International Journal of Education, Information Technology and Others (IJEIT), Agustus 2023,6 (3), 119-125
DOI: https://doi.org/10.5281/zenodo.8265005
p-ISSN: 2654-2528 e-ISSN: 2623-2324
Accredited by Directorate General of Strengthening for Research and Development
Available online at https://jurnal.peneliti.net/index.php/IJEIT

The Relationship of Financial Ratios to Predicting Financial Distress Conditions in the Makmur Farmer Village Unit Cooperative

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Received: 27 Juni 2023
Revised: 20 Juli 2023
Accepted: 31 Juli 2023

Abstract

This study aims to determine the relationship between financial ratios to predict financial distress in the Koperasi Unit Desa Tani Makmur in Sorong Regency. The method used is non-probability sampling with analysis techniques using statistical analysis with logistic regression testing, correlation, determination and hypothesis testing. The results of this study are Liquidity ratios can be used to predict financial distress in Koperasi Unit Desa Tani Makmur, Solvability ratios can be used to predict financial distress in Koperasi Unit Desa Tani Makmur, Profitability ratios can be used to predict financial distress in Koperasi Unit Desa Tani Makmur, Activity ratios can be used to predict financial distress in Koperasi Unit Desa Tani Makmur.

Keywords: *Financial ratio, Financial distress*

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How to Cite : Safar M, Lestari B W, Bintari W C, & Rawi R D P. (2023). Hubungan Rasio Keuangan Untuk Memprediksi Kondisi Financial Distress Pada Koperasi Unit Desa Tani Makmur. https://doi.org/10.5281/zenodo.8265005

INTRODUCTION

Since its establishment during colonial times, the existence of cooperatives in Indonesia as socio-economic institutions in rural areas has been felt beneficial, especially for communities with lower to middle economic levels (Azhari et al., 2017). Cooperatives in Indonesia have experienced ups and downs, influenced by government policies. The government's support has had an impact on the development and presence of Village Unit Cooperatives in Indonesia.

Considering the financial health conditions of cooperatives that create uncertainty among cooperative members, the cooperative managers explain that in the past 5 years, there has been a decline in income due to the occurrence of loan defaults among both members and non-members, also known as non-performing loans or bad credits. This has led to a reduction in cash flow, hindering the funds used to circulate money, as the collateral provided to the cooperative is in the form of fixed assets, which require time to be converted into liquid assets.

A significant problem faced by cooperatives is the inability of their business units to compete with other businesses or individuals. As a result, balancing the financial statements, including the balance sheet, profit and loss, cash flow, and changes in capital, becomes challenging. The minutes of several annual member meetings reveal that only three business unit areas have been able to provide substantial income. However, despite this income, there are monthly obligations (debts) that must be fulfilled, and the cooperative has only been paying interest on the loans without addressing the principal loan amount. To assess the level of financial distress in the cooperative, the researchers are interested in conducting a study on the financial distress condition in cooperatives.

This financial distress condition can be predicted by analyzing financial ratios, allowing for an assessment of the cooperative's condition. Financial ratios are used in this research as an evaluation to determine whether policy changes are needed or if the current targets and objectives should be maintained. The financial ratios used include liquidity, leverage, profitability, and activity (Setiawan, H., & Amboningtyas, 2018).

Based on the research conducted by Masita and Purwohandoko (2020), it is stated that two variables positively influence financial distress, namely the debt-to-assets ratio with a positive influence, and the return on assets with a negative influence. The negative influence of profitability on financial distress indicates that the higher the return on assets value, the better the company manages its assets. Unlike previous studies that examined positive and negative effects of financial distress, this research focuses on discussing financial ratio analysis calculated using the financial reports of Tani Makmur Village Unit Cooperative. The aim is to provide information about the financial distress condition if assessed using financial ratio analysis. This could be a new finding, especially for the Tani Makmur Village Unit Cooperative, as it has previously only calculated liquidity levels using financial ratio analysis without considering the financial distress condition.

One of the ways to predict financial distress is by conducting financial ratio analysis based on financial reports from the years 2017 to 2021. This will reveal the financial condition of the cooperative during those years, and if it is poor, it can be identified as financial distress. Therefore, this research is crucial as it can be a decision-making tool to prevent financial distress.

RESEARCH METHOD

The type of research is descriptive quantitative research. The research was conducted at Tani Makmur Village Unit Cooperative. The population of financial reports used spans from 2002 to 2021, and the sample includes the years 2017 to 2021. The sampling technique used is non-probability sampling method.

Data Analysis Techniques

a. Logistic Regression Analysis
   According to Ghozali (2018), logistic regression is generally used when the assumption of multivariate normal distribution is not met. The model equation for the logistic regression analysis in this research is as follows: Logit(FD/1-FD)t+1 = β0 + β1CR + β2DAR + β3ROA + β4TAR + e
b. Hosmer and Lemeshow Goodness of Fit Test
   This test aims to assess the fit or suitability of data in the logistic regression model. The hypotheses are as follows:
   H0: The hypothesized model fits the data.
   HA: The hypothesized model does not fit the data.
c. Model Summary (Pseudo R-Square)
   Cox & Snell's R-Square is a measure that attempts to imitate the R^2 measure in multiple regression. The value of Nagelkerke's R^2 can be interpreted like R^2 in multiple regression. The purpose of the model summary is to determine how much the independent variables explain the dependent variable.
d. Partial Test

The regression coefficient testing is carried out by considering the following aspects: The significance level (α) used is 5% (0.05). The criteria for accepting or rejecting the hypotheses are based on the significance p-value. If the p-value is greater than α (5%), the hypothesis is rejected. Conversely, if the p-value is less than α (5%), the hypothesis is accepted.

RESEARCH RESULTS AND DISCUSSION

RESEARCH RESULTS

Descriptive Analysis

In this test, it is used to determine the minimum and maximum scores, the mean score, and the standard deviation of each variable. The results are as follows:

Table 1. Descriptive Statistics Analysis Results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CR	60	1,085	1,797	1,30238	,489546
DAR	60	,150	,206	,16624	,419450
ROA	60	,004	,010	,00648	,606026
TATO	60	,081	,485	,19794	,588483

The Current Ratio obtained a minimum variance of 1.085 and a maximum variance of 1.797 with a mean score of 1.302 and a standard deviation of 0.489. The Debt to Assets Ratio obtained a minimum variance of 0.15 and a maximum variance of 0.206 with a mean score of 0.166 and a standard deviation of 0.419. The Return On Assets obtained a minimum variance of 0.004 and a maximum variance of 0.1 with a mean score of 0.006 and a standard deviation of 0.606. The Total Assets Turnover obtained a minimum variance of 0.81 and a maximum variance of 0.48 with a mean score of 0.197 and a standard deviation of 0.588.

Hypothesis Test

a) Uji *Hosmer and Lemeshow Goodness of Fit Test*

Tabel 1 *Hosmer and Lemeshow Goodness of Fit Test*

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	3,927	8	,864

b) Based on the table above, the Chi-Square value for DF 8 at a significance level of 0.05 is 15.51. Therefore, the calculated Chi-Square value for Hosmer and Lemeshow test is 3.927, which is less than the Chi-Square table value of 15.51, with a significance level of 0.864 > 0.05. Thus, we accept H0, indicating that the model can be accepted, and hypothesis testing can be conducted because there is a significant agreement between the model and its observed values.*Model Summary (Pseudo R Square)*

Tabel 2 *Model Summary (Pseudo R Square)*

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	35,516[a]	,266	,448

The Nagelkerke R Square value is 0.448, and the Cox & Snell R Square value is 0.266, indicating that the ability of independent variables to explain the dependent variable is 0.448 or 44.8%. This means that there are 55.2% other factors outside the model that explain the variable.

c) Partial Test (Regression Equation)

The logistic regression testing produces data that will be interpreted based on the values obtained from the testing results. Thus, in this Partial Test stage, the logistic regression equation model can be applied, among others, as follows:

Tabel 3 Uji Parsial

Variabel	Beta	Sig.	Keterangan
CR	-9,565	,107	Tidak Diterima
DAR	2,052	,207	Tidak Diterima
ROA	4,202	,033	Diterima
TATO	3,139	,157	Tidak Diterima
Constant	-4,955	,040	

Based on the table above, the logistic regression equation used to determine the likelihood of cooperatives experiencing financial distress over the last 5 years or 60 months is as follows:

$$Logit(FD/1-FD)t+1 = -4.955 - 9.565CR + 2.052DAR + 4.202ROA + 3.139TATO + e$$

From the equation, it is explained that the coefficient of CR (current ratio) is -9.565, which means this coefficient has a negative value. The coefficient of DAR (debt to assets ratio) is 2.052, indicating a positive value. The coefficient of ROA (return on assets) is 4.202, meaning it has a positive value. The coefficient of TATO (total assets turnover ratio) is 3.139, also indicating a positive value.

DISCUSSION

In regression test results, the previously stated hypotheses will be explained as follows:

Relationship between Liquidity Ratio and Financial Distress

H1: Liquidity Ratio can be used to predict financial distress in Tani Makmur Village Unit Cooperative.

The first hypothesis has a significance level of 0.107 and a regression coefficient value of -9.565. It can be said that this variable is not significant at the $\alpha = 0.05$ level. This means that the first hypothesis or H1 is not accepted, in other words,

liquidity ratio cannot be used to predict financial distress in Tani Makmur Village Unit Cooperative.

Relationship between Solvency Ratio and Financial Distress
H2: Solvency Ratio can be used to predict financial distress in Tani Makmur Village Unit Cooperative.
The second hypothesis has a significance level of 0.207 and a regression coefficient value of 2.052. It can be said that this variable is not significant at the $\alpha = 0.05$ level. This means that the second hypothesis or H2 is not accepted, in other words, solvency ratio cannot be used to predict financial distress in Tani Makmur Village Unit Cooperative.

Relationship between Profitability Ratio and Financial Distress
H3: Profitability Ratio can be used to predict financial distress in Tani Makmur Village Unit Cooperative.
The third hypothesis has a significance level of 0.033 and a regression coefficient value of 4.202. It can be said that this variable is significant at the $\alpha = 0.05$ level. This means that the third hypothesis or H3 is accepted, in other words, profitability ratio can be used to predict financial distress in Tani Makmur Village Unit Cooperative.

Relationship between Activity Ratio and Financial Distress
H4: Activity Ratio can be used to predict financial distress in Tani Makmur Village Unit Cooperative.
The fourth hypothesis has a significance level of 0.157 and a regression coefficient value of 3.139. It can be said that this variable is not significant at the $\alpha = 0.05$ level. This means that the fourth hypothesis or H4 is not accepted, in other words, activity ratio cannot be used to predict financial distress in Tani Makmur Village Unit Cooperative.

CONCLUSION

Based on the data results above, several points can be concluded as follows:
a) Current Ratio cannot be used to predict financial distress. The higher the ability of Tani Makmur Village Unit Cooperative to meet its short-term obligations, the lower the likelihood of financial distress occurring.

b) Debt to assets Ratio cannot be used to predict financial distress. The higher the ability of Tani Makmur Village Unit Cooperative to pay its long-term debt obligations, the lower the likelihood of financial distress occurring.

c) Return on assets can be used to predict financial distress. The lower the ability of Tani Makmur Village Unit Cooperative to generate profits, the higher the likelihood of financial distress occurring.

d) Total asset turnover ratio cannot be used to predict financial distress. The higher the total asset turnover at Tani Makmur Village Unit Cooperative, the lower the likelihood of financial distress occurring.

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