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The Effect of Liquidity and Leverage on Profitability with Covid 19 as a Moderating Variable

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Abstrak

This study aims to determine the effect of liquidity and leverage on profitability with Covid19 as a moderating variable in transportation and logistics companies. This type of research uses an associative method with a quantitative approach. The data used in this study are secondary data. The sampling technique is purposive sampling. The number of samples in this study based on the criteria obtained was 132 data for 11 periods with the Eviews 12 testing tool. The analysis technique used was panel data regression and the Sobel test. The results of this study indicate that Liquidity has an effect on Profitability; Leverage does not have a significant effect on Profitability; Covid19 moderates the effect of liquidity on Profitability; Covid19 moderates the effect of leverage on Profitability.

Keywords: Covid 19, Current Ratio (CR), Debt To Equity Ratio (DER), Return On Assets (ROA)

1. Introduction

The Covid-19 pandemic that has hit the world since early 2020 has caused various impacts. As of July 2021, the number of infected cases was recorded at 187 million with a death toll of 4.04 million people. [1] Various regulations have been made by governments in various countries to suppress the spread, ranging from restrictions on activities to total closures or lockdowns. These various regulations have an impact on the pattern of community activities which are ultimately limited, from education, tourism to economic activities.

The global economic impact in 2020 according to the OECD (Organization for Economic Co-operation and Development) report experienced a growth contraction of 4.5 percent, meaning that the economic cycle experienced a decline of 4.5%. [2] Meanwhile, according to BPS (2021), the Indonesian economy in 2020 experienced a growth contraction of 2.07 percent (c-to-c) compared to 2019. [3] The industrial, trade, construction, and mining sectors were the most affected by the pandemic due to the difficulty of carrying out activities in order to prevent an increase in cases of Covid-19 infection.

One of the sectors most affected by Covid-19 is the transportation and logistics sector. Minister of Transportation Budi Karya Sumadi explained that the transportation business experienced a decline in turnover starting from 30%. Even in the aviation sector, the decline in revenue was more than 50% due to the Covid-19 pandemic. [4] Research conducted by Sugiarti (2021) by analyzing the t-test to see the difference in the number of passengers and cargo before and during the Covid-19 pandemic, showed that there was a decrease in the number of passengers and goods that occurred during the pandemic compared to the period before the Covid-19 pandemic, both domestic and international flights. [5] In addition, Subiakto (2020) explained that Logistics Companies in the second quarter of 2020 experienced a decline in revenue. The delay in payments by clients and additional burdens for health protocols affected the company's cash flow. [6] Angelica (2023) concluded that the Covid-19 pandemic was proven to increase cash holding and profit management behavior carried out by companies because during the pandemic there was a lot of decline in sales and profits, so that profit management during the pandemic increased compared to before the pandemic. Covid-19 has a positive impact on the relationship between cash holding and profit management in the transportation, hospitality, and tourism industries listed on the Indonesia Stock Exchange. [7] The Covid-19 pandemic has certainly also affected the performance of transportation and logistics companies. Wildan et al. (2022) conducted a study on PT Garuda Indonesia that in 2020 the results of the Current Ratio calculation showed that the current assets obtained were 0.12 times the current liabilities in 2017. So it can be concluded that in the last 5 years the Current Ratio has not met the established industry standards. This is because PT. Garuda Indonesia (Persero) Tbk has a larger current debt than the current assets

owned, thus indicating that the financial performance of PT. Garuda Indonesia (Persero) Tbk is considered less good in terms of current assets. In addition, the results of the ROA calculation are -22.95% which shows that PT. Garuda Indonesia (Persero) Tbk experienced a loss of -22.95% of total assets in 2020. So it can be concluded that in the last 5 years the ROA ratio has not met the established industry standards. This means that the percentage of profit obtained from total assets is very small. [8]

In addition, as the results of the financial performance analysis of PT. Mineral Sumberdaya Mandiri Tbk (AKSI) from 2018-2023 also show that in 2020 there was a decrease in the profitability ratio and liquidity ratio. In addition, the leverage ratio has increased to above 1, which means that the company is in a warning condition because the amount of debt exceeds the amount of existing capital. The performance diagram of PT. Mineral Sumberdaya Mandiri Tbk (AKSI) is as follows:

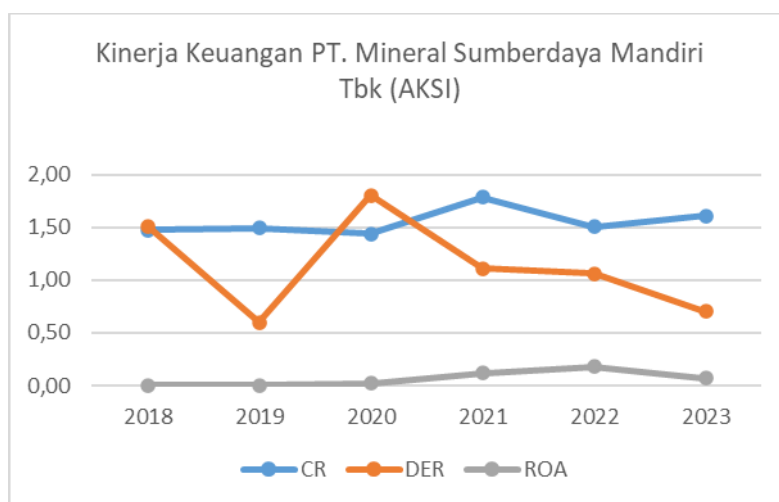


Figure 1. Financial Performance of PT. Minerla Sumberdaya Mandiri (AKSI) 2018-2023
 Source: Financial Report of Palm Oil Companies (2011-2021) processed

Seeing the concerning financial performance, especially in 2020, indicates that financial performance has declined in the Covid19 era. Therefore, this study will analyze the "Effect of liquidity and leverage on profitability with Covid19 as a moderating variable". This study was conducted on transportation and logistics companies listed on the Indonesia Stock Exchange in 2018-2023 because this sector is the most hampered by the PSBB regulations during Covid19. In addition, the addition of the Covid19 dummy variable as a moderating variable will also add to the "difference" of this study from other studies.

2. Research Methods

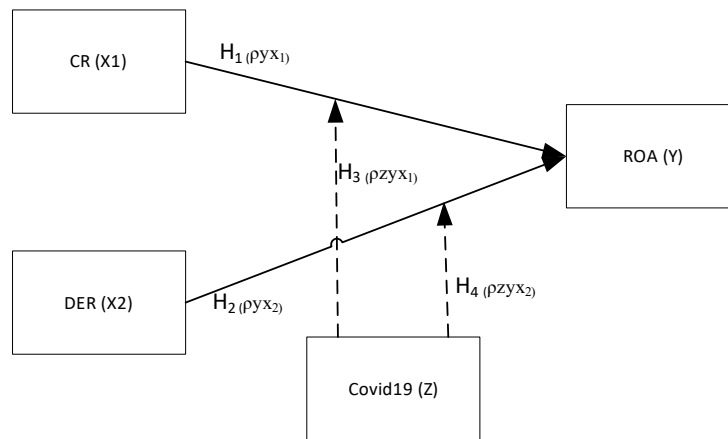
The type of research used in this study is a descriptive method with a quantitative associative approach. According to Sugiyono (2013) quantitative research is used to research a particular population or sample. The associative research approach is defined as research that aims to determine the relationship between two or more variables. Associative research in this study was conducted to determine the effect of covid19 in moderating the influence of liquidity and leverage variables on company profitability. This research was conducted with a case study of a transportation and logistics company listed on the Indonesia Stock Exchange (IDX) as seen from the company's annual financial report during the period 2019-2023.

Table 1. Summary of Research Variables

No.	Variable	Indicator	Scale	Data source
1	Liquidity (X1)	$CR = \frac{\text{Current Asset}}{\text{Current Liabilities}}$	Ratio	Indonesia stock exchange
2	Leverage (X2)	$DER = \frac{\text{Total Liabilities}}{\text{Total Equity}}$	Ratio	Indonesia stock exchange
3	Profitability (Y)	$ROA = \frac{\text{Nett Profit After Tax}}{\text{Total Asset}}$	Ratio	Indonesia stock exchange

4	Covid19 (Z)	The year the PSBB was Implemented	Dummy	Peraturan Pemerintah No. 21 Tahun 2020
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In this study, the research model estimation technique used is the panel data approach. To address the intercorrelation between independent variables that can ultimately result in inaccurate regression refining, the panel data method is more appropriately used. Some of the advantages of using panel data in this study include using panel data, the amount of observation data is more when compared to time series data and cross section data alone, so that this can increase a greater degree of freedom (Widardjono, 2005:254). The large number of observations has implications for more informative data, more variety, reduced corlinearity between variables and increased freedom, which can help researchers to obtain more efficient estimates. In estimating with the datapanel regression method, there are three methods that can be used to work with data panels. The datapanel can be estimated using the three methods: the pooledleast square (PLS) approach, the fixed effect method (FEM) approach, and the randomeffect method (REM) approach. This study analyzes the profitability of transportation and logistics companies on the Indonesian stock exchange. The independent variables in this study are carbon dioxide emissions and CSR from 2019 – 2023. The estimation model in this study is shown in the following diagram and equation:



$$Y = \alpha + \rho_{yx1} X1 + \rho_{yx2} X2 + \rho_{yx3} Z + e$$

The explanation:

- α = Constant
- ρ = Independent Variable Regression Coefficient
- Y = Return of Asset
- X1 = Current Ratio
- X2 = Debt of Equity
- Z = Covid 19
- e = Previous residual

3. Results and Discussion

Based on the results of paired testing of the three models, namely the Chow test, the Hausman test and the Lagrange Multiplier Breusch-Pagan (LM BP) test, it can be concluded that the Common effect model in the panel data regression method is used further to estimate and analyze liquidity & leverage on profitability with covid19 as a moderating variable in 15 logistics and transportation companies on the Indonesia Stock Exchange during the 2018-2023 period. The conclusions of the model testing results are in the table below.

Table 2. Conclusion of Substructural Panel Data Regression Model Testing 1

No	Metode	Pengujian	Hasil
1	<i>Chow Test</i>	<i>Common Effect vs Fixed Effect</i>	<i>Common Effect</i>
2	<i>Lagrange Multiplier</i>	<i>Common Effect vs Random Effect</i>	<i>Common Effect</i>
3	<i>Hausman Test</i>	<i>Fixed Effect vs Random Effect</i>	<i>Common Effect</i>

Source: Data processing results, 2025

Panel data regression analysis was conducted to see the effect of liquidity & leverage on profitability with covid19 as a moderating variable. As the results of the regression model estimation that have been done previously, the best model used for panel data regression estimation is the Common Effect Model (CEM). Therefore, the panel data regression testing method in this study uses the Generalized Least Square (GLS) estimation method. The results of the panel data regression are as follows:

Table 3. Panel Data Regression Results

Dependent Variable: Y_ROA				
Method: Panel Least Squares				
Date: 01/17/25 Time: 21:07				
Sample: 2018 2023				
Periods included: 6				
Cross-sections included: 15				
Total panel (balanced) observations: 90				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016479	0.053231	0.309578	0.7576
X1_CR	0.033410	0.014188	2.354806	0.0208
X2_DER	0.003106	0.003311	0.938069	0.3508
Z_COVID19	0.020853	0.063773	0.326980	0.7445
Root MSE	0.292183	R-squared		0.065575
Mean dependent var	0.096807	Adjusted R-squared		0.032979
S.D. dependent var	0.303955	S.E. of regression		0.298901
Akaike info criterion	0.466017	Sum squared resid		7.683388
Schwarz criterion	0.577119	Log likelihood		-16.97076
Hannan-Quinn criter.	0.510820	F-statistic		2.011736
Durbin-Watson stat	2.222110	Prob(F-statistic)		0.118293

Source: Eviews 12, 2025

Based on the estimation results using the Panel Least Squares method with an observation period of 2018 to 2023 in 15 companies, it is known that the dependent variable used is Return on Assets (ROA). The results of the analysis show that of the three independent variables used in the model, only the Current Ratio (CR) variable has a significant effect on ROA. The CR coefficient is 0.033410 with a probability value of 0.0208 which means it is significant at a 5% confidence level. This shows that the higher the company's current ratio, the more it tends to increase profitability as measured by ROA. Meanwhile, the Debt to Equity Ratio (DER) variable and the COVID-19 dummy variable do not show a significant effect on ROA, with probability values of 0.3508 and 0.7445, respectively. Overall, this regression model has an R-squared value of 0.0656, which means that around 6.56% of the variation in ROA can be explained by the independent variables in the model. The adjusted R-squared value of 0.0330 also shows the model's low predictive ability. The F-statistic test results show a value of 2.011736 with a probability value of 0.1183, which means that the model is not significant simultaneously at a significance level of 5%. However, the Durbin-Watson value of 2.222110 indicates that the model does not experience autocorrelation problems. Based on these results, it can be concluded that although the overall model is not strong enough to explain variations in ROA, the current ratio remains an important variable in explaining the profitability

of companies in the analyzed sector. The results of the t-test to examine the individual influence of each variable are as follows:

Table 4. T Test Result

Variable	Prob.	Keterangan
X1 CR	0.0280	Significant
X2 DER	0.5176	Non significant
Z COVID19	0.6441	Non significant
X1 Z	0.0138	Significant
X2 Z	0.0015	Significant

Source: Eviews 12, 2025

Based on these results, it is observed that the hypothesis test on the COVID-19 variable (Z) concerning ROA (Y) yields a probability of 0.64, indicating a non-significant effect. Conversely, the hypothesis test on the interaction variable between liquidity and COVID-19 (X1_Z) concerning ROA (Y) shows a probability of 0.0138, which means it is significant at a 5% confidence level. These findings collectively suggest that the COVID-19 pandemic strengthens the relationship between liquidity and profitability, acting as a pure moderator. Furthermore, the hypothesis test on the interaction variable between leverage and COVID-19 (X2_Z) concerning ROA (Y) reveals a probability of 0.0015, which is indicating a significant effect. This result implies that the COVID-19 pandemic also strengthens the influence of leverage on profitability, functioning as a pure moderator in this relationship as well.

4. Conclusion

Based on the results of panel regression analysis and moderated regression analysis (MRA), it can be concluded that liquidity has a positive and significant effect on company profitability. This shows that the higher the company's ability to meet its short-term obligations, the greater the opportunity to increase profitability. Conversely, leverage does not have a significant effect on profitability, which means that the use of debt by the company does not directly affect the level of profit obtained. Furthermore, the results of the moderation test show that the Covid-19 variable significantly moderates the effect of liquidity on profitability. Thus, in pandemic conditions, the relationship between liquidity and profitability becomes stronger, so that Covid-19 can be categorized as a pure moderator. The same thing also happens to the relationship between leverage and profitability, where Covid-19 is proven to significantly moderate the effect of leverage on profitability. This means that the Covid-19 pandemic strengthens the relationship between capital structure and company profitability.

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