Effect of Liquidity and Leverage on Profitability of Agricultural Sector Companies Listed on the IDX

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Abstract: This research aims to see how liquidity and leverage affect profitability in agricultural sector companies in

Indonesia. Liquidity is measured by Current Ratio (CR), leverage as measured by Debt to Equity Ratio (DER), and company profitability is measured by Return on Assets (ROA) and Return on Equity (ROE). This study uses secondary data with data collection techniques using financial statements of agricultural sector companies listed on the Indonesia Stock Exchange from 2015-2019. Purposive sampling was used as a methodology in this study, and 15 companies match with the criteria. The test method in this study uses panel data regression analysis with Eviews 9. This study found that the CR has an insignificant impact on ROA and ROE in the agriculture sector. This study also found that the DER has an insignificant effect on ROA but significantly negatively impacts ROE in the agriculture sector. Simultaneously, CR and DER have an impact

on ROA and ROE.

1 INTRODUCTION

Indonesia is an agrarian country that makes the agricultural sector one of the pillars of the country's economy. Indonesia has enormous natural resource potential. Indonesia's strategic geographical conditions support the quality of Indonesia's natural resource potential. The agricultural sector can become a food supplier, a provider of industrial raw materials, a provider of employment, and a source of state income. The agricultural sector contributes significantly to national economic growth.

According to Statistics Indonesia (2020), the agricultural sector's Gross Domestic Product (GDP) is the total value added of services and goods produced by each production sector in the agricultural sector. GDP at current prices can be called the distribution of GDP. This indicator shows the economic structure of a country or the role of each category of economic business. The most important category in the field of economic business represents the economic base of a country. The GDP of the agricultural sector at current prices by business field (billion rupiahs) from 2015 to 2019 has always increased. In 2019 there was an increase of 112,828.3 to 2,013,626.9 compared to 2018 which was 1,900,803.6. The development every year shows an

increase which indicates an increase in the performance of the agricultural sector.

The primary purpose of establishing a company is to get the highest profit. Kieso et al., (2012) state that profitability measures the level of success or failure of a particular company or division for a certain period. Based on some of the explanations above, it can be concluded that profitability measures the company's ability to earn profits and manage financial policies and operating decisions efficiently. The higher the percentage of profitability, the better. Return on Equity (ROE) is the ratio of net profit to total equity (Brigham & Houston, 2019). Investors frequently use this ratio to assess a company's profitability before investing. The return on equity (ROE) measures a company's capital efficiency. This ratio should be as high as possible. If the return on investment (ROI) rises, the company's profitability improves.

The ratio of net income to total assets, or return on assets (ROA), evaluates the return on total assets after interest and taxes (Brigham & Houston, 2019).ROA is used to measure how the company utilizes the assets owned by the company to generate profits. ROA has the advantage that it can be easily understood and calculated as a parameter of the company's performance in utilizing the assets owned by the company to gain profits or as an evaluation of

the implementation of policies or strategies that the company has implemented.

The level of liquidity can measure the performance of fulfilling the company's short-term debts. Effective use of assets can be good liquidity management. Current Ratio (CR) represents the fulfillment of current assets to current liabilities. If this ratio is high, it means that the capacity of its current assets can pay its short-term debts. Otherwise, a ratio decrease below or less indicates that its current assets cannot pay its current liabilities. Suppose the liquidity deficit can lead to a decrease in corporate performance, which can impact profitability. If the ratio is equal to 1, current assets are the same as current liabilities (Robinson et al., 2015).

According to Brigham & Houston (2019), leverage is debt to concentrate a company's business risk on its shareholders. The amount of debt used in a company's capital structure is measured by financial leverage. According to the following description, financial leverage is the use of debt to concentrate risk to enhance the rewards accessible to shareholders. According to Robinson et al., (2015), Debt to Equity Ratio (DER) is a debt and total equity ratio that indicates a company's ability to cover all liabilities with its capital. The higher the performance, the lower the percentage of this ratio.

The use of debt for the company is expected to provide a higher return on profits. If the debt is too high, it can lead to bankruptcy when the company cannot pay its debts. A current ratio that is either too low or too high is not a positive thing. A low current ratio implies that a company's short-term debt is unpayable. A high current ratio shows the quantity of idle money that is not being used efficiently for the company's commercial objectives, causing profitability to suffer. The problem that the author will answer, based on the previous description, is how leverage and liquidity affect the profitability of agriculture sector firms.

2 THEORETICAL STUDY

2.1 Stewardship Theory

Stewardship theory illustrates a situation where managers aim at achieving their primary goals, not for personal goals but common or organizational goals. In general, senior managers are trained to become managers who are willing to behave in line with the management's goals, yet, manager's conduct will not overrule the organization's goals since managers work hard to accomplish them (Donaldson & Davis,

1991). The implementation of the theory in this study is that managers are believed to be able to take the best actions for the benefit of the company and stakeholders. Managers are expected to achieve the company's goals, namely the highest profitability, by maintaining the company's finances stable.

2.2 Literature Review

Based on previous research, Irman et al., (2020), stated that the Current Ratio (CR) had a positive and significant effect on Return on Assets (ROA). The high level of CR indicates that the company is more liquid because of its ability to pay the short-term debt. Samo & Murad, (2019) revealed that there is a between positive relationship liquidity profitability. A corporation that correctly manages its daily cash operations can earn a high return on assets and equity. Companies with a lot of debt and leverage are vulnerable to risk and can't make much money. Thus a manager should focus on equity rather than debt financing. Felani & Worokinasih (2018) revealed that the increase in the value of debt on company capital used more loans. If the debt is high, this will increase interest expense which causes taxes to be smaller and increase profits, causing ROA and ROE levels to increase. This study also reveals that when the CR level is high, the company's chances of paying its short-term debts are also high. The relationship seen from CR and ROA and ROE is that the higher the company's CR, the better the company's profit (ROA & ROE).

Hidayat & Batubara (2019) reveals that when the company's Current Ratio increases, the company cannot get high profits because there is raw material inventory and work in process inventory which includes current assets that are not ready to be sold. It can make the company not profit but instead spends money on expenses care. According to research by Mahardhika & Marbun (2016) which used a sample of PT Bank Mandiri and its subsidiaries for the period 2008-2015, it was stated that CR had a significant positive effect on ROA. Nasution's research (2016) using a sample of automotive companies on the IDX reveals that the relationship between DER and ROE is opposite and has no significant effect. If the DER value increases, the company's profits profitability or ROE will decrease.

Herlina & Winingsih (2016) stated that CR significantly affects ROE, and DER has no significant effect on ROE. CR and DER simultaneously have a significant effect on ROE. (Putra & Badjra, 2015) found a positive relationship between CR and ROA. Current assets, in general, and networking capital, in

particular, benefited from the increase in return on assets. According to Putra & Badjra (2015), leverage has a negative and significant impact on profitability, indicating that leverage and profitability have a negative relation. Widiyanti & Elfina (2015) reveal that when the company's DER level is high, the company's burden on outside parties, in this case, creditors, will be even more significant. If this happens, it can cause a decrease in profit, but this does not significantly impact the company

2.3 Hypothesis Development

2.3.1 Effect of Current Ratio on Return on Assets

Effective asset and debt control can help companies achieve maximum profit. A low current ratio indicates that the company lacks the capital to meet short-term debts. Still, a high current ratio indicates that the amount of unused funds is not optimally used the company's needs, thereby reducing profitability (Saleem & Rehman, 2011). According to previous research, Irman et al. (2020) stated that CR had a positive and significant effect on Return on Assets (ROA). If a corporation wants to increase its return on investment, it must enhance asset management to generate profits. Samo & Murad (2019) mentions that a company that appropriately fulfills its daily cash operations can get high returns on assets. Durrah et al. (2016), Felani & Worokinasih, (2018), Madushanka & Jathurika (2018) also state the same thing, that CR has a positive and significant relationship to ROA. The following hypothesis is made based on the previous description:

asset and debt control can help companies achieve

H1a: Current Ratio has a significant positive effect on Return on Assets

2.3.2 Effect of Current Ratio on Return on Equity

Felani & Worokinasih, (2018), in their research, found that CR has a significant positive effect which indicates the higher the CR, the better the ROE value of the company. Herlina & Winingsih (2016) also revealed that CR has a positive relationship and significantly affects ROE. The following hypothesis is made based on the previous description:

H1b: Current Ratio has a significant positive effect on Return on Equity

2.3.3 Effect of Debt to Equity Ratio on Return on Assets

Irman et al. (2020), in their research state, that the Debt to Equity Ratio (DER) to Return on Assets (ROA) and states that companies with high profitability will reduce the need to use debt because there are more funds available. This research is also supported by Putra & Badjra (2015), which reveals that profitability will decrease if leverage increases. The following hypothesis is made based on the previous description:

H2a: Debt to Equity Ratio has a significant negative effect on Return on Assets

2.3.4 Effect of Debt to Equity Ratio on Return on Equity

Ulzanah & Murtaqi (2015) find that companies with higher DER are considered riskier because when the company uses more debt than the amount of equity, it will cause a decrease in profit. The high amount of debt makes the interest expense higher and has an impact on declining profitability. Nasution (2016) reveals that the effect of DER on ROE is the opposite, where if the DER value increases, the return on equity will decrease. Putra & Badjra (2015) in their research also says that if leverage increases, profitability will decrease. Widiyanti & Elfina (2015) reveal that when the company's DER level is high, the company's burden on outside parties, in this case, creditors, will be even more significant. If this happens, it can lead to a decrease in the profitability of the company. The following hypothesis is made based on the previous description:

H2b: Debt to Equity Ratio has no significant negative effect on Return on Equity

3 RESEARCH METHOD

This research applied a quantitative method, which is a method of research that structured, systematic, and planned research aimed at proving the influence between the dependent and independent variables. The leverage ratio, represented by the Debt to Equity Ratio (DER), and the liquidity ratio, represented by the Current Ratio (CR), is the independent variables used. Profitability is the dependent variable defined by Return on Assets (ROA) and Return on Equity (ROE). The operational variables and indicator can be seen in table 1:

Table 1: Operational variables and indicator

Variable	Indicator	Source		
	Dependent Variable			
ROE	= Net Income After Tax Total Equity	(Brigham & Houston, 2019)		
ROA	= Net Income After Tax Total Asset	(Brigham & Houston, 2019)		
	Independent Variable			
CR	= Current Assets Current Liabilities	(Robinson et al., 2015)		
DER	= Total Liabilities Total Equity	(Robinson et al., 2015)		
Control Variable				
SIZE	= Ln Total Assets	(Robinson et al., 2015)		

The object in this study is the financial statements of agricultural sector companies in the 2015-2019 period listed on the IDX. The total population of agricultural sector companies listed on the Indonesia Stock Exchange is 21 companies, with a sample of 15 companies. Panel data regression analysis is applied as a data analysis method using E-Views 9 software. Descriptive statistical analysis will be used in this study. Determination of the estimation model using the Chow test and Hausman test. Multicollinearity and heteroscedasticity tests were applied in this study as classical assumption tests. The hypothesis tests used in this study are coefficient of determination, partial test (t-test), and simultaneous test (f test).

4 RESULT

The population data used in this study are agricultural sector companies listed on the IDX from 2015 to 2019, with 21 companies. The criteria of the research sample reduce this amount. The total sample for 2015-2019 that meets the criteria is 15 companies or 75 data samples.

4.1 Descriptive Statistical Analysis

Below is a descriptive statistical analysis table:

Table 2: Descriptive statistical table

Variable	Mean	Max	Min	Std.Dev
ROA	0.00307	0.8562	-0.582	0.1491
ROE	-0.00046	1.0310	-1.352	0.2953
CR	1.58497	6.7720	0.0990	1.6098

DER	1.18429	11.273	-10.314	2.3788
SIZE	29.4856	33.002	26.435	1.3029
Sample	75	75	75	75

Source: Data processed with Eviews 9, 2021

4.2 Classic Assumption Test

4.2.1 Multicollinearity Test

Table 3: Multicollinearity test

	CR	DER	SIZE
CR	1.00000	-0.1035	-0.12497
DER	-0.10359	1.0000	-0.01119
SIZE	-0.12497	-0.01119	1.00000

Source: Data processed with Eviews 9, 2021

The multicollinearity test is used to determine whether or not the independent variables have a linear relationship. Table 3 displays the output results. According to table 3, the correlation coefficient between variables is less than 0.8. This value indicates that there are no multicollinearity abnormalities in the data in this research.

4.2.2 Heteroscedasticity Test

The Breusch-Pagan-Godfrey test was used to determine heteroscedasticity in this study. The test's output findings are presented in table 4. Table 4 reveals that the Obs *R-Squared value is 3.131149, and the probability value is 0.37180, which is larger than the alpha value (5 percent), indicating that the data is not heteroscedastic.

Table 4: Heteroscedasticity test Breusch-Pagan-Godfrey

F-Statistic	1.0310	Prob F. (3.71)	0.3841
Obs*R- squared	3.1311	Prob. Chi- Square(3)	0.3718
Scaled explained SS	24.373	Prob. Chi- Square(3)	0.0000

Source: Data processed with Eviews 9, 2021

4.3 Model Selection

4.3.1 Chow Test

This test aims to see whether the fixed effect or common effect model is more suitable for this study. The results of the chow test can be seen as follows:

Table 5: Chow Test (Dependent ROA)

Effect Test	Statistic	d.f.	Prob
Cross- section F	2.86680	-14.57	0.00250
Cross-Section Chi-Square	39.9789	14	0.00030

Source: Data processed with Eviews 9, 2021

Table 6: Chow Test (Dependent ROE)

Effect Test	Statistic	d.f.	Prob
Cross- section F	5.195019	-14.57	0.00000
Cross-Section Chi-Square	61.680464	14	0.00000

Source: Data processed with Eviews 9, 2021

The probability value of the chi-square cross-section on the dependent ROA is 0.0003, and the dependent ROE is 0.0000, as shown in tables 5 and 6. The chi-square cross-section probability value is less than the alpha level (5 percent). The Chow test findings for dependent ROA and ROE showed that the fixed effects model is better suitable for this research than the common effect model.

4.3.2 Hausman Test

This test aims to determine the suitable model between fixed effect or random effect.

Table 7: Hausman Test (Dependent ROA)

Test Summary	Chi-Sq.	Chi-Sq.	Pro
	Statistic	d.f.	b.
Cross-section random	12.13296	3	0.00 69

Source: Data processed with Eviews 9, 2021

Table 8: Hausman Test (Dependent ROE)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.7723	3	0.0068

Source: Data processed with Eviews 9, 2021

The probability value of the random dependent ROA cross-section is 0.0069, and the dependent ROE is 0.0068, as shown in tables 7 and 8. Because the random cross-section probability value is less than the alpha level (5%), the Hausman test findings indicate that the fixed effect model is better to use than the random effect model.

4.4 Panel Data Regression Analysis

4.4.1 Panel Data Regression Analysis (Dependent ROA)

Table 9 shows the results of panel data regression using the Fixed Effect Model with dependent ROA:

Table 9: Fixed Effect Model (Dependent ROA)

	ROA					
Variable	Coefficient	t-statistic	Prob.			
С	3.597273	3.231591	0.002			
CR	0.01624	0.836799	0.4062			
DER	0.007623	1.27109	0.2089			
SIZE	-0.123076	-3.27732	0.0018			
R-Squared			0.54973			
Adjusted R-Squared			0.41545			
Prob (F- Statistic)			0.00003			
N			75			
Model			Fixed			

Source: Data processed with Eviews 9, 2021

The following equation can be developed from the panel data regression results:

ROAt = 3,597273 + 0,01624CRt + 0.007623DERt - 0,123076SIZEt

4.4.2 Panel Data Regression Analysis (Dependent ROE)

The following table 10 shows the results of panel data regression using the Fixed Effect Model with dependent ROE:

Table 10: Fixed Effect Model (Dependent ROE)

ROE				
Variable	Coefficient	t-statistic	Prob.	
С	0.522169	0.330185	0.7425	
CR	0.002552	0.092565	0.9266	
DER	-0.073764	-8.65702	0.0000	
SIZE	0.014899	-0.27926	0.7811	
R-Squared			0.768540	
Adjusted R- Squared			0.699267	
Prob (F-Statistic)			0.000000	
N			75	
Model			Fixed	

Source: Data processed with Eviews 9, 2021

From the results of the panel data regression, the following equation can be obtained:

 $ROE_t = 0.522169 + 0.002552CR_t$ $0.073764DER_t + 0.014899SIZE_t$

4.5 Coefficient of Determination

Table 9 shows the findings of the coefficient of determination using the dependent variable ROA. In the table, the Adjusted R-Squared value is 0.41545, or 41.54 percent. This number shows that the dependent variable's size (ROA) can explain 41.54 percent of the independent variable (CR, DER) and control variable (SIZE) variance, with the remaining 58.46 percent explained by factors outside the study model.

Table 10 shows the findings of the coefficient of determination using the dependent variable ROE. In the table above, the Adjusted R-Squared value is 0.699267, or 69.93 percent. This number means that the value of the dependent variable (ROE) can explain 69.93% of the independent variable (CR, DER) and control variable (SIZE), with the remaining 30.07% explained by factors outside the research model.

4.6 F Test

Table 9 shows the results of the F test in this study using the dependent variable ROA. The probability value (F-statistic) is 0.000003, which is less than the alpha level in the F test with the dependent ROA. As a result, CR, DER, and firm size (SIZE) all impact ROA at the same time.

Table 10 shows the results of the F test using the dependent variable ROE in this study. The probability value (F-statistic) is 0.00000, and the value is alpha level, according to the findings of the F test with dependent ROE. As a result, CR, DER, and firm size (SIZE) all impact ROE at the same time.

4.7 Data Analysis

The following is a summary table of test results from this study:

Table 11: Summary of test result

	Hypothesis	Prob.	Coeff.	Result
H _{1a}	CR has significantly positive effect on ROA	0.4062	0.0162 4	Not Supported
H _{1b}	CR has significantly positive effect on ROE	0.9266	0.0025 5	Not Supported

H _{2a}	DER has significantly negative effect on ROA	0.2089	0.0076	Not Supported
Н2ь	DER has significantly negative effect on ROE	0.0000	-0.0738	Supported

Source: Data processed with Eviews 9, 2021

2.3.5 Effect of Current Ratio on Return on Assets

Based on the hypothesis 1a test, which can be seen in Table 9, it shows that liquidity, as measured by CR, does not have a significant positive effect on ROA. These results are contrary to hypothesis 1a, which states that CR has a significant positive effect on ROA. This result is evidenced by the probability value, which shows a value of 0.4062 which means that this value is greater than the alpha level of 5%. The coefficient value of 0.01624 indicates a positive direction, indicating that the relationship between CR and ROA is unidirectional; however, CR is not an essential element that might affect ROA because the influence is low. This study's findings are consistent with those of Madushanka & Jathurika (2018) and Jati & Andini (2019), who found that CR is beneficial but has no significant impact on ROA. This study is consistent with the findings of Hantono (2018) study, which found that a greater CR can only suggest that a company's capacity to pay off short-term debt using current assets is greater, but it has no impact on profitability.

The amount of liquidity in a firm does not always imply improving or reducing its profitability. The component of the current ratio includes other noncash assets that may take longer to convert, such as receivables and inventories held by agricultural companies. Agricultural companies certainly have so many supplies such as raw materials, plants, animals, and others. Large receivables and inventories will take longer to convert into cash. For example, BISI International company in 2016 had the highest current ratio in agricultural sector companies during the 2015-2019 period. Total receivables and inventories for the year amounted to 1,638,232,000,000. The amount is quite significant because the figure represents 80.2% of the total current assets for the year. We also see the company with the lowest Current Ratio during the 2015-2019 period, namely PT Bakrie Sumatera Plantations Tbk. In 2016. The company's total receivables and inventories in that year amounted to 838,237,330,000. This amount is also quite large because the percentage is 82.5% of the total current assets in that year. This amount can also hamper the company's operating activities aimed at increasing its profits due to the unavailability of sufficient cash or cash equivalents for its operations and productivity. So the level of liquidity does not affect the profitability.

4.7.1 Effect of Current Ratio on Return on Equity

Based on the hypothesis 1b test in table 10, it shows that liquidity, as measured by CR, has no significant positive effect on ROE. These results are contrary to hypothesis 1b, which states that CR has a significant positive effect on ROE. This result is evidenced by the probability value, which shows a value of 0.9266, which is greater than the alpha level of 5%. The coefficient value of 0.002552 indicates a positive direction indicating that the relationship between CR and ROE is unidirectional. Still, CR is not the main factor that can affect ROE because the effect is not significant.

The results of this study follow the results of research by Rahmah & Asnawi, (2019) and Pongrangga et al. (2015), which state that there is no need to consider the current ratio because it has no significant effect on the company's ROE. Madushanka & Jathurika (2018) and Saleem & Rehman (2011) also state that CR has no significant effect on ROE.

4.7.2 Effect of Debt to Equity Ratio on Return on Assets

The hypothesis 2a test in table 9 shows that liquidity, as measured by DER, has no significant effect on profitability as measured by ROA. These results are contrary to hypothesis 2a, which states that DER has a significant negative effect on ROA. This result is evidenced by the probability value, which shows a value of 0.2089, which is greater than the alpha level of 5%. The findings of this study are consistent with those of Samo & Murad (2019), who found that DER had no significant impact on ROA. According to Irman et al., (2020), the company's DER level had no significant impact on the return on its assets. The debt-to-equity ratio compares debt and equity in a company's funding that illustrates the company's capital ability to pay off all of its debts.

We can see that the average DER of agricultural sector companies for the 2015-2019 period is 1.18429. A total of 36 samples are below the average value, and most of them have a value below 1. A DER value below 1 indicates that the company's capital is more significant than its debt to cover its

debts and does not affect the company's assets for repayment—corporate debt to agricultural sector companies. Thus, DER is not a significant factor in increasing or decreasing returns on assets in agricultural companies.

4.7.3 Effect of Debt to Equity Ratio on Return on Equity

Based on the hypothesis 2b test in table 10, as measured by DER, liquidity has a significant negative effect on profitability as measured by ROE. These results align with hypothesis 2b, which states that DER has a significant effect on ROE. This result is evidenced by the probability value showing a value of 0.0000 and this value < 5% alpha level. The coefficient value of -0.0764 indicates a negative direction which indicates the relationship between the two is opposite, which if the DER increases, the ROE will decrease. This study's results follow the results of research by Samo & Murad (2019) and Hantono (2015), which state that DER has a negative and significant effect on ROE. Putra & Badjra (2015) show that DER is one of the main factors that affect ROE because it has a significant effect.

When the company has a high rate of return on equity, the company will be minimal in using debt because the company has more internal funds owned. When the company has high debt, the company will experience a decrease in its return on equity. This result is evidenced by the average ROE of Agricultural Sector Companies for the 2015-2019 period of -0.00046 and the average DER of 1.18429. An ROE below one or even minus indicates a low return on equity, and a DER greater than one indicates that the company uses its debt more than its capital. DER shows how a part of each capital is used as rupiah collateral for the debt. When the DER level is higher, the debt will be higher, then the effect on ROE is that the company's ability to earn profits will be disrupted because the capital owned by the company will be used to pay debt and interest. If the company is in debt, the company will focus on paying off the company debt. Poor debt management can interfere with company productivity. Thus, DER is one of the main factors affecting the profitability of agricultural companies, as reflected in the company's ROE.

5 CONCLUSIONS

Based on the research results, it was found that CR had no significant positive effect on ROA and ROE in agricultural sector companies. Other non-cash

assets such as inventory and accounts receivable owned by the company will take time to convert into cash. The increase in trade receivables and cash can occur due to increased sales. CR increases, ROA, and ROE also increase, but this is not a significant factor in the profitability of agricultural sector companies.

DER does not have a significant positive effect on ROA but has a significant negative effect on ROE. In the agricultural sector, the increase or decrease in the DER does not significantly affect the company's ROA because the equity owned by the company can still pay off its debts, so the company does not need to use company assets to pay off debts. In contrast, DER in the agricultural sector has a significant negative effect on ROE for companies in the agricultural sector. The company's ability to generate profits will be disrupted because the company's capital is used to pay off the company's loans. As a result, the DER level has a significant impact on equity in agricultural firms. If the company is in debt, the focus will be on paying the debt. Debt management can disrupt the company's activities and production. Therefore, it is necessary to have good debt management in agriculture sector companies so that the capital owned is used to pay off company debt and achieve maximum profit.

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