18(7), 13–24.
- Alarussi, ASA (2021). Financial ratios and efficiency in Malaysian listed companies. *Asian Journal of Economics and Banking*, 5(2), 116–135. <https://doi.org/10.1108/ajeb-06-2020-0014>.
- Alarussi, AS, & Alhaderi, SM (2018). Factors affecting profitability in Malaysia. *Journal of Economic Studies*, 45(3), 442–458. <https://doi.org/10.1108/JES-05-2017-0124>.
- Altaf, N., & Ahmad, F. (2019). Working capital financing, firm performance and financial constraints: Empirical evidence from India. *International Journal of Managerial Finance*, 15(4), 464–477. <https://doi.org/10.1108/IJMF-02-2018-0036>.
- Andersson Schwarz, J. (2017). Platform Logic: An Interdisciplinary Approach to the Platform-Based Economy. *Policy and Internet*, 9(4), 374–394. <https://doi.org/10.1002/poi3.159>
- Azad, AMS, Raza, A., & Zaidi, SSZ (2018). Empirical Relationship between Operational Efficiency and Profitability (Evidence from Pakistan Exploration Sector). *Journal of Accounting, Business and Finance Research*, 2(1), 7–11. <https://doi.org/10.20448/2002.21.7.11>.
- Bekmezci, M. (2015). Companies' Profitable Way of Fulfilling Duties towards Humanity and Environment by Sustainable Innovation. *Procedia - Social and Behavioral Sciences*,

- 181(August), 228–240. <https://doi.org/10.1016/j.sbspro.2015.04.884>.
- Boshkoska, M. (2015). The Agency Problem: Measures for Its Overcoming. *International Journal of Business and Management*, 10(1). <https://doi.org/10.5539/ijbm.v10n1p204>.
- Chauhan, GS, & Banerjee, P. (2018). Financial constraints and optimal working capital – evidence from an emerging market. *International Journal of Managerial Finance*, 14(1), 37–53. <https://doi.org/10.1108/IJMF-07-2016-0131>.
- Dada, AO, & Ghazali, ZB (2016). The Impact of Capital Structure on Firm Performance: Empirical Evidence from Nigeria. *IOSR Journal of Economics and Finance*, 07(04), 23–30. <https://doi.org/10.9790/5933-0704032330>.
- Ilyas, A. M., & Rajasekaran, S. (2019). An empirical investigation of efficiency and productivity in the Indian non-life insurance market. *Benchmarking: An International Journal*, 26(7), 2343–2371. doi:10.1108/bij-01-2019-0039.
- Gitman, L.J. (2015), *Principles of Managerial Finance*, Pearson Education International, Boston.
- Guerrieri, V., & Lorenzoni, G. (2017). Credit crises, precautionary savings, and the liquidity trap. *Quarterly Journal of Economics*, 132(3), 1427–1467. <https://doi.org/10.1093/qje/qjx005>.
- Günay, A., & Dulupçu, M. A. (2019). Measurement of financial efficiency and productivity of Turkish Public Universities by using non-parametric methods. *Journal of Applied Research in Higher Education*, 11(4), 876–896. doi:10.1108/jarhe-07-2018-0116.
- Jaishi, B., & Poudel, RL (2019). Capital Structure and Firm Efficiency of Non Financial Institutions in Nepal. *Journal of Nepalese Business Studies*, 12(1), 19–32. <https://doi.org/10.3126/jnbs.v12i1.28180>.
- Kalaivani, P., & Jothi, K. (2017). Impact of working capital management on profitability of the select car manufacturing companies in India. *International Journal of Pure and Applied Mathematics*, 116(24), 13–21.
- Lei, J., Qiu, J., & Wan, C. (2018). Asset tangibility, cash holdings, and financial development. *Journal of Corporate Finance*, 50, 223–242. doi:10.1016/j.jcorpfin.2018.03.008.
- Popova, S., Karlova, N., Ponomarenko, A., & Deryugina, E. (2017). Analysis of the debt burden in Russian economy sectors. *Russian Journal of Economics*, 3(4), 379–410. <https://doi.org/10.1016/j.ruje.2017.12.005>.
- Rahim, I., & Shah, A. (2019). Corporate financing and firm efficiency: A data envelopment analysis approach. *Pakistan Development Review*, 58(1), 1–25. <https://doi.org/10.30541/v58i1pp.1-25>.
- Saputri, C., & Giovanni, A. (2021). The Effect Of Profitability, Size And Liquidity on Firm Value in Consumer Goods Industry Listed on The Indonesia Stock Exchange (IDX). *Journal of Business Management Review*, 2(2), 092–106. <https://doi.org/10.47153/jbmr22.902021>.
- Wilson, M., Wnuk, K., Silvander, J., & Gorschek, T. (2018). A literature review on the effectiveness and efficiency of business modeling. In *E-Informatica Software Engineering Journal* (Vol. 12, Issue 1). <https://doi.org/10.5277/e-Inf180111>.