The Role of Liquidity in Determining Firm Performance: An Empirical Study on Manufacturing Companies in Indonesia

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ABSTRACT

This study aims to examine the role of liquidity in influencing firm performance, especially for manufacturing companies operating in Indonesia. The research variables include firm performance as the dependent variable, capital structure and firm size as independent variables, operating assets as a control variable, and liquidity as a moderating variable. The study was conducted on 123 manufacturing companies in Indonesia for the 2019-2021 period. The data collection method used purposive sampling, while the data analysis used multiple regression techniques. The results showed that liquidity had a negative effect, and operating assets and firm size had a positive effect on firm performance. While the capital structure has a negative effect on firm performance at a significance of less than 10%. Liquidity plays an important role as a moderating variable on firm size and capital structure in influencing firm performance.

Keywords: Capital Structure, Firm Performance, Firm Size, Liquidity, Operating Asset.

I. INTRODUCTION

An important thing that gets great attention from both management and investors is profitability because profitability represents the achievements of the company in a certain period. Profitability is also often used as a measure to assess the firm's performance, with the higher the profitability achieved by the company, the better the firm's performance. Therefore, profitability has always been an attraction for discussion, especially related to its determinants, as stated by Alarussi and Alhaderi (2018) that the determinants of profitability have attracted the attention of scholars in finance, economics, accounting, and management. Companies that can generate profitability are companies that generate profits, and these companies tend to grow and survive in the long term (Lee, 2014). This is because the company besides performing well also has profit reserves that can be used as a source of funds for company development.

As an indicator of firm performance, profitability is an important factor that can determine the company's long-term viability. Investors will be interested in investing in companies that generate high profitability by buying shares of the company. Thus, profitability becomes a signal for investors to decide on their investment. Profitability itself is the company's ability to generate profits during a certain period by using assets that are financed from capital, both overall capital and equity. For this reason, the manager, as the holder of the highest authority in the company is responsible for the use of these assets to generate income that can encourage increased company profitability. Managers must be able to identify factors that can determine company profitability, although the empirical literature investigating the determinants of profitability is extensive (Bolarinwa et al., 2021).

Empirical studies that have documented the determinants of profitability were conducted, among others, by Markman and Gartner (2002), Goddard et al., (2005), Samiloglu and Demirgunes (2008), and Asimakopoulos et al., (2009). The study documents the internal factors that determine company profitability, which include firm size, firm growth, leverage, company age, capital intensity, and liquidity. However, the important determinant that has not been fully discussed in the financial literature is the role of liquidity in determining company profitability. This study aims to find out more about the role of liquidity in influencing profitability, thereby contributing to the financial literature by using 369 N sample data selected from 123 manufacturing companies listed in Indonesia between 2019 and 2021. Liquidity shows the company's ability to meet all maturing obligations, both internal and external obligations. In this study, liquidity is placed as a moderating variable that plays a role in strengthening the influence of firm size and capital structure on firm performance.

Previous research generally only places the role of liquidity as an independent variable in influencing firm performance such as research conducted by Skufić et al., (2016), Nanda and Panda (2018), Pervan et al., (2019), Nguyen and Nguyen (2020), and Bolarinwa et al., (2021). The results of this study still cause controversy, so a new model is needed to place liquidity not only as a dependent variable, but also as a
moderating variable that can strengthen or weaken other variables in influencing firm performance. According to Pervan et al., (2019) the determinants of profitability can be analyzed from various aspects with the application of different methodologies, and in different theoretical frameworks. The variables used in this study were selected based on the results of previous empirical studies and based on relevant theories and data availability.

Other variables in this study are firm size, capital structure, and operating assets. Firm size which is a size or scale that represents the firm size based on certain provisions, such as total assets. The firm’s size also shows the condition of the company where a larger company will have an advantage in terms of the source of funds that can finance its investment in earning a profit. Capital structure is a balance between short-term debt, long-term debt, and the company's own capital, and this is a very important and influential factor in the company's financial position. This composition can have a good or bad impact on the company's finances, so that it can determine the company's ability to earn profits. If the composition of debt is greater than its equity, the company can experience serious problems that can affect its ability to earn profits.

Operating assets are assets needed in the company's operational activities to generate income from its business activities. It is important to understand how operating assets affect profitability, as these metrics can show companies where they can improve processes, reduce costs, and achieve goals more efficiently, thereby generating revenue for the company. The results of previous studies related to firm size, capital structure and operating assets Hall and Weiss (1967), Nunes et al., (2009), Olaniyi et al., (2017), Alarussi and Alhaderi (2018), Odusanya et al., (2018), and the results are still controversial. Therefore, further research is needed by modifying the model to strengthen support for the results of previous studies.

II. LITERATURE REVIEW

The firm's performance reflects the company's achievements in carrying out its business activities during a certain period. While company profitability is the ability based on its capacity to use company resources efficiently and effectively to generate revenue, so profitability is often considered as an indicator of firm performance. This indicator is very important because it is an investor's expectation of a better return on their investment for them. Profitability also represents the level of efficiency and effectiveness of the company in using its assets to generate revenue. Several previous studies used return on assets (ROA) as an indicator of company profitability, such as Pratheepan (2014), Khan et al., (2018), Hossain (2020), Nguyen and Nguyen (2020), Nurhayati et al., (2021), and Bolarinwa et al. (2021).

Liquidity is the company's ability to settle short-term obligations that are due to be paid, so liquidity is often associated with risk, namely the risk of not being able to meet its obligations when they fall due. If in the short term the company is unable to meet its obligations, then the company has the potential to experience financial distress which can have an impact on the viability of the company. Therefore, companies must maintain company liquidity to avoid these problems, the higher the liquidity the lower the risk of possible financial distress. However, there is a contradiction between liquidity and profitability, companies with high liquidity will produce low profitability. High liquidity causes a lot of capital to be embedded in current assets, and this capital cannot be turned over to generate income so that the company's income will decrease due to the company losing the opportunity to use the capital, even though the capital is expensive. Several previous studies have used the current ratio (CR) as an indicator to measure liquidity, such as Škufić et al., (2016), Nanda and Panda (2018), Alarussi and Alhaderi (2018), Pervan et al., (2019), Hossain (2020), and Nguyen and Nguyen (2020) with contradictory results. Thus, based on the explanation of the concept and the results of the research, the research hypothesis can be formulated as follows.

H1: Liquidity has a negative impact on firm performance.

Operating assets are assets that are used to support the company's activities to generate income. Operating assets provide insight into a company's operating asset turnover rate is an important metric that can illustrate how well a company is able to generate revenue. Several previous studies used operating asset turnover as an indicator of operating assets. Thus, operating asset turnover shows the effectiveness of using all company assets to generate sales. How many rupiah of net sales can be generated by each rupiah invested in company assets. Slow asset turnover indicates that the assets owned are too large, so it is not optimal to generate sales. Several previous studies related to the relationship between operating asset turnover and profitability have been carried out, including research conducted by Sunjoko and Arilyn (2016), Alarussi and Alhaderi (2018), and Rajagukguk and Siagian (2021) with contradictory results. Operating asset turnover influences profitability, because this turnover is related to the relationship between working capital and sales. The higher the asset turnover, the more effective the company is in operating its assets so that it has an impact on increasing income. Based on the explanation and the results of research that are still contradictory, the research hypothesis can be formulated as follows.

H2: Operating asset turnover has a positive effect on firm performance.

Firm size is an important factor that can determine firm performance because firm size represents the size of the company which can be seen by the scale of company wealth. The larger the scale of the company, the greater the opportunity to improve firm performance, because large companies have sufficient resources to increase production capacity and expand the market. Several previous studies have provided empirical evidence related to this hypothesis, such as research conducted by Nanda and Panda (2018) which conducted research on companies listed in India for the period 2000-2015, and Nguyen and Nguyen (2020) who conducted research on 1343 companies in Vietnamese. Large-scale enterprises can easily obtain capital to increase production capacity, obtain superior resources, and expand market share, to gain competitive advantage to increase revenue and achieve high profitability. Likewise, Blundell et al., (1999), Babalola (2013), and Doğan (2013) also state that increasing and increasing capital can help companies increase...
capacity, expand market share to achieve higher market share before taking competitive advantage to achieve higher profitability, higher. Based on the concept and empirical support, the research hypothesis can be formulated as follows.

H1: Firm size has a positive effect on firm performance.

Capital structure is the proportion of long-term permanent company funding, which consists of debt, preferred stock, and common stock equity. Several previous researchers measured capital structure indicators using the debt ratio and debt to-equity ratio, as was done by Samiloglu and Demirgunes (2008), Dogan (2013), and Odusanya et al., (2018). Debt Ratio shows the ratio used to measure the level of debt to total assets owned by the company. While the debt-to-equity ratio shows the ratio of debt to company equity, this ratio is to measure the use of debt to own capital. The higher the amount of debt used for the company's operations, the higher the loan interest that will be borne by the company. This will be a problem if the income generated by the company decreases, it will have an impact on the decline in company profits. Therefore, management must be able to manage the use of debt properly to be able to increase the company's income, so that the company is able to generate a higher rate of return than the cost of capital. Based on the explanation of these basic concepts, the research hypothesis can be formulated in a hypothetical building as follows.

H2: Capital structure has a positive effect on firm performance.

Firm size is a business scale that reflects the size of the company. Large companies have a better ability to meet capital requirements, so they have greater opportunities for business development and expansion to increase revenue. Meanwhile, the capital structure reflects the composition of the capital used by the company to carry out its business activities. Large companies tend to use more debt as a source of financing because large companies have a guarantee of wealth and adequate resources to guarantee the use of the debt. From several previous research results, although there is still controversy between the two, both firm size and capital structure are determining factors that affect firm performance.

According to signaling theory, liquidity is a signal that reflects the short-term financial condition of the company that the company can fulfill its obligations, and this indicates that the company is in a healthy condition. High liquidity indicates a lower level of risk, and this will influence improving firm performance. Thus, liquidity plays a role in the influence of firm size and capital structure on firm performance. High liquidity in companies with large business scales and high levels of debt usage can improve firm performance. Large companies with high debt have strong enough capital to expand their business by expanding their products and market share. Liquidity will moderate by strengthening the positive influence of firm size and capital structure on company performance, because high liquidity can facilitate their business in carrying out company business operations. Based on this explanation, it can be understood that companies with high liquidity in large companies that use high debt will improve firm performance, so the research hypothesis can be formulated as follows.

H3: Liquidity moderates the effect of firm size on firm performance.

H4: Liquidity moderates the effect of capital structure on firm performance.

III. METHODOLOGY

A. Data and Sample

The study was conducted on 123 manufacturing companies listed on the Indonesia Stock Exchange for the period 2019–2021. The determination of the sample used a purposive sampling technique, namely the sample was selected with certain considerations according to research needs. The data source was obtained from secondary data on the financial statements of manufacturing companies for the 2019-2021 period which was downloaded from the IDX official website with data collection techniques using documentation studies.

B. Research Variables

The variable used in this research is the company's performance as the dependent variable, which is proxied by profitability, and by the indicator of return on assets (ROA). The independent variables are liquidity with indicators of current assets (CA), operating assets with indicators of operating asset turnover, firm size, and capital structure with indicators of debt-to-equity ratio (DER), as well as the interaction variables of liquidity with firm size and liquidity with capital structure.

Table I below is the definition and measurement of research variables used in the model.

TABLE I: DEFINITION AND MEASUREMENT OF VARIABLES

| Variable          | Indicator | Measurement                        |
|-------------------|-----------|------------------------------------|
| Dependent Variable| ROA       | Earning After Tax/Total Assets     |
| Independent Variable|          |                                    |
| Liquidity         | CR        | Current Assets/Current Liabilities |
| Operating Asset   | OATO      | Sales/Total Operating Assets       |
| Firm Size         | SIZE      | Ln (Total Assets)                  |
| Capital Structure | DER       | Total Debt/Total Equities          |

C. Technical Analysis

Data analysis to examine the effect of liquidity, operating assets, firm size, capital structure, and interaction variables used multiple regression analysis given in (1).

\[ FP = \alpha + \beta_1 \text{Liq} + \beta_2 \text{OA} + \beta_3 \text{CS} + \beta_4 \text{Liq} * \text{SIZE} + \beta_5 \text{Liq} * \text{CS} + \epsilon \] (1)

where:

\[ FP = \text{Firm Performance} \]
\[ \text{Liq} = \text{Liquidity} \]
\[ \text{OA} = \text{Operating Assets} \]
\[ \text{SIZE} = \text{Firm Size} \]
\[ \text{CS} = \text{Capital Structure} \]
\[ \text{Liq} * \text{SIZE} = \text{Interaction between Liquidity and Firm Size} \]
\[ \text{Liq} * \text{CS} = \text{Interaction between Liquidity and Capital Structure} \]
\[ \alpha = \text{Constanta} \]
\[ \epsilon = \text{error} \]
IV. RESULTS AND DISCUSSION

A. Descriptive Statistics

Table II below presents descriptive statistics for the variables of firm performance, liquidity, operating assets, firm size, capital structure, the interaction between liquidity and firm size, and interaction between liquidity and capital structure.

| TABLE II: DESCRIPTIVE STATISTICS |
|----------------------------------|
|          | N  | Minimum | Maximum | Mean  | Std. Deviation |
|_________|____|---------|---------|-------|----------------|
| FP      | 369| -0.15   | 0.61    | 0.05  | 0.08           |
| Liq     | 369| 0.37    | 206.86  | 3.27  | 10.98          |
| OA      | 369| 0.04    | 11.39   | 0.98  | 0.82           |
| SIZE    | 369| 23.94   | 33.54   | 28.34 | 1.65           |
| CS      | 369| 0.07    | 13.55   | 0.98  | 1.03           |
| Liq*SIZE| 369| 10.79   | 5478.42 | 91.08 | 291.52         |
| Liq*CS  | 369| 0.25    | 43.15   | 1.81  | 2.82           |
| Valid N |    |         |         |       |                |
|         | 369| -       | -       | -     |                |
|_________|____|---------|---------|-------|----------------|

Source: Output processed by SPSS October 2022

Based on Table II, it can be explained that the firm's performance is a minimum of -15.00 percent and a maximum of 61.00 percent with an average of 5.25 percent and a standard deviation of 8.39 percent. Thus, the fluctuations in performance between companies in manufacturing companies in Indonesia are relatively high. Minimum liquidity is 37.00 percent, and the maximum is 20.686 percent with an average of 326.84 percent and a standard deviation of 1097.93 percent. This also shows that the level of liquidity fluctuations at the company is high. Minimum operating assets are 0.4x and maximum 11.39x with an average of 0.98x and a standard deviation of 0.82x, this condition also shows a relatively high variation. The minimum company size is 23.94 and the maximum is 33.54 with an average turnover of 28.34 and a standard deviation of 1.65. This condition shows that the difference in asset values between manufacturing companies in Indonesia is very high. The capital structure shows a minimum value of 7.00 percent and a maximum of 1355 percent with an average of 97.69 percent and a standard deviation of 103.16 percent. This condition shows that the use of debt between manufacturing companies in Indonesia is quite high.

B. Model Testing

Model testing is carried out to ensure that the multiple regression model used for analysis is the right model and meets the goodness of fit requirements as required in ordinary least squares (OLS). Model testing is done by testing the coefficient of determination and ANOVA test, as shown in Table III and Table IV.

Based on Table III, the adjusted R square value is 0.142 or 14.20 percent, which means that the contribution of the independent variable in the regression model is only able to explain its effect on company performance by 14.20 percent while other factors are outside the model.

| TABLE III: COEFFICIENT OF DETERMINATION |
|-----------------------------------------|
| R   | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-----|----------|------------------|-------------------------|---------------|
| 0.395| 0.156    | 0.142            | 0.07769                 | 1.021         |

Predictors: (Constant), Liq, OA, SIZE, CS, Liq*SIZE, Liq*CS
Dependent Variable: Firm Performance
Source: Output processed by SPSS October 2022

From Table IV it can be explained that the significance value of F is 0.000 or less than 1 percent so that the regression model meets the goodness of fit requirements as required in the OLS, and the analysis can be continued.

C. Multiple Regression Test

To test the effect of each independent variable on the company's performance as the dependent variable, it is done using multiple regression. The complete results of multiple regression testing using the SPSS program are shown in Table V.

| TABLE IV: ANOVA |
|-----------------|
| Model          | Sum of Squares | df | Mean Square | F    | Sig.  |
| Regression     | 0.404         | 6  | 0.067       | 11.155 | 0.000 |
| 1 Residual     | 2.185         | 362 | 0.006       | -    | -    |
| Total          | 2.589         | 368 | -           | -    | -    |

Predictors: (Constant), Liq, OA, SIZE, CS, Liq*SIZE, Liq*CS
Dependent Variable: Firm Performance
Source: Output processed by SPSS October 2022

From Table V it can be explained that liquidity has a negative effect on a significance of less than 5%, while capital structure has a negative effect on a significance of less than 10 percent, and the interaction between liquidity and capital structure has a negative effect on a significance of less than 1%. Thus, hypothesis 1 (H1) is accepted, hypothesis 4 (H4) is rejected, and hypothesis 6 (H6) is accepted. The results of the next regression test are that operating assets have a positive effect on a significance of less than 1 percent, firm size has a positive effect on a significance of less than 5 percent, and the interaction between liquidity and firm size also has a positive effect on a significance of less than 5 percent. Therefore, hypothesis 2 (H2) is accepted, hypothesis 3 (H3) is accepted, and hypothesis 5 (H5) is also accepted.

D. Discussion

1) Effect of liquidity on firm performance

The results of this study found empirical evidence that liquidity has a negative effect on company performance, the higher the liquidity the lower the firm's performance. Thus, the results of this study support the liquidity theory that there is a trade-off between liquidity and profitability. Companies with high liquidity lose the opportunity to increase revenue, which is due to funds tied to working capital and cannot be used to support the company's operations, and this condition has the effect of increasing the company's opportunity cost which results in a decrease in company income.

The results of this study are also in line with research from Skuflić et al., (2016), Hossain (2020), which found empirical...
evidence that liquidity has a negative effect on firm performance. However, the results of research from Dogan (2013), Al-Jafari and Al Samman (2015), Sunjoko and Arilyn (2016) who conducted research in Indonesia for the period 2007-2013, Nanda and Panda (2018) conducted research in India, Nurlaela et al., (2019) who conducted research in Indonesia for the period 2016-2018, and Nguyen and Nguyen (2020) who conducted research in Vietnam found empirical evidence of a positive effect. While the results of research from Alarussi and Alhaderi (2018), Pervan et al., (2019), Rajagukguk and Siagian (2021), Bolarinwa et al., (2021), and Gunawan et al., (2022) did not find any effect of liquidity on company performance.

2) Effect of operating asset on firm performance

Other empirical evidence from the findings of this study is that operating assets have a positive effect on firm performance. This finding is also in accordance with the concept that companies that can optimize the use of their assets will be more effective and have an impact on increasing firm performance. Optimization of the use of company assets is shown by the high turnover of assets in generating sales, the higher the turnover of assets, the higher the value of sales generated. With the high value of sales generated by the company, it will have an impact on increasing profits and firm profitability.

These empirical findings support research conducted by Alarussi and Alhaderi (2018), and Gunawan et al., (2022). However, it does not support the results of research from Sunjoko and Arilyn (2016) and Rajagukguk and Siagian (2021) which do not find any effect of operating asset turnover on company performance.

3) Effect of firm size on firm performance

The results of this study found empirical evidence that firm size has a positive effect on company performance, the larger the scale of the company, the better the firm's performance. This is in accordance with the concept that large-scale companies have a greater opportunity to improve their performance, because these companies have sufficient and adequate resources to expand their production and market share compared to small-scale companies that have limited resources.

These empirical findings support research conducted by Hall and Weiss (1967), Babalola (2013), Dogan (2013), Al-Jafari and Al Samman (2015), Olaniyi et al., (2017), Alarussi and Alhaderi (2018), Nurlaela et al., (2019), Gharaibeh and Khaled (2020), Nanda and Panda (2018), and Nguyen and Nguyen (2020). However, this study is not in line with the results of research from Nunes et al., (2009) which found a negative effect. While the results of research from Samiloglu and Demirgunes (2008), O dusanya et al., (2018), Hossain (2020) found no empirical evidence of this influence.

4) Effect of capital structure on firm performance

Based on Table IV shows that the capital structure has a negative and significant effect at a significant level of 8.70 percent or less than 10 percent. Thus, there is a strong tendency that the higher the capital structure, the lower the company's performance. A high capital structure indicates the use of large debt in the company, meaning that the use of high debt has an impact on decreasing the company's income so that the company's profitability decreases. This condition shows that manufacturing companies in Indonesia cannot use their debt properly, so that many of these companies generate income that cannot cover their interest expense. This situation may not be released because of the Covid-19 pandemic, many manufacturing companies cannot operate optimally.

The results of this study are in accordance with research from O dusanya et al., (2018) and Gharaibeh and Khaled (2020) which did not find the effect of capital structure on firm performance. While the results of research from Nunes et al., (2009), Dogan (2013), Al-Jafari and Al Samman (2015), Alarussi and Alhaderi (2018), Nanda and Panda (2018), and Hossain (2020) which found a negative effect, while Nguyen and Nguyen (2020) and Gunawan et al., (2022) found a positive effect.

5) Moderation effect of liquidity with firm size and capital structure

The results of the study found empirical evidence that the interaction between liquidity and firm size influences increasing firm performance. This means that liquidity strengthens firm size and improves firm performance in large-scale companies. Meanwhile, the interaction between liquidity and capital structure reduces the firm's performance. This means that liquidity strengthens the capital structure lowers the firm's performance in companies with a high capital structure. Thus, in manufacturing companies in Indonesia, liquidity acts as a moderating variable of firm size and capital structure in influencing firm performance.

V. CONCLUSION

Based on the results of the regression analysis as presented in Table IV, conclusions can be drawn regarding the results of the study. Liquidity has a negative effect on firm performance; thus, liquidity plays a role in reducing firm performance. Operating assets have a positive effect on firm performance, meaning that operating assets play a role in improving firm performance. The interaction between liquidity and firm size has a positive effect on firm performance, meaning that liquidity acts as a moderating variable that strengthens the influence of firm size in improving firm performance. The capital structure has no effect on the firm's performance, meaning that the capital structure has no role in influencing the firm's performance. The interaction between liquidity and capital structure has a negative effect on company performance, meaning that liquidity acts as a moderating variable in strengthening the effect of capital structure on reducing company performance.

Although the results of this study have provided a useful contribution by showing empirical evidence to add insight and financial literature, this study still has limitations, namely the coefficient of determination is only 14.20 percent, which means there are still more variables outside the model that determine firm performance. Therefore, for future research, it is recommended to add other variables such as ownership structure, corporate governance and company age, and inflation as external factors that also have the potential to determine firm performance. In addition, it is also necessary to increase the research period to 6 years by including the time before or after the Covid-19 pandemic.
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CONFLICT OF INTEREST

We declare that we do not have a conflict of interest both economically and politically.

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