

# Analysis Of Financial Distress Prediction In Cooperative Financial Institutions

Deni Syachrudin, Nurlis, Muhammad Laras Widyanto

**Abstrack:** This study has two objectives, namely, first aims to develop a discriminant model from the components of the cooperative assessment aspect in order to predict the occurrence of financial financial distress in legal entities in West Jakarta. Second, aims to find out the most dominant factors in predicting financial financial distress in cooperatives. This study uses as many samples as savings and loan cooperatives that provide financial statements to researchers for two years, from 2015 to 2016, both those which are still active and those who are not active. Data collection method is done by purposive sampling. While the analysis used is logistic regression. The results of data analysis obtained that from 17 financial ratios to assess the level of health of cooperatives, only 2 ratios that predominantly affect the level of health of cooperatives, namely the ratio of fixed assets to total assets (X9) and the ratio of the volume of loans to funds received (X12).

**Index Terms:** Financial Distress, Cooperative Performance, Cooperative Financial Report.

## 1 INTRODUCTION

The general purpose of financial reporting is to provide financial information about reporting entities that are useful to be presented to potential equity investors, creditors, and other creditors in making decisions about providing resources to the entity. Investors will make better investment decisions if they get high-quality financial information currently available from companies operating in the same industry or business. (Kieso et al, 2012: 37). Financial statement analysis is a very important tool to obtain information relating to the company's financial condition and the results achieved in connection with the selection of the company's strategy. By analyzing the company's financial statements, the company leader can find out about the condition and financial development of the company and the results achieved. Financial difficulties of a company can be reflected in the performance indicators, namely if the company experiences short-term financial difficulties (liquidity) that are not immediately addressed will result in long-term financial difficulties (solvency) so that it can lead to bankruptcy of a company (Suharman, 2007) This was also experienced by cooperative financial institutions, where many cooperatives were inactive and eventually went bankrupt, so the government would close the cooperative. The Minister of Cooperatives and SMEs Puspayoga said that the cooperative report that was not active needed to be done in the framework of the total cooperative reform program that was being intensified by the government. "The campaign to dissolve the inactive cooperative will continue to be carried out consistently to lead a quality Indonesian cooperative," Based on data from the Ministry of Small and Medium Enterprises, the number of cooperatives in Indonesia is 209,000 cooperatives. Of these 147,000 active and inactive cooperatives as many as 62,000 cooperatives (Kompas.com: 2017). As many as 6,213 cooperatives have been officially dissolved, which have not carried out any activities at all as a cooperative. (Jurnalibukota.com:2016). The DKI Jakarta Government is one of the cities that participated in developing cooperative financial institutions which were shown by providing both financial and technical assistance for the development of cooperatives that were still new and those that had long been operating. The development of the number of cooperatives in DKI Jakarta in the last five years shows an average increase of about 9.7% of the total cooperatives, but still high at the level of cooperatives that are not active due to the decline in cooperative performance, this can be seen in Table 1.

**Table 1.** Development of cooperatives in DKI Jakarta in 2012 – 2015

Year	Total Cooperative	Active Cooperative	Cooperative is not active	Cooperatives that do RAT	Percentage of Cooperatives inactive
2012	7663	5177	2486	3081	32,4%
2013	7862	5579	2283	1046	29,0%
2014	7928	5645	2283	583	28,8%
2015	8024	6016	2008	436	25,0%

Whereas for 2016, cooperatives that registered themselves to create a Cooperative Registration Number (NIK) in the DKI Jakarta area were 5679 cooperatives (www.depkop.go.id: 2017). So that cooperatives that are not active are increasing. Head of DKI Jakarta KUKMP Office, Irwandi Yusuf acknowledged that his party recommended that 15 cooperatives be spread over five regions in DKI Jakarta, the decisive action we did was to anticipate the cooperative being misused irresponsibly. The Ministry since 2010-2017 has dissolved as many as 359 inactive cooperatives. (poskotanews.com: 2017). The above phenomenon indicates a tendency to weaken the health of the cooperative's financial performance that needs to be carried out early warning so as not to experience a sustained financial distress that will lead to the cooperative being inactive, and in the end the cooperative will experience bankruptcy or be disbanded by the authorities in this case the Minister Cooperative. Beaver (1966) provides the definition of financial distress as follows: "the inability of a firm to pay its financial obligations as they mature". Platt and Platt (2002) define financial distress as a stage of decreasing financial conditions that occur before bankruptcy or liquidation. This condition is characterized by a decrease in shipping delays, decreased product quality and delays in bank bill payments. Researches related to corporate financial distress generally use corporate financial ratios. Research on financial distress has been carried out by several researchers including Almilia and Kristijadi (2003) who use financial ratios used by Platt and Platt (2002). The financial ratios used by Platt and Platt (2002) are financial ratios derived from information in the Profit and Loss Statement. Similar research was also carried out by Luciana and Meliza (2003), who used financial ratios to predict the company's financial performance after an IPO. Assessment of the level of health of cooperatives has been regulated in the Regulation of the Deputy of Supervision of the

Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number: 06 / Per / Dep.6 / IV / 2016 concerning Guidelines for Assessing Health of Savings and Loans Cooperatives and Savings and Loan Units of Cooperatives, which states that there are seven aspects of valuation consisting of capital, quality of productive assets, management, efficiency, liquidity, independence and growth, as well as cooperative identity. Seven aspects of this assessment consist of six quantitative aspects in the form of financial ratios and one qualitative aspect in the form of questionnaires, namely the Management aspect, the total of all assessment components in the seven aspects of 22 assessment components consisting of 17 financial ratios and five questionnaires on management. According to Beaver (1968), predictive power is defined as the ability to produce operational (predictive) implications and this prediction is then proven by empirical evidence. A prediction is a statement about the probability distribution of the dependent variable (predicted event) depending on the value of the independent variable (predictor). Beaver (1968) also states that there is an important relationship between prediction and decision making. A prediction can be made without making a decision but a decision cannot be made without making a prediction. The purpose of this study is to analyze and look for empirical evidence about the most dominant factors in predicting financial financial distress in cooperatives in DKI Jakarta. Based on the above background, the formulation of the problem in this study are what are the most dominant factors in predicting financial financial distress in a legal entity cooperative in DKI Jakarta.

## 2 LITERATURE REVIEW

### 2.1 Financial Distress

Since the research on financial distress was carried out by Beaver (1966), there is no specific definition of financial distress. Each economist has a different understanding in defining financial distress. Foster (1986: 535) defines financial distress as "... severe liquidity problems that cannot be resolved without a sizable rescaling of the entity". Operations or structure. (... severe liquidity problems that cannot be overcome without making large size changes to the company's operations and structure). Platt and Platt (2002: 1) define that financial distress is a stage of decreasing financial conditions experienced by a company, which occurred before the occurrence of bankruptcy or liquidation. This condition is generally characterized by, among others, delays in shipments, declining product quality, and delays in bank bill payments. Another definition of financial distress associated with information on financial statements is, among others, namely: 1) Hofer (1980): financial distress is a condition of a company that has a negative net profit for several years. 2) Whitaker (1999): financial distress is the condition of a company's cash flow that is smaller than the portion of long-term debt that will mature. 3) Almilia, Kristijadi (2003): financial distress is the condition of a company that experiences negative net operating income for several years and for more than one year does not pay dividends, terminate employment or eliminate dividend payments. 4) Luciana (2006): financial distress is a condition of a company that has been delisted due to net income and negative equity book value and the company has merged. From the description above implied that financial distress can be viewed from the composition of the

balance sheet that is the comparison of the amount of assets and liabilities, from the income statement if the company continues to lose, and from the cash flow statement if the cash inflow is smaller than the cash outflow.

### 2.2 Health of Savings and Loans Cooperatives

Deputy Regulation on Supervision of the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number: 06 / Per / Dep.6 / IV / 2016 concerning Guidelines for Assessment of Health of Savings and Loans Cooperatives and Savings and Loan Units of Cooperatives, Cooperative health predicates are classified into 4 predicates, namely: Healthy, Fairly Healthy, In Supervision, and In Special Supervision. The scope of the KSP Health Assessment and USP Cooperative includes an assessment of several aspects as follows:

- a. Capital. a.1. Ratio of Own Capital to Total Assets. To obtain the ratio between own capital to total assets is determined as follows: a) For the ratio between own capital and total assets smaller or equal to 0% given a value of 0. b) For each increase in the ratio of 4% starting from 0% value plus 5 with maximum value of 100. c) For a ratio greater than 60% to a ratio of 100% each increase in the ratio of 4% value minus 5. d) Value multiplied by a weight of 6% obtained a score of capital. a.2. Ratio of Own Capital to Loans Given at Risk. To obtain a capital ratio of loans given at risk, it is determined as follows: a) For the ratio of own capital to loans given at a risk of less than or equal to 0% given a value of 0. b) For each increase in the ratio of 1% starting from 0% value plus 1 with a maximum value of 100. c) Value multiplied by a weight of 6%, then obtained a capital score. a.3. Own Capital Adequacy Ratio, a) Self-capital adequacy ratio is the ratio of Weighted Self-Capital to Risk-Weighted Assets (RWA) multiplied by 100%. b) Weighted capital is the sum of the results of each component of the cooperative KSP / USP capital contained in the balance sheet with the weight of risk recognition. c) RWA is the sum of the results of each component of the KSP and USP assets of the Cooperative contained in the balance sheet with the weight of risk recognition. d) Calculating the value of ATMR is done by adding up the multiplication of nominal assets in the balance sheet with the risk weight of each component of the asset. e) The capital adequacy ratio can be calculated / obtained by comparing the weighted capital value with the ATMR value multiplied by 100%.
- b. Quality of earning assets. Assessment of the quality of earning assets is based on 4 (four) ratios, namely: a) The ratio of loan volume to members to the volume of loans provided; b) Non-performing loan ratio to loans granted; c) Risk reserve ratio to problem loans; and d) The ratio of loans at risk to loans.
- c. Management. c.1. Management aspects include five components as follows: a) General management; b) Institution; c) Capital management; d) Asset management; and e) Liquidity management. c.2. Value calculation is based on the results of an evaluation of the answers to the management aspects of all components with the composition of the

questions as follows: a) General management of 12 questions (weighting 3 or 0.25 values for each answer to the "yes" question); b) Institution of 6 questions (weighting 3 or 0.5 values for each answer to the "yes" question); c) Capital management of 5 questions (weighting 3 or 0.6 values for each answer to the "yes" question); d) Asset management 10 questions (weighting 3 or 0.3 values for each answer to the "yes" question); and e) Liquidity management 5 questions (weighting 3 or 0.6 values for each answer to the "yes" question).

- d. Efficiency. Assessment of cooperative KSP / USP efficiency is based on 3 (three) ratios, namely: a. Ratio of service operating costs to gross participation; b. Gross ratio of operating expenses to SHU; and c. Service efficiency ratio. The above ratios illustrate how much the KSP / USP cooperative is able to provide efficient services to its members from the use of its assets.
- e. Liquidity. Quantitative assessment of liquidity is carried out on 2 (two) ratios, namely: a. Cash and bank ratio to current liabilities; and b. The loan ratio given to the funds received.
- f. Independence and growth. Assessment of independence and growth is based on 3 (three) ratios, namely asset profitability, equity profitability, and operational independence. f.1. Asset Rentability Ratio The asset profitability ratio is SHU before tax compared to total assets. f.2. Ratio of Own Capital Profitability The profitability ratio of capital is SHU's share of members compared to total equity. f.3. Service Operational Independence Ratio The operational independence ratio is Net Participation compared to Operating Expenses plus cooperative load.
- g. Cooperative identity. Evaluation of aspects of cooperative identity is intended to measure the success of cooperatives in achieving their objectives, namely promoting member economies. The cooperative identity assessment aspect uses 2 (two) ratios, namely: g.1. Gross Participation Ratio Gross participation ratio is the level of cooperative ability to serve members, the higher / greater the percentage the better. Gross participation is the contribution of members to the cooperative in return for the delivery of services to members, which includes basic costs and net participation. g.2. Member Economic Promotion Ratio (PEA) This ratio measures the ability of cooperatives to provide benefits of participation efficiency and cost efficiency benefits of cooperatives with principal savings and mandatory savings, the higher the percentage the better.

### 2.3 Cooperative

Cooperatives come from the Latin language *Coopere* which in English is called *Cooperation*. *Co* means together and *Operation* means work. In Law Number 17 of 2012 concerning Cooperatives, Cooperatives are defined as follows: "Cooperatives are legal entities established by individuals or legal entities of cooperatives, by separating the wealth of their members as capital to run a business, which meets the aspirations and needs of the economy, social and culture in accordance with the values and principles of cooperatives

based on Pancasila and The 1945 Constitution of the Republic of Indonesia. Based on the principle of kinship." Deputy Regulation for Supervision of the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number: 06 / /Per/Dep.6/IV/2016 Concerning Health Assessment Guidelines for Savings and Loans Cooperatives and Savings and Loan Units Cooperatives define: "Cooperatives are business entities with members or cooperative legal entity by basing its activities based on the principles of Cooperatives as well as the people's economic movement based on the principle of kinship. The type of cooperative that complies with the Cooperative Law number 17 of 2012 consists of: a. Consumer cooperatives, namely cooperatives that carry out service business activities in the field of providing goods for members and non-members b. Producer cooperatives, which are cooperatives that carry out service business activities in the field of production production and marketing facilities produced by Members to Members and non-Members c. Service cooperatives, namely cooperatives that carry out non-savings and credit service business activities required by Members and non-Members d. Savings and Loans Cooperative, which is a cooperative that runs a savings and loan business as the only business that serves members

### 3 REASERCH METHOD

This research is a quantitative research, namely researchers assessing the cooperative financial ratios and distributing questionnaires on the basis of the Deputy Regulation on Supervision of the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number: 06 / / Per/Dep.6/IV/2016 concerning Health Assessment Guidelines Savings and Loans Cooperatives and Cooperative Savings and Loans Unit. The component in the aspect of cooperative assessment in the ministerial regulation consists of 17 components of quantitative financial ratios and five management components in the form of questionnaires. But in this research only use 17 components of financial ratios. The population in this study are all legal entities cooperatives registered with the West Jakarta City Office of Cooperatives and SMEs. In sampling using nonprobability sampling, the magnitude of the opportunity for the element to be chosen as a subject is unknown. Nonprobability sampling is the sampling design used in this study. The sampling technique used is purpose sampling, which is a technique in choosing a subject because data can be obtained, and following the following criteria: a. The cooperatives studied were cooperatives with savings and loan cooperatives in the West Jakarta City area and were legally incorporated and already registered with the West Jakarta City Cooperative and UMKM Office. b. The cooperatives studied are those who have carried out business activities for at least 5 years and held Annual Member Meetings (RAT). The samples obtained were 80 cooperatives with each cooperative taking 2 years of financial statements, so that the total data samples in this study were 160 data. The dependent variable in this study is the prediction of Financial Distress. Financial distress is a stage of decreasing the company's financial condition that occurred before the occurrence of bankruptcy or liquidation. Deputy Regulation for Supervision of the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number: 06 /Per/Dep.6/IV/2016 concerning Health Assessment Guidelines for Savings and

Loans Cooperatives and Savings and Loan Units of Cooperatives There are four conditions in categorizing a cooperative that is related to financial distress. These conditions are: Condition I, healthy with a score of 80 - 100. Condition II, is quite healthy with a score of 66 - 79.99. Condition III, under supervision with a score of 51 - 65.99. And condition IV, under special supervision with a score of <51. In this research, the health condition category of cooperatives is divided into two conditions, namely healthy and fairly healthy conditions grouped nonfinancial distress, while conditions under supervision and under special supervision are grouped into financial distress. The independent variables used are 17 financial ratios contained in the Deputy Regulation on Supervision of the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number: 06/ Per/Dep.6/1v/2016 concerning Guidelines for Assessing Health of Savings and Loans Cooperatives and Cooperative Savings and Loans Units. The statistical method used in this study is logistic regression analysis, because in this study the independent variable is a mixture of continuous variables or metrics and categorical or non-metric variables that cause the assumption of multivariate normal distribution not fulfilled. Because of this, logistic regression analysis does not require data normality test and classic assumption test in the independent variable (Ghozali, 2012).

**4 RESULTS**

**4.1 Results of Descriptive Statistics**

Descriptive statistics provide an overview of the data that is seen as the mean, standard deviation, maximum and minimum values. The following is a description of the overall descriptive statistics of the sample:

**Table 2. Descriptive Statistics Results Y**

		Y			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Finanacial Distress	35	21.9	21.9	21.9
	Nonfinancial Distress	125	78.1	78.1	100.0
	Total	160	100.0	100.0	

**Table 3. Descriptive Statistics Results X**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
X1	160	7.083	100.000	54.384	25.689
X2	160	7.248	900.000	110.502	141.338
X3	160	37.412	992.121	117.205	115.813
X4	160	.000	100.000	83.485	25.471
X5	160	.000	.504	.019	.067
X6	160	.000	23.676	.566	3.203
X7	160	.000	2.854	.138	.499
X8	160	18.672	100.000	93.820	15.446
X9	160	.000	75.658	10.206	14.654
X10	160	-51.609	145.368	20.008	29.374
X11	160	.000	2569.103	121.837	299.053
X12	160	19.632	5031.108	342.331	826.012
X13	160	.023	51.203	10.455	10.897
X14	160	.000	178.736	11.257	19.006
X15	160	1.348	1853.506	154.031	322.126

X16	160	.121	743.459	47.753	99.772
X17	160	.000	504.439	54.310	81.285
Valid N (listwise)	160				

From table 2 it can be seen that the data of this study that experienced financial distress was as much as 35 data (21.9%), while data that did not experience financial distress were 125 data (78.1%).

**4.2 Logistic Regression Analysis**

Feasibility test of regression model. The output results in the Hosmer and Lemeshow Test table can be seen in the results of its significance (sig.), With decision making: If the probability or sig value is > 0.05, then the regression model is feasible for the next analysis. If the probability or sig value is <0.05, then the regression model is not feasible for the next analysis.

**Table 4. Feasibility test of regression model**

Hosmer and Lemeshow Test			
Step	Chi-square	Df	Sig.
1	7.385	8	.496

From the table above it can be seen that the value of Sig. is equal to 0.496 > 0.05, then the regression model is suitable for the next analysis.

**Table 5. t test to test the regression coefficient**

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	X1	-.001	.023	.001	1	.974	.999
	X2	.008	.009	.954	1	.329	1.008
	X3	-.010	.006	2.758	1	.097	.990
	X4	-.011	.019	.353	1	.553	.989
	X5	-28.740	15.432	3.469	1	.063	.000
	X6	15.894	41.232	.149	1	.700	7994148.969
	X7	1.368	1.295	1.116	1	.291	3.929
	X8	-.057	.076	.551	1	.458	.945
	X9	-.160	.058	7.562	1	.006	.853
	X10	.031	.016	3.495	1	.062	1.031
	X11	.001	.001	.536	1	.464	1.001
	X12	-.003	.001	5.270	1	.022	.997
	X13	.237	.132	3.240	1	.072	1.267
	X14	-.002	.063	.001	1	.974	.998
	X15	.003	.008	.112	1	.737	1.003
	X16	-.007	.005	1.637	1	.201	.994
	X17	.021	.020	1.135	1	.287	1.022
Constant	7.674	8.191	.878	1	.349	2151.719	

a. Variable(s) entered on step 1: X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17.

Based on table 5. it can be seen by the t test that the variables that affect financial distress are only variables X9 (ratio of fixed assets to total assets) and X12 (ratio of loan volume to funds received) because obtaining a significance value of t is smaller than 0.05. While other variables have no effect on financial distress because of obtaining a significance value of t value greater than 0.05. Therefore, the regression model will be repeated again by entering only influential variables, in this case the variables X9 and X12.

**Table 6.** Feasibility Test of the second stage regression model

Hosmer and Lemeshow Test			
Step	Chi-square	Df	Sig.
1	14.457	8	.071

From the table above it can be seen that the value of Sig. amounting to  $0.071 > 0.05$ , the regression model is suitable for the next analysis.

**Table 7.** Table of Establishment of Logistic Regression Equations

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	X9	-.026	.012	4.575	1	.032	.974
	X12	-.002	.001	4.100	1	.043	.998
	Constant	2.072	.329	39.744	1	.000	7.939

a. Variable(s) entered on step 1: X9, X12.

Based on the testing stages that have been carried out, the results of equation regression have met the following requirements: From table 7. logistic regression equation can be obtained as follows:

$$Y = a + b_1X_1 + b_2X_2 + e \quad (i)$$

From the logistic regression formula equation obtained:

$$\text{Non Financial Distress} = 2,072 - 0,026 X_9 - 0,002 X_{12} \quad (ii)$$

Provisions in the interpretation of logistic regression:

- Negative numbers are considered probability 0
- A positive number of more than one is considered probability 1
- A positive number between 0 and 1, the probability according to the number shown.

Based on the equation of the logistic regression formula, it can be interpreted as follows:

- The constant is 2.072 (considered probability 1), meaning that if the cooperative does not have a ratio of fixed assets to total assets (X9) and the ratio of the volume of loans to funds received (X12), then it is likely that the cooperative will experience nonfinancial distress.
- The coefficient of X9 is - 0.026, meaning that if the cooperative X9 rises by 1 unit, then it is likely that the cooperative will decrease 2.6% from nonfinancial distress or will experience financial distress.
- The coefficient of X12 is - 0.002, meaning that if the cooperative X12 rises by 1 unit, then it is likely that the cooperative will decrease 0.2% from the nonfinancial distress or will experience financial distress.

## 5 DISCUSSION

The test results on the regression coefficients and the regression assumption test shows that the model used in the study is statistically significant. Due to the fulfillment of all the significance tests of the model and the assumption of regression tests, the variables included in the model have produced a good model. Furthermore, it can be interpreted and analyzed the results of the regression. The discussion was conducted to determine the relationship between the

results of the estimation statistically with the prevailing theory and suitability with the conditions of the company. The results of data analysis obtained that from 17 financial ratios to assess the level of health of cooperatives, only 2 ratios that predominantly affect the level of health of cooperatives, namely the ratio of fixed assets to total assets (X9) and the ratio of the volume of loans to funds received (X12).

## 6 CONCLUSION

This study aims to determine what factors are the most dominant aspect of cooperative health assessment in determining the level of health of savings and credit cooperatives in West Jakarta. Based on research and discussion, the conclusions of this study are:

- The first dominant ratio influences the level of cooperative health, namely the ratio of fixed assets to total assets (X9) which are included in the Efficiency aspect.
- The second dominant ratio affects the level of cooperative health, namely the ratio of the volume of loans to received funds (X12) which is included in the liquidity aspect.

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