DOES LIQUIDITY AND FIRM SIZE AFFECT PROFITABILITY? A PANEL DATA ANALYSIS ON FIRM OF CONSUMER NON-CYCLICAL SECTOR

Dewi Maya Sari[1], Mislinawati[2]

[1,2]Public Sector Accounting Study Program, Politeknik Aceh
Corresponding email: mislina@politeknikaceh.ac.id

ABSTRACT

The goal of this study is to examine how profitability is impacted by liquidity and firm size. The data utilized is 214 of observation from the 2016–2020 financial reports of manufacturing companies in the consumer non-cyclical sector. Using return on assets (ROA) as a measure of profitability, current ratio as an indicator of liquidity and total assets as indicator of firm size. Panel data analysis using a fixed effect model approach is the empirical methodology used. The findings indicate that liquidity has a positif impact on profitability, while firm size has a negative impact. This research implied in order to make decisions and implement policies that have an impact on effective production and improved performance of firms, management of the firm must monitor and regulate changes in the value of liquidity and firm size.

Keyword: *firm size; liquidity; profitability.*

1. INTRODUCTION

Profitability ratios are the financial ratios that are frequently used to gauge a company's financial success. The capacity of the company to obtain specific benefits by making the best use of its resources, as measured by the profitability ratio, is shown (Amanda, 2019). The ability of a corporation to effectively and efficiently utilise its resources to create money determines how profitable it is. Profitability is seen as a significant predictor of a company's performance and also equates to higher investment returns. Poor profitability, on the other hand, denotes subpar performance, which will erode capital, and if this condition endures for a long period, the company will finally fail (Hossain, 2020). Figure 1.1 illustrates the highs and lows in the profitability of manufacturing firms in the consumer non-cylical sector listed on the Indonesia Stock Exchange between 2016 and 2020.

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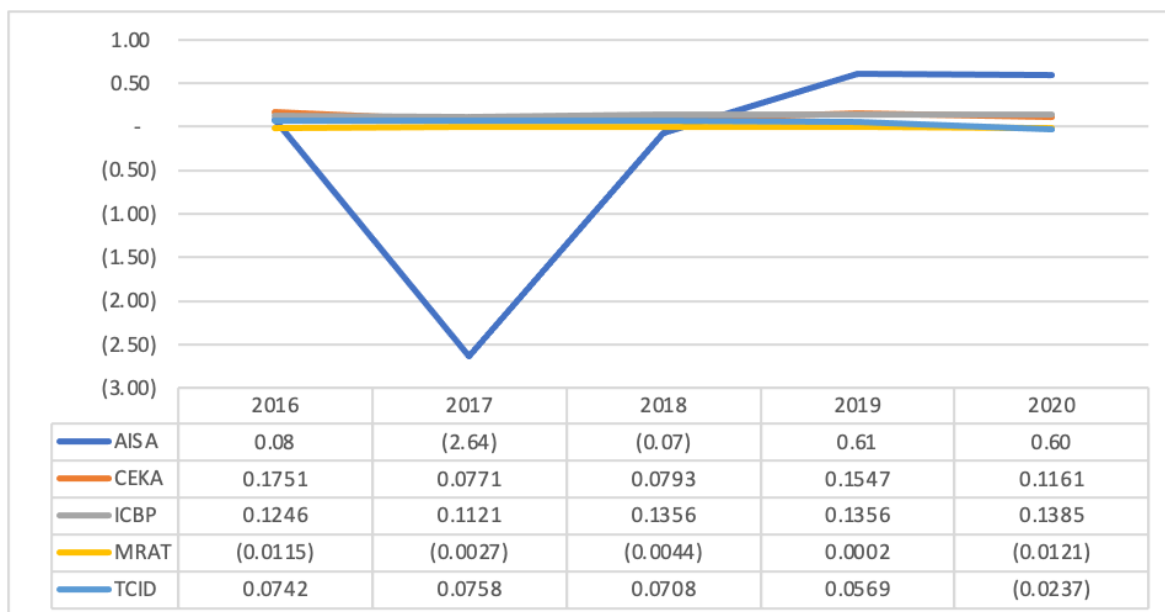|	2016	2017	2018	2019	2020
AISA	0.08	(2.64)	(0.07)	0.61	0.60
CEKA	0.1751	0.0771	0.0793	0.1547	0.1161
ICBP	0.1246	0.1121	0.1356	0.1356	0.1385
MRAT	(0.0115)	(0.0027)	(0.0044)	0.0002	(0.0121)
TCID	0.0742	0.0758	0.0708	0.0569	(0.0237)

Figure 1. Profitability of Consumer Non-cylical Sector Manufacturing Companies in 2016-2020

Source: Processed Data, 2022.

Figure 1.1 demonstrates the substantial variations in manufacturing companies' profitability in the consumer non-cylical sector. The graph shows that although other companies saw changes in profitability, PT. Indofood CBP Sukses Makmur, Tbk (ICBP) has a very stable level of profitability every year. There are several factors that are thought to affect the company's profitability. The first factor that is expected to affect profitability is liquidity. Liquidity is the capacity of the firm to fulfill its current liabilities.The primary focus of liquidity research is net working capital, which is the gap over current assets and current liabilities. As a result, the most popular ratio is the current ratio, which contrasts current assets and liabilities (Nuswandari, Sunarto and Jannah, 2018). A current ratio that is too high indicates the amount of idle funds that are not used optimally for business interests so that it can reduce profitability. Because working capital does not rotate or experience unemployment, a high current ratio will also have a significant effect on the capacity to generate profits (profitability). The size of the firm is thought to be the second aspect that will impact its profitability. Due to the phenomena of economies of scale, corporate size plays a significant role in today's competitive landscape by lowering costs and seizing more opportunities. According to this theory, a company's size determines its profitability and establishes a positive correlation between the two (Sritharan, 2015).

The amount of assets that the business owns, the volume of sales that take place over a specific time period, and market capitalization can all be used to determine the firm's size. The greater the number of assets a company owns, the more capital it has invested therein, the more sales it may make, and the higher its cash flow velocity. A company's firm size can be used to determine if it falls into the categories of small, medium, or big companies. According to the literature review, Many studies have been conducted to comprehend the variables that affect profitability. One of them is (Babalola, 2013) investigation of the effect of firm size on the profitability of manufacturing firms listed on the Nigerian stock exchange. The results of his investigation show that firm size has a favorable effect on profitability. (Simbolon, Saragih, & Lilia, 2019) used evidence from the Indonesian Stock Exchange between 2012 and 2015 to conduct research on the simultaneous effects of the current ratio, capital structure, and firm size on profitability. The findings of his study demonstrate that the current ratio, capital structure, and size

all significantly influenced on the profitability of consumer non-cylical that were listed on the Indonesia Stock Exchange from 2014 and 2015. This study's objective is to provide more details and empirical evidence regarding the elements that, over 2016 and 2020, would affect the profitability of Indonesian manufacturing companies operating in the non-cyclical consumer market. This study's main contribution is to further investigate the effects of the variables that influence the profitability of Indonesian businesses that make basic consumer goods. The goal is to more precisely ascertain the connection between liquidity, firm size, and level of profitability.

2.RESEARCH METHODS

The financial statements of manufacturing companies of consumer non-cylical sector that are listed on the IDX for the years 2016 to 2020 serve as the research's analytical unit. This study's time frame combines cross-sectional research with longitudinal (time series) data (Darmadi, 2013). The data used is unbalanced panel data or pooled data due to the difference in the number of companies evaluated during the study period. All manufacturing businesses registered on the Indonesia Stock Exchange (IDX) between 2016 and 2020 made up the study's sample. To choose the sample, a purposive sampling technique was employed. The following standards were used to choose the research sample: 1) The number of manufacturing firms listed on the Indonesia Stock Exchange for both 2016 and 2020; 2) The listing of manufacturing firms in the consumer cyclical sector (non-primary consumption goods); 3) Manufacturing companies in the non-cyclical consumer sector (primary consumer products) not being listed on the Indonesia Stock Exchange and not being represented on the main board; and 4) Manufacturing firms in the primary consumer sector that are listed on the main board and submit complete 2016–2020 financial reports. 214 manufacturing businesses in the consumer non-cyclical sector that were listed on the Indonesia Stock Exchange in 2016–2020 served as the samples for the entire research based on the criteria.

Panel data was utilized in this research. Cross-sectional data and time series, which include several items and multiple time periods, are combined to create panel data (Winarno, 2007). In the meantime, the Indonesian Stock Exchange served as the secondary data source for this study. The documentation methodology was employed in this study as a data collection method. Information obtained from the official website of the Indonesia Stock Exchange (www.idx.co.id). Profitability is the dependent variable in this research, while the independent factors are liquidity and firm size. Table 1 displays the operationalization of the variables used in this research.

Table 1. Operationalization of Research Variables

Variable	Definition	Variable Indicator	Skala Indicator
Likudity	the capacity of the Company to meet its financial liabilities, whether current or matured, that are payable immediately.	$CR = \dfrac{Asset\ lancar}{kewajiban\ lancar} x10$	Ratio
Firm Size	The entire worth of the company's assets at year's end serves as a measure of its size.	Size =Ln (Total Aset)	Ratio
Profitability	The company's capacity	$ROA = \dfrac{Laba\ bersih}{Total\ Aset} x100\%$	Ratio

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	to make a profit using all of its capabilities and resources, including sales volume, cash on hand, capital, personnel count, and branch count.		

Panel data regression analysis was the analytical technique utilized in this research, and the EVIEWS version 12 tool was used to handle the data. Juanda (2012: 180) lists three methods for implementing panel data regression:

1) Common Effet Model

Each individual unit (firm) in this model is assumed to have the same constant (intercept) and regression coefficient across all time periods (slope). In other words, each subject will be impacted by the panel data regression that results.

2) Fixed Effect Model

Only the constant (intercept) is variable for each individual in this model, but in the common constant model it is expected that the constant (intercept) and the regression coefficient (slope) are the same both over time and amongst individuals (businesses). In this model, since each individual is thought to have unique traits, the regression constants can be differentiated between people.

3) Model Efek Random (Random *Effect Model*)

If changes in individual characteristics are taken into account in the intercept in the fixed effects model, causing the intercept to vary between individuals, then differences in individual characteristics are taken into consideration in the errors of the model in the random effects model. Two tests—the Chow test and the Hausman test—are used to decide the kind of model to utilize in a panel data study. The selection seen between common effect and fixed effect models is made using the Chow test. The Hausman test, meanwhile, determines whether to apply the fixed effect or random effect model. The procedures for the two tests are as follows:

a)   Chow Test (Common Effect Test with Fixed Effect Test)

H_0: models follow common effect. H_1 : models follow fixed effect.

Decision: Reject H_0 if Probability value < α. Conclusion: If H_0 rejected, the fixedeffect model is better than the common effect model.

b)   Hausman (Uji Fixed Effect dengan Random Effect)

H_0: models follow random effect. H_1: models follow fixed effect.

Decision: Reject H_0 if Probability value < α. Conclusion: If H_0 rejected, the fixed effect is better thab random effect model.

The following is a description of the panel data regression equation model used in this test:

$$Y = \alpha + \beta_1 X_1 it + \beta_2 X_2 it + eit$$

Information:

Y   = Indicators used to measure Profitability

α   = Constanta

β_1, β_2 = Regression coefficient

X$_1$it   = The indicator used to measure the Liquidity

X$_2$it   = The indicator used to measure the Firm size

e   = *epsilon (error term)*

All hypothesis was examined after measuring the variables in this research. The goal of hypothesis testing is to ascertain if the independent variables of liquidity and firm size have an impact on the dependent variable of profitability. The t test, simultaneous F test, and coefficient of determination test were used in this study's hypothesis testing (partial). The coefficient of determination test measures how much the independent variables may simultaneously explain the dependent variable. The independent variables almost totally meet the condition for forecasting the fluctuation of the dependent variable if the value is close to 1. Weakness: The value must increase with each successive independent variable, regardless of whether an independent variable has an effect on the dependent variable. Because the values can change if one independent variable is added to the model, it is recommended to use adjusted values to prevent bias toward the number of independent variables (Ghozali, 2016). This test measures the simultaneous impact of the independent variables on the dependent variable. The following is the design of hypothesis testing:

H_0 : β_1 ,β_2 = 0; The profitability of a firm is unaffected by liquidity or firm size.

Ha: At least on of $\beta i \neq 0$ (i = 1 dan 2);

Profitability is impacted by both liquidity and the firm size. The purpose of this test is to determine how much of an impact the independent factors have on the dependent variable. The following is the design of hypothesis testing in decision-making:

H_{01}: β_1= 0; Liquidity has no effect on profitability

H_{a1}: $\beta_1 \neq 0$; Liquidity effect on profitability

H_{02}: β_2 = 0; Firm Size has no effect on profitability

H_{a2}: $\beta_2 \neq 0$; Firm Size effect on profitability

3.RESULTS AND DISCUSSION

Table 2 displays descriptive data for each variable.

Tabel 2. Descriptive Statistics

Variable	Minimum Value	Maximum Value	Mean	Standard Deviation
Likuidity	**0,060**	**31,966**	**2,263**	**2,738**
Firm Size	**24,206**	**32,726**	**29,423**	**1,432**
Profitabilility	**-2,641**	**16,545**	**0,117**	**1,152**

Source: Data processed (2022).

According to Table 2, the profitability variable will have an average profitability value of 0.117, or 11.7%, for the next five years (2016–2020). Accordingly, the average net profit represents 11.7% of the total assets of the business. The lowest value of the company's net profit is 264.1% of total assets, or -2.641, which is the least value of profitability. The maximum figure is 16,545 or 1,654.5%, meaning that the net profit as a percentage of total assets is that amount. The profitability variable's standard deviation is 1.152, or 11.52%, which indicates that the profitability value deviates from the average by 11.52%. The average value of the liquidity variable is 2,263 or 226,3%, meaning that the average current assets are 226,3% of the company's current liabilities. a minimum value of 0,060 or 6% means that the lowest value of the company's current assets is 6% of the company's current liabilities. the maximum value of 31,966 or 3.196,6% means that the company's current assets are 3.196,6% of the company's current liabilities. The standard deviation

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of 2,738 or 273,8% means that there is a difference in the value of liquidity to the average of 273,8%. The firm size variable has a mean value of 29,423, a median value of 24,206, a maximum value of 32,726 and a standard deviation of 1,432.

3.1.Selection of Analysis Model Approach
Two tests, the Chow test and the Hausman test, are used to decide which model to utilize in a panel data analysis. The Hausman test is used to assess which of the fixed effect models and random effect models is the best, while the Chow test is used to determine if the common effect model or the fixed effect model is a good model.

Table 2. Chow Test Results

Model Selection	Test Result	Conclusion
Chow Test	Prob.value 0,0000 < 0,05	Fixed Effect Model is better than Common Effect

Source: Data Processed, 2022.

Based on the results of the Chow test in Table 2, it is known that the probability value of cross section F is 0.000. As a result, H0 is rejected and it is determined that the fixed effect model is preferable to the common effect model. This number shows that the likelihood is smaller than the value of 0,05. The Hausman test must be run to evaluate if the fixed effect or random effect model is more practical since the fixed effect model is the most appropriate one. The Hausman test results are shown in Table 3.

Table 3. Hausman Test Results

Model Selection	Test Results	Conclusion
Hausman Test	Prob. value 0,0000 < 0,05	Fixed Effect Model is better than Common Effect

Source: Data Processed, 2022.

On the basis of the Hausman Test results in Table 3, it is known that the probability value for a random cross-section is 0.000. Since this figure shows that the probability value is less than 0,05, the decision is taken to reject H0. The fixed effect model is therefore preferred above the random effect model and is the model that is suitable for this inquiry.

3.2.Hypothesis Testing Results
Table 4 displays the findings of panel data regression on the impact of liquidity and business size on profitability.

Table 4. Panel Data Regression Test Results (Fixed Effect Model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constanta	30,59943	2,795818	10,94472	0,0000
Likuidity	0,007571	0,028222	0,268268	0,7888

Firm Size	-1,036568	0,094955	-10,91636	0,0000
R-*squared*	0,528300			
Adjusted R-*squared*	0,405490			
F-*statistic*	4,301782	Durbin-Watson Stat	1,649202	
Prob (F-*statistic*)	0,0000			

Source: Data Processed, 2022.

Based on Table 4, the regression equation can be made as follows:

$$Y= 30,59943 + \boxed{0,007571 CR_{it}} - 1,036568 \boxed{SIZE_{it}} + \boxed{e_{it}}$$

Table 4 provides key information to understand how liquidity and company size affect manufacturing firms' profitability in the primary consumer goods industry. The coefficient of determination (R^2) for the fixed effect model for 214 data is 0,528300. In other words, the variables of liquidity and firm size may explain 52,83% of the poverty coefficient, while the remaining 47,17% is explained by additional variables not included in the equation model used in this study. The probability value (F-statistics) of 0,000 (P < 0,05) indicates that both the variable of liquidity and the variable of firm size have a substantial impact on profitability, as shown in Table 4.

Effect of Liquidity on Profitability

The hypothesis of the effect of liquidity on profitability is formulated as follows:
$H_{a1} : \beta_1 \neq 0$; likuidity effect on profitability.

Based on Table 4, it is known that the regression coefficient value of the influence of liquidity on profitability is 0,007571. This value indicates that $H_{a1} \neq 0$ is accepted. Thus it can be said that liquidity has a positive effect on profitability. For every 1% increase in liquidity, it will result in an increase in profitability of 0,76% assuming the variable firm size is constant.

Effect of Firm Size on Profitability

The hypothesis of the effect of firm size on profitability is formulated as follows:
$H_{a2} : \beta_1 \neq 0$; firm size effect on profitability.

Based on Table 4, it is known that the regression coefficient value of the effect of firm size on profitability is -1,036568. This value indicates that $H_{a2} \neq 0$ is accepted. Thus it can be said that company size has a positive effect on profitability. For every 1% increase in liquidity, it will result in a 103,66% increase in profitability assuming constant liquidity variables.

3.3.Discussion
Effect of Liquidity on Profitability

Testing the first hypothesis led to the discovery that profitability was positively impacted by liquidity, with a regression coefficient of 0,007571, according to the data. This positive influence demonstrates how a firm's capacity to meet its short-term responsibilities in its annual report improves with increasing liquidity. Investors will notice greater profits if the firm is better prepared to meet its current liabilities. However, the firm's excess current assets will eventually cause profitability to decline (Nugraha, Banani, & Shaferi, 2021). The outcomes of this research confirm those of (Onyekwelu, Chukwuani, & Onyeka, 2018) and (Mailinda & Zainul, 2018), who discovered that liquidity had a positive effect on profitability. Unlike the findings of (Kripa &

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Ajasllari, 2016) and (Sukmayanti & Triaryati, 2019), which show how liquidity has a negative impact on profitability. However, the findings of additional research carried out by (Rantika, Mursidah, Yunina, & Zulkifli, 2022) demonstrate that there is no effect among profitability and liquidity.

Effect of Firm Size on Liquidity

Based on the findings of testing the first hypothesis, it was discovered that, with a regression coefficient of -1.036568, firms ' size had a negative impact on profitability. This unfavorable result shows that no matter how big a business gets, it can't boost its profitability. This indicates that consumer-oriented non-cyclical businesses have ineffective asset management. The findings of this research are consistent with those of (Kartikasari & Merianti, 2016), (Adam, Safitri, & Wahyudi, 2018), (Juliana & Melisa, 2019), (Maria, Wiagustii, & Panji, 2019),(Sukmayanti & Triaryati, 2019), (Aghnitama, Aufa, & Hersugondo, 2021) and (Akram, Farooq, Akram, Ahad, & Numan, 2021), according to which the size of the company has a negative impact on profitability.

4.CONCLUSION

The objective of this research is to ascertain the effect between profitability, enterprise size, and liquidity. The hypothesis testing results show that company size, as shown by the natural logarithm of total assets, has a negative influence on profitability, whereas liquidity, as shown by the current ratio, has a positive impact on profitability, as shown by Return On Assets (ROA). This research has a number of limitations, including its short research period (only 5 years), its consideration of just two characteristics that affect profitability, namely liquidity and firm size, and its use of manufacturing companies in the consumer non-cylical sector as the unit of analysis. The following research recommendations are based on the study's limitations: Future research is anticipated to be able to employ additional variables (such as leverage, company efficiency, and company age) that theoretically affect company profitability as well as look at other industries with companies listed on the Indonesia Stock Exchange in order to generalize the findings. It is anticipated that manufacturing firms in the non-cyclical consumer sector will pay closer attention to the variables affecting their profitability.

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