

**PREDICTION MODEL OF FINANCIAL DISTRESS BASED
ON FINANCIAL PERFORMANCE OF CONVENTIONAL GO-
PUBLIC BANKS IN INDONESIA**

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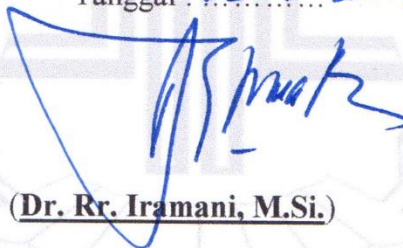
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PREDICTION MODEL OF FINANCIAL DISTRESS BASED ON FINANCIAL PERFORMANCE OF CONVENTIONAL GO-PUBLIC BANKS IN INDONESIA

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ABSTRACT

This study aims to find a prediction model of financial difficulties in the Indonesian banking sector, especially in Conventional Go-Public Banks. The criteria for assessing financial difficulties are divided into two panels, namely the median panel and the mean or average panel. The financial performance assessed in this study is Loan to Deposits Ratio (LDR), Non-Performing Loans (NPL), Operational Costs and Operating Income or Biaya Operasional Pendapatan Operasional (BOPO), Return on Assets (ROA) and Capital Adequacy Ratio (CAR). The research sample amounted to forty-five (45) Conventional Go-Public Banks that operating in Indonesia in the period 2013-2017 and selected by using purposive sampling method. Logistic regression is used to analyze the data. The results of this study found that the NPL ratio in the median panel becomes a significant variable in predicting financial difficulties in Conventional Go-Public Banks in Indonesia, while the LDR, CAR and NPL ratios in the mean panel were significant variables in predicting financial difficulties in Conventional Go-Public Banks in Indonesia.

Keywords: Financial Distress, Banking, Logistic Regression, Financial Performance

BACKGROUND OF STUDY

Financial distress can be described from two extreme points, namely short-term liquidity to insolvable. Short-term financial difficulties are usually short-term, but can develop into a severe one. Indicators of financial difficulties can be seen from the analysis of cash flow, company strategy analysis, and company financial statements.

After the banking crisis, governments in various countries including Indonesia focused on bank

regulation and supervision. The failure of a bank, especially those that are systemic, will result in disruption of the economy of a country.

The performance evaluation or health of a commercial bank is regulated in the Financial Services Authority Regulation (POJK) Number 4 / POJK.03 / 2016 concerning the Assessment of Soundness Levels of Commercial Banks. The factors that used to assess the wellness of commercial

banks include risk profiles, Good Corporate Governance (GCG), rentability (earnings) and capital (capital) with the assessment variables in the form of banking financial ratios. The banking financial ratios that will be used can provide an overview of the financial strength of a bank, and from there it can be known whether the bank that studied or assessed is experiencing financial distress or not.

Financial ratios provide an indication of the financial strength of a company, financial ratio analysis can help business people, the government and other users of financial statements to assess a company's financial condition, including the banking sector, are experiencing financial difficulties or not.

Financial distress is a stage of financial declining condition that occurs before bankruptcy and liquidation happen, the use of information if a bank experiences financial distress has several points that can speed up management actions to prevent problems before the occurrence of bankruptcy, management can take merger or take action so that the bank is able to pay obligations and manage the bank better, and can know the warning of the early bankruptcy in the future.

Based on this background, the author conducted a study of Financial Performance-Based Financial Distress Prediction Model on Conventional Go-Public Banking in Indonesia.

LITERATURE REVIEW

Signalling Theory

Signalling theory was first known through the writings of George Akerlof (1970) "The Market of Lemons." In which there is the term asymmetric information (asymmetric information). This theory illustrates the phenomenon of imbalance in product quality information between buyers and sellers by testing the used car market.

From the study, Akerlof suggested that when buyers do not have information regarding product specifications and only have a general perception of the product, the buyer will assess all products at the same price, apply to high-quality products and low-quality products that harm high-quality product sellers. Conditions where one party (seller) has more information about the product sold by him while the buyer experiences the opposite condition (this is referred to as adverse selection). Adverse selection can be reduced if the seller delivers their product information to the buyer.

As one example, according to Jogiyanto (2014) information published as an announcement will signal investors in making investment decisions. One type of information issued by companies that can be a signal to parties outside and inside the company is the annual report.

In this study, finding financial distress prediction models is also a form of the application of signal theory, because predictions of financial distress with banking financial ratios can give an idea of the condition of banking finances and then become part of early

warning (Early Warning System) if a bank experiences financial problems.

Bank Liquidity

Bank liquidity is the ability of banks to fulfill their short-term obligations. In this study, the ratio used is Loan to Deposits Ratio (LDR). According to Julius R. Latumaerissa (2014: 96), the LDR is

a traditional measurement that shows time deposits, current accounts, savings, etc. that are used in fulfilling the loan requests of customers. The maximum loan to deposit ratio according to government regulations is 110%. The LDR formula is as follows:

$$\text{Loan to Deposit Ratio} = \frac{\text{Loans}}{\text{Deposits}} \times 100\% \dots (1)$$

Quality of Bank Assets

Asset quality is the level of ability of the assets owned by a bank in providing income for the bank. Earning assets or earning assets are all assets in the rupiah and foreign exchange owned by the bank with the intention of earning income in accordance with its function. Management of funds in

earning assets is a source of bank income used to finance the overall operational costs of the bank, including interest costs, labor costs and other operational costs. And in this study, the performance of productive asset quality was assessed through Non Performing Loans (NPL). NPL based on SEOJK No. 14 / SEOJK.03 / 2017 are formulated as follows:

$$\text{NPL} = \frac{\text{Non Performing Loans}}{\text{Loans}} \times 100\% \dots (2)$$

Non-performing loans are loans to non-bank third parties classified as Kurang Lancar (KL), Diragukan (D), and Macet (M). While total credit is credit to third parties not banks. The higher the ratio, the worse the quality of the bank's credit, because it means that the number of problem loans is large.

efficiency ratio is the ratio used to measure performance or assess the performance of the management of the bank concerned, whether it has used all the factors of production appropriately and successfully. Through this efficiency ratio can also be measured quantitatively the level of efficiency and effectiveness that has been achieved by the management of the bank concerned. In this study, the performance of banking efficiency was assessed through Operational Costs to Operating Income or Biaya Operasional Pendapatan Operasional

Bank Efficiency

The efficiency aspect is the ability of banks to carry out operational activities by controlling costs and using income efficiently. The

(BOPO). In accordance with Bank Indonesia Circular Letter Number 15/7 / DPNP dated March 8, 2013,

BOPO can be measured using the formula:

$$BOPO = \frac{Biaya\ Operasional}{Pendapatan\ Operasional} \times 100\% \dots (3)$$

Operational costs consist of all costs incurred relating to the bank's operational activities which consist of interest costs, operating expenses other than interest, expenses (income) for the removal of earning assets, estimated costs of losses on commitments and contingencies. Whereas those included in the operating income component are income from bank operational activities consisting of interest income, other operating income.

Bank Profitability

Profitability ratio is a ratio that shows the ability of a company to make a profit (Indonesian Bankers Association, 2015: 84). In this study, the performance of banks in generating profits is assessed through Return On Assets (ROA). ROA indicates the bank's ability to generate profits using its assets. According to SEOJK No. 14 / SEOJK.03 / 2017, ROA is formulated as follows:

$$ROA = \frac{Earning\ before\ tax}{Total\ of\ Assets} \times 100\% \dots (4)$$

Earning before tax is profit as recorded in the annualized profit and loss for the year. Total assets are the sum of all bank assets in the balance sheet.

Capital Adequacy Ratio or often referred to as the bank's capital adequacy ratio, which is how a bank is able to finance its activity activities with its capital ownership. In other words, CAR is a bank's performance ratio to measure the capital adequacy of a bank to support assets that contain or produce risks such as loans. This ratio can be formulated as follows

Bank solvency

In this study, bank solvency, namely the ability of a bank to meet short-term needs is represented by a CAR (Capital Adequacy Ratio) ratio.

$$\frac{Equity}{ATMR} \times 100\% \dots (5)$$

said to be in a healthy or guaranteed position. (Irham Fahmi, 2015: 153)

Conceptually explained if the bank has a CAR of 8%, the bank can be

Liquidity performance as a predictor of financial distress conditions

LDR is a comparison between credit given to third party funds. The LDR ratio that is too high can reflect the credit distribution of a bank that is less effective. The higher the LDR ratio, the greater too the potential for financial difficulties. Based on these explanations above, it can be explained about H1 as the following statement,

H1: LDR can predict financial distress conditions in conventional public banks in Indonesia.

Asset quality performance as a predictor of financial distress conditions.

NPL is the ratio of comparison between non-performing loans and total loans. If NPL increases, the possibility of a problematic financial condition will also increase. NPL reflects the credit risk, the smaller NPL, the smaller the credit risk borne by the bank too. If the NPL is high, it will increase the cost of both the provision of productive assets and other costs so that the potential for bank losses will eventually increase the likelihood of a condition of financial difficulties at the bank. Based on these explanations above, then H2 is explained as the following statement,

H2: NPL can predict financial distress conditions in conventional public go-to banks in Indonesia.

Efficiency performance as a predictor of financial distress conditions

BOPO is the ratio of operational costs and operating income. The

higher BOPO ratio indicates that the greater the operational costs incurred by the bank, which indicates that the bank is less efficient in allocating costs for its operational activities. The higher the BOPO ratio, the greater the potential of a bank to experience conditions of financial difficulties. Based on this explanation above, then H3 is explained as the following statement, **H3:** BOPO is able to predict financial distress conditions in conventional public go-to banks in Indonesia.

Profitability performance as a predictor of financial distress conditions

ROA ratio is a ratio used to measure the level of ability of a company or bank to generate profits by managing existing assets. The greater the ROA of a bank, then the level of the bank's ability to generate profits for the continuity of the bank's operations will be greater too. The greater the ROA, the potential for a bank to experience financial distress will be smaller. Based on this explanation, H4 can be explained as the following statement,

H4: ROA can predict financial distress conditions in conventional public go-to banks in Indonesia.

Solvability performance as a predictor of financial distress conditions

CAR is the ratio between capital and risk-weighted assets. If CAR increases, then the possibility of problematic financial conditions will be smaller. If the bank's capital is not able to cover the risk of losses arising from planting in productive

assets containing risks and cannot be used for financing plantings in fixed assets and investments, these conditions will create financial distress potential. Based on this

METHODOLOGY

Research Population and Samples

The bank population in this study is a conventional go public bank that listed in Indonesia Stock Exchange (IDX) in 2013-2017. The sampling technique used in this research is purposive sampling method, with the following criteria:

- a. Banks that have experienced financial difficulties after being determined according to the criteria.
- b. Included in the category of bank book 2 (core capital value of Rp. 1.000.000.000.000 or one trillion Rupiah up to Rp. 5.000.000.000.000 or five trillion Rupiah)
- c. Banks with positive ROE values, to avoid negative ROE whose value does not meet the logic of financial calculations.

Variable identification

The variables used in this study are independent variables and dependent variables which consist of:

1. Dependent variable is symbolized by Y, namely financial distress for the median panel

Y = 1 if the bank experiences financial distress. The criteria for financial distress in this study refer to the research conducted by Zaki et al. (2011). This study uses three criteria to determine whether the bank experiences financial distress, if:

explanation, H5 can be explained as the following statement,

H5: CAR is able to predict financial distress conditions in conventional public go-to banks in Indonesia.

a. The change value of equity in bank is below the median change of equity in all observations.

b. The change value of the bank's NIM is below the median value of the NIM change throughout the observations.

c. The change value of bank's ROE is below the median change in ROE of all observations.

Y = 0 if the bank does not experience financial distress. This study uses three criteria to determine whether the bank does not experience financial distress, if:

a. The change value in bank's equity is above the median change of equity in all observations.

b. The change value of the bank's NIM is above the median value of the NIM's change throughout the observations.

c. The change value of bank's ROE is above the median change in ROE of all observations.

2. Dependent variable is symbolized by Y, which is financial distress for the mean or average panel

Y = 1 if the bank experiences financial distress. This study uses three criteria to determine whether the bank experiences financial distress, if:

a. The change value in bank's equity is below the average value of changes in equity of all observations.

b. The change value of the bank's NIM is below the average value of

the NIM's changes throughout the observations.

c. The change value of the bank's ROE is below the average value of changes in ROE of all observations.

$Y = 0$ if the bank does not experience financial distress. This study uses three criteria to determine whether the bank does not experience financial distress, if:

a. The change value in bank's equity is above the average value of changes in equity of all observations.

b. The change value of the bank's NIM is above the average value of the NIM's changes throughout the observations.

c. The change value of the bank's ROE is above the average value of ROE changes in all observations.

RESULT AND DISCUSSION

The subject of this study is a Conventional Go Public Bank with a population of Conventional Go Public Banks in Indonesia are 42 (fourty two) banks during 2013-

The independent variable is symbolized by X, namely:

a. Loan to Deposit Ratio (LDR) = X_1

b. Non-Performing Loan (NPL) = X_2

c. Operational Income Operating Costs (BOPO) = X_3

d. Return on Assets (ROA) = X_4

e. Capital Adequacy Ratio (CAR) = X_5

Analysis Model and Data Analysis Technique

This study uses logistic regression analysis. The regression equation that is expected to form in this study are as follows:

$$P(Y = 1 | X) = \frac{e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i}}{1 + e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i}}$$

Information:

α = constant

β = Regression coefficient

e_i = Disturbing variable

2017. Through the purposive sampling method or selection of research samples with certain criteria, the details of sample selection criteria are obtained as shown in the following table

Table 1
Banks as Research Sample

Sample Criteria	2013	2014	2015	2016	2017
Number of Conventional Go Public Banks	35	38	40	42	42
Conventional <i>Go-Public</i> Bank that is not included to 'bank buku 2'	20	22	24	25	25
Bank with negative ROE value	6	7	7	8	8
Number of sample	9	9	9	9	9

Median Panel

Table 2
Descriptive Statistics of Median Panel

Var.	N	Minimum	Maksimum	Mean	Std. Deviation
LDR	45	45.72%	140.72%	81.44%	17.87%
NPL	45	0.00%	4.30%	1.34%	1.01%
BOPO	45	33.28%	96.66%	86.81%	10.72%
ROA	45	0.31%	5.14%	1.31%	0.81%
CAR	45	14.15%	87.49%	22.40%	11.49%

The table above shows that the number of Conventional Go-Public Banks in this study are forty-five (45) Banks. LDR with the lowest value in this study was 45.72% and the highest was 140.72%. The average or mean of LDR is 81.44% with a standard deviation of 17.87%. With a standard deviation value that is smaller than the mean value, it can be said that the deviation of the LDR's data is relatively small so that it also shows that the data quality is relatively good.

NPL with the lowest value in this study was 0.00% and the highest was 4.3%. The NPL is 1.34% with a standard deviation of 1.01%. With a standard deviation value that is smaller than the mean value, it can be said that the NPL's data deviation is relatively small so that it also shows that the data quality is relatively good.

BOPO with the lowest value in this study is 33.28% and the highest is 96.66%. The BOPO's mean is 86.81% with a standard

deviation of 10.72%. With a standard deviation value that is smaller than the mean value, it can be said that the BOPO's data deviation is relatively small so that it also shows that the data quality is relatively good.

ROA with the lowest value in this study is 0.31% and the highest is 5.14%. The ROA's mean is 1.31% with a standard deviation of 0.81%. With a standard deviation value that is smaller than the mean value, it can be said that the ROA's data deviation is relatively small so that it also shows that the data quality is relatively good.

CAR with the lowest value in this study is 14.15% and the highest is 87.49%. The CAR's mean is 22.40% with a standard deviation of 11.49%. With a standard deviation value that is smaller than the mean value, it can be said that the CAR's data deviation is relatively small so that it also shows that the data quality is relatively good.

Here is the Equations for Distress Criteria on Median Panel

Table 3
Equations for Distress Criteria on Median Panel

Types of Equations	Variabel that Used
Equation 1A	The criteria for financial distress equation 1A is the value of changes in bank equity below the value of changes' median in the equity of all observations.
Equation 1B	The criteria for financial distress equation 1B is the value of changes in the bank's NIM below the median value of the NIM changes in all observations.
Equation 1C	The criteria for financial distress equation 1C is the change value of the bank's ROE below the median value of ROE's changes in all observations.

Table 4
Value of Financial Distress Criteria on Median Panel

The Criteria of <i>Financial Distress</i>	Status
Value 0 If the median value of changes in equation 1A > the median value of changes in all observation If the median value of changes in equation 1B > the median value of changes in all observation If the median value of changes in equation 1C > the median value of changes in all observation	<i>Non-Financial Distress</i>
Value 1 If the median value of changes in equations 1A \leq the median value of changes in all observations If the median value of changes in equations 1B \leq the median value of changes in all observations If the median value of changes in equations 1C \leq the median value of changes in all observations	<i>Financial Distress</i>

The following below is a table that displays the result of logistic test (median panel):

Table 5
Summary of Logistic Test' Result on Median Panel

Var.	Model 1A (EQUITY)		Model 1B (NIM)		Model 1C (ROE)	
	Koef (β_i)	Sig.	Koef (β_i)	Sig.	Koef (β_i)	Sig.
LDR	-0.064	0.090	-0.020	0.471	-0.015	0.610
NPL	-0.582	0.166	0.535	0.136	0.871	0.037*
BOPO	0.024	0.840	-0.090	0.485	-0.109	0.365
ROA	0.265	0.858	-0.195	0.893	-1.005	0.497
CAR	-0.125	0.056	0.019	0.597	-0.024	0.526
Chi Square	10.441		4.498		3.876	
Sig.	0.165		0.721		0.794	
R ²	0.327		0.121		0.203	
Prediction Capability	68.9%		62.2%		71.1%	

*significant at 5%

Model 1A

Based on the table above, the value of Chi-Square Hosmer & Lemeshow Test is 10.441 with a significance of 0.165 (greater than 0.1) which means that the model is fit with the data. The Nagel Kerke-R2 value of the first equation is 0.327, means that the variability of the dependent variable which can be explained by the variability of the independent variable is 32.7%. Based on the results of equation table, the results of the study can be explained as the following statement:

a. The testing of LDR variable shows the results of the regression coefficient of -0.064 with a significance of 0.090 (<1 or less than 1). The LDR regression coefficient is negative which indicates that the LDR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the LDR variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance becomes small. Therefore, the hypothesis that the LDR can predict

the condition of financial distress in this equation cannot be accepted or rejected.

b. The testing of NPL variables shows the results of the regression coefficient of -0.582 with a significance of 0.166 (<1 or less than 1). The NPL regression coefficient is negative which indicates that the NPL has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the NPL variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance becomes small. Therefore, the hypothesis that NPL can predict financial distress conditions in this equation cannot be accepted or rejected.

c. The testing of BOPO variables shows the results of the regression coefficient of 0.024 with a significance of 0.840 (<1 or less than 1). The BOPO regression coefficient is positive which shows that BOPO has a positive effect (in the same direction) on the condition of bank financial difficulties. It can be

explained that if the BOPO variable increases, the opportunity for the occurrence of financial distress conditions will increase or the chances of financial difficulties become large. Therefore, the hypothesis that BOPO can predict the condition of financial distress in this equation is acceptable.

d. The testing of ROA variable shows the results of the regression coefficient of 0.265 with a significance of 0.858 (<1 or less than 1). The ROA regression coefficient is positive, indicating that ROA has a positive effect (in the same direction) on the condition of bank financial difficulties. It can be explained that if the ROA variable increases, the opportunity for the occurrence of financial distress conditions will increase or the chances of financial difficulties become large. Therefore, the hypothesis that ROA can predict financial distress conditions in this equation is acceptable.

e. The testing of CAR variable shows the results of the regression coefficient of -0.125 with a significance of 0.056 (<1 or less than 1). CAR regression coefficient has a negative sign that indicates that CAR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the CAR variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that CAR can predict financial distress conditions in this equation cannot be accepted or rejected.

Model 1B

Based on the table above, the value of Chi-Square Hosmer & Lemeshow Test equation 2 is equal to 4.498 with a significance of 0.721 (greater than 0.1) which means that the model is fit (match) with the data. The Nagel Kerke-R2 value of equation 2 is 0.121, means that the variability of the dependent variable which can be explained by the variability of the independent variable is 12.1%. Based on the result table of equation 2, the results of the study can be explained as the following statement:

a. The testing of LDR variables shows the results of the regression coefficient of -0.020 with a significance of 0.471 (<1 or less than 1). The LDR regression coefficient is negative which indicates that the LDR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the LDR variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance becomes small. Therefore, the hypothesis that the LDR can predict the condition of financial distress in this equation cannot be accepted or rejected.

b. The testing of NPL variables shows the results of the regression coefficient of 0.535 with a significance of 0.136 (<1 or less than 1). The NPL regression coefficient is positive, which indicates that the NPL has a positive (unidirectional) effect on the condition of bank financial difficulties. It can be explained that if the NPL variable increases, the opportunity for the occurrence of financial distress will

experience an increase or the opportunity for financial difficulties to be large. Therefore, the hypothesis that NPL can predict the condition of financial distress in this equation is acceptable.

c. The testing of BOPO variable shows the results of the regression coefficient of -0.090 with a significance of 0.485 (<1 or less than 1). The BOPO regression coefficient is negative, which indicates that BOPO has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the BOPO variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that BOPO can predict financial distress conditions in this equation cannot be accepted or rejected.

d. The testing of ROA variable shows the results of the regression coefficient of -0.195 with a significance of 0.893 (<1 or less than 1). ROA regression coefficient has a negative sign that indicates that ROA has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the ROA variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that ROA can predict financial distress conditions in this equation cannot be accepted or rejected.

e. The testing of CAR variable shows the results of the regression coefficient of 0.019 with a significance of 0.597 (<1 or less than

1). CAR regression coefficient is positive which indicates that CAR has a positive effect (in the same direction) on the condition of bank financial difficulties. It can be explained that if the CAR variable increases, the opportunity for the occurrence of financial distress conditions will increase or the chances of financial difficulties become large. Therefore, the hypothesis that CAR can predict the condition of financial distress in this equation is acceptable.

Model 1C

Based on the table above, the value of Chi-Square Hosmer & Lemeshow Test equation 3 is equal to 3,876 with a significance of 0.794 (greater than 0.1) which means that the model is fit with the data. The Nagel Kerke-R2 value of equation 3 is equal to 0.203, means that the variability of the dependent variable which can be explained by the variability of the independent variable is 20.3%. Based on the table of results of equation 3, the results of the study can be explained as the following statement:

a. The testing of LDR variable shows the results of the regression coefficient of -0.015 with a significance of 0.610 (<1 or less than 1). The LDR regression coefficient is negative which indicates that the LDR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the LDR variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance becomes small. Therefore, the hypothesis that the LDR can predict

the condition of financial distress in this equation cannot be accepted or rejected.

b. The testing of NPL variables shows the results of the regression coefficient of 0.871 with a significance of 0.037 (<1 or less than 1). The NPL regression coefficient is positive, which indicates that the NPL has a positive (unidirectional) effect on the condition of bank financial difficulties. It can be explained that if the NPL variable increases, the opportunity for the occurrence of financial distress will experience an increase or the opportunity for financial difficulties to be large. Therefore, the hypothesis that NPL can predict the condition of financial distress in this equation is acceptable.

c. The testing of BOPO variable shows the regression coefficient of -0.109 with a significance of 0.365 (<1 or less than 1). The BOPO regression coefficient is negative, which indicates that BOPO has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the BOPO variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that BOPO can predict financial distress conditions in this equation cannot be accepted or rejected.

d. The testing of ROA variable shows the regression coefficient of -1.005 with a significance of 0.497

(<1 or less than 1). ROA regression coefficient has a negative sign that indicates that ROA has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the ROA variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that ROA can predict financial distress conditions in this equation cannot be accepted or rejected.

e. The testing of CAR variable shows the results of the regression coefficient of -0.024 with a significance of 0.526 (<1 or less than 1). CAR regression coefficient has a negative sign that indicates that CAR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the CAR variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that CAR can predict financial distress conditions in this equation cannot be accepted or rejected.

From the three logit regression equation results, equation 3 is a model that has the best percentage value of financial distress prediction in Conventional Go Public Banks in Indonesia in 2013-2017 with a prediction accuracy percentage of 71.1% along with predictor ratios, namely NPL.

Mean Panel

Table 6
Equations for Distress Criteria on Mean Panel

Types of Equations	Variable Used
Equation 2A	Criteria for financial distress equation 2A is the value of changes in bank equity below the mean or the average change in equity of all observations.
Equation 2B	Criteria for financial distress equation 2B is the value of changes in the bank's NIM below the mean or the average NIM change of all observations.
Equation 2C	Criteria for financial distress equation 2C is the change in value of bank ROE below the mean or average change in ROE of all observations.

Table 7
Value of Financial Distress Criteria on Mean Panel

Criteria of Financial Distress	Status
Value 0 If the mean or the average change in equations 2A > the mean or change of the average in all observations If the mean or the average change in equations 2B > the mean or change of the average in all observations If the mean or the average change in equations 2C > the mean or change of the average in all observations	<i>Non-Financial Distress</i>
Value 1 If the mean or the average changes in equations 2A the mean the average change in all observations If the mean or the average changes in equations 2B the mean the average change in all observations If the mean or the average changes in equations 2C the mean the average change in all observations	<i>Financial Distress</i>

The following below is the result summary of logistic test (mean panel):

Table 8
Summary of Logistic Test' Result on Mean Panel

Var.	Model 2A (Equity)		Model 2B (NIM)		Model 2C (ROE)	
	Koef (β_i)	Sig.	Koef (β_i)	Sig.	Koef (β_i)	Sig.
LDR	-0.253	0.013*	-0.010	0.710	0.001	0.980
NPL	-0.359	0.527	0.414	0.239	0.631	0.093
BOPO	0.113	0.449	-0.048	0.672	-0.106	0.335
ROA	3.355	0.151	-0.025	0.985	-1.238	0.378
CAR	-0.305	0.017*	0.027	0.486	-0.017	0.652
Chi Square	3.696		13.846		4.491	
Sig.	0.814		0.054		0.722	
R ²	0.638		0.076		0.149	
Prediction capability	86.7%		57.8%		64.4%	

*significant at 5%

Model 2A

Based on the table above, the value of the Hosmer & Lemeshow Test Chi-Square is 3.696 with a significance of 0.814 (greater than 0.1) which means that the model is fit with the data. The Nagelkerke R² value of the first equation is 0.638, means that the variability of the dependent variable which can be explained by the variability of the independent variable is 63.8%. Based on the results table equation, the results of the study can be explained as the following statement:

a. The testing of LDR variables shows the results of the regression coefficient of -0.253 with a significance of 0.013 (<1 or less than 1). The LDR regression coefficient is negative which indicates that the LDR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the LDR variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance

becomes small. Therefore, the hypothesis that the LDR can predict the condition of financial distress in this equation cannot be accepted or rejected.

b. The testing of NPL variables shows the results of the regression coefficient of -0.359 with a significance of 0.527 (<1 or less than 1). The NPL regression coefficient is negative which indicates that the NPL has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the NPL variable increases, the opportunity for the occurrence of financial distress conditions decreases or the opportunity becomes smaller. Therefore, the hypothesis that NPL can predict financial distress conditions in this equation cannot be accepted or rejected.

c. The testing of BOPO variables shows the results of the regression coefficient of 0.113 with a significance of 0.449 (<1 or less than 1). The BOPO regression coefficient is positive which shows that BOPO

has a positive effect (in the same direction) on the condition of bank financial difficulties. It can be explained that if the BOPO variable has increased, the opportunity for the occurrence of financial distress conditions has increased too or the chance for financial difficulties become big. Therefore, the hypothesis that BOPO can predict the condition of financial distress in this equation is acceptable.

d. The testing of ROA variable shows the regression coefficient of 3.355 with a significance of 0.151 (<1 or less than 1). The ROA regression coefficient is positive, indicating that ROA has a positive effect (in the same direction) on the condition of bank financial difficulties. It can be explained that if the ROA variable increases, the opportunity for the occurrence of financial distress conditions increases too or the chances of financial difficulties become big. Therefore, the hypothesis that ROA can predict financial distress conditions in this equation is acceptable.

e. The testing of CAR variable shows the results of the regression coefficient of -0.305 with a significance of 0.017 (<1 or less than 1). CAR regression coefficient has a negative sign that indicates that CAR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the CAR variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that CAR can predict financial distress conditions in this

equation cannot be accepted or rejected.

Model 2B

Based on the table above, the value of Chi-Square Hosmer & Lemeshow Test equation 2 is 13,846 with a significance of 0.054 (smaller than 0.1) which means that the model is not fit with the data. The Negel Kerke-R2 value of equation 2 is 0.076, means that the variability of the dependent variable which can be explained by the variability of the independent variable is 7.6%. Based on the table of results of equation 2, the results of the study can be explained as the following statement:

a. The testing of LDR variable shows the results of the regression coefficient of -0.010 with a significance of 0.710 (<1 or less than 1). The LDR regression coefficient is negative which indicates that the LDR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the LDR variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance becomes small. Therefore, the hypothesis that the LDR can predict the condition of financial distress in this equation cannot be accepted or rejected.

b. The testing of NPL variables shows the results of the regression coefficient of 0.414 with a significance of 0.239 (<1 or less than 1). The NPL regression coefficient is positive, which indicates that the NPL has a positive (unidirectional) effect on the condition of bank

financial difficulties. It can be explained that if the NPL variable increases, the opportunity for the occurrence of financial distress conditions will increase or the chances of financial difficulties become big. Therefore, the hypothesis that NPL can predict the condition of financial distress in this equation is acceptable.

c. The testing of BOPO variables shows the results of the regression coefficient of -0.048 with a significance of 0.672 (<1 or less than 1). The BOPO regression coefficient is negative, which indicates that BOPO has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the BOPO variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance becomes small. Therefore, the hypothesis that BOPO can predict the condition of financial distress in this equation cannot be accepted or rejected.

d. The testing of ROA variable shows the results of the regression coefficient of -0.025 with a significance of 0.985 (<1 or less than 1). ROA regression coefficient has a negative sign that indicates that ROA has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the ROA variable increases, the opportunity for the occurrence of financial distress conditions decreases or the chance becomes small. Therefore, the hypothesis that ROA can predict financial distress conditions in this equation cannot be accepted or rejected.

e. The testing of CAR variable shows the results of the regression coefficient of 0.027 with a significance of 0.486 (<1 or less than 1). CAR regression coefficient is positive which indicates that CAR has a positive effect (in the same direction) on the condition of bank financial difficulties. It can be explained that if the CAR variable increases, the opportunity for the occurrence of financial distress conditions will increase or the chances of financial difficulties become big. Therefore, the hypothesis that CAR can predict the condition of financial distress in this equation is acceptable.

Model 2C

Based on the table above, the value of the Chi-Square Hosmer & Lemeshow Test equation 3 is equal to 4.491 with a significance of 0.722 (smaller than 0.1) which means that the model is fit with the data. The Nagelkerke-R² value of equation 3 is 0.149, meaning that the variability of the dependent variable which can be explained by the variability of the independent variable is 14.9%. Based on the table results of equation 3, the results of the study can be explained as the following statement:

a. The testing of LDR variable shows the results of the regression coefficient of 0.001 with a significance of 0.980 (<1 or less than 1). The LDR regression coefficient is positive, indicating that the LDR has a positive (unidirectional) effect on the condition of bank financial difficulties. It can be explained that if the LDR variable increases, the opportunity for the occurrence of financial distress conditions will

increase or the chances will be large. Therefore, the hypothesis that the LDR can predict the condition of financial distress in this equation is acceptable.

b. The testing of the NPL variable shows the regression coefficient of 0.631 with a significance of 0.093 (<1 or less than 1). The NPL regression coefficient is positive, which indicates that the NPL has a positive (unidirectional) effect on the condition of bank financial difficulties. It can be explained that if the NPL variable increases, the opportunity for the occurrence of financial distress will experience an increase or the opportunity for financial difficulties to be large. Therefore, the hypothesis that NPL can predict the condition of financial distress in this equation is acceptable.

c. The testing of BOPO variables shows the results of the regression coefficient of -0.106 with a significance of 0.335 (<1 or less than 1). The BOPO regression coefficient is negative, which indicates that BOPO has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the BOPO variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that BOPO can predict financial distress conditions in this equation cannot be accepted or rejected.

d. The testing of ROA variable shows the regression coefficient of -

1.238 with a significance of 0.378 (<1 or less than 1). ROA regression coefficient has a negative sign that indicates that ROA has a negative effect (having the opposite character) on the condition of bank financial difficulties. It can be explained that if the ROA variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that ROA can predict financial distress conditions in this equation cannot be accepted or rejected.

e. The testing of CAR variable shows the results of the regression coefficient of -0.017 with a significance of 0.652 (<1 or less than 1). CAR regression coefficient has a negative sign that indicates that CAR has a negative effect (having the opposite nature) on the condition of bank financial difficulties. It can be explained that if the CAR variable has increased, the opportunity for the occurrence of financial distress conditions has decreased or the chance has become small. Therefore, the hypothesis that CAR can predict financial distress conditions in this equation cannot be accepted or rejected.

From the three logit regression equation results, equation 1 is a model that has the percentage value of the best predictions of financial distress in Conventional Commercial Go Public Banks in Indonesia in 2013-2017 with a percentage of prediction accuracy of 86.7% along with predictor ratios, namely LDR and CAR.

DISCUSSION

The results of testing the hypothesis and the discussion for the median panel are as follows:

1. LDR in predicting financial distress conditions

LDR is not significant in predicting financial distress conditions. LDR is a ratio of the ratio between loans and third-party funds. The increased LDR indicates that the increase in credit is greater than the increase in third party funds. Increased credit can generate interest income for banks and increase bank profits, which in turn can reduce the potential of bank financial distress. In addition, the average value of LDR owned by conventional commercial banks going public in this study was not less than 78% and no more than 92%. The average LDR of the bank in this study has met the criteria for setting a regulation that is 81.44%. These results indicate that the bank liquidity in this study is considered to be quite good so that the LDR does not have financial distress effects on banks.

The results of this study do not support the results of research from Titis Juniarsi AS and Agus Endro Suwarno (2005), Vidyarto Nugroho (2012), Hesti Budiwati (2011), M Ahmad Al Saleh and Ahmad M Al Kandari (2012), Titik Aryati and Hekinus Manao (2002) and Laely Aghe Africa (2016). In the study LDR proved to be statistically significant.

2. NPL in predicting financial distress conditions

NPL is significant in predicting financial distress conditions. As previously explained, NPL is the

ratio of comparison between non-performing loans and total loans. If the NPL increases it indicates that the increase in non-performing loans is greater than the increase in the number of loans given. With the existence of NPL, banks are required to provide CKPN which creates a burden or cost. If NPL are not handled properly and the bank continues to bear costs, it will increase the potential loss and financial distress at the bank. The results of this study do not support the result of a study from Vidyarto Nugroho (2012) that empirically proves that NPL is not statistically significant in predicting financial distress.

3. BOPO in predicting financial distress conditions

BOPO is not significant in predicting financial distress conditions. Can be estimated because even though during the research period the average trend of BOPO tends to increase, but the average trend of ROA also tends to increase. If the ROA increases it indicates that there is an increase in pre-tax profit which is relatively greater than the increase in total assets. Profit before tax increases, benefits the bank and minimizes the financial distress potential of the bank.

The results of this study are in accordance with the results of research from Vidyarto Nugroho (2012) which proves that BOPO is not statistically significant in predicting financial distress. It is different from research from Hesti Budiwati (2011), Luciana Spica Almilia and Winny Herdiningtyas (2005), and Titik Aryati and Hekinus

Manao (2002) which prove that BOPO is statistically significant in predicting financial distress.

4. ROA in predicting financial distress conditions

ROA is not significant in predicting financial distress conditions. ROA is the ratio of comparison between earnings before tax and total assets. Increased ROA indicates that the increase in pre-tax profit tends to be greater than the increase in total assets. Increased profit before tax can provide benefits to the bank and minimize the potential for financial distress. In addition, based on the results of the research obtained, the average value of ROA owned by conventional public banks going public in this study does not range from 0%-0.5% and has met the criteria for setting regulations which is equal to 1.31%. These results indicate that the bank's profitability performance is considered good so it does not cause financial distress to the bank.

The results of this study are in accordance with the results of research from Vidyarto Nugroho (2012) which proves that ROA is not statistically significant in predicting financial distress conditions. This is different from research from Zeineb Affes and Rania Hentati Kaffel (2016) and Titik Aryati and Hekinus Manao (2002) which prove that ROA is statistically significant in predicting financial distress.

5. CAR in predicting financial distress conditions

CAR is not significant in predicting financial distress conditions. CAR is a ratio of comparison between own capital and ATMR. Increased CAR indicates that there is an increase in

own capital which is relatively greater than the increase in ATMR. Own capital, whose amount increases, can bring profit to the bank so that the potential for financial distress tends to be low. In addition, the results of the study also showed that the average CAR value of conventional public go-to banks in this study was not below 6% and had met the criteria for setting regulations which amounted to 22.40%. These results indicate that the bank's solvency performance is considered good so it does not cause financial distress for the bank.

The results of this study are in accordance with the results of research from Vidyarto Nugroho (2012) which proves that CAR is not statistically significant in predicting financial distress conditions. This is different from research from Titis Juniarsi AS and Agus Endro Suwarno (2005), Zeineb Affes and Rania Hentati Kaffel (2016) and Titik Aryati and Hekinus Manao (2002) which prove that CAR is statistically significant in predicting financial distress.

Then for the panel mean, the results of testing the hypothesis along with the discussion are as follows:

1. LDR in predicting financial distress conditions

LDR is significant in predicting financial distress conditions. LDR is a ratio of the ratio between loans and third-party funds. The increased LDR indicates that the increase in credit provided is greater than the increase in third party funds. Even though credit is a source of interest income for banks, the LDR that is too high can lead to problem loans or a slowdown in credit growth, so the

consequences of non-performing loans are the costs that banks must bear tend to increase the potential of financial distress at the bank.

The results of this study are in accordance with the results of research from Titis Juniarsi AS and Agus Endro Suwarno (2005), Vidyarto Nugroho (2012), Hesti Budiwati (2011), M Ahmad Al Saleh and Ahmad M Al Kandari (2012), Titik Aryati and Hekinus Manao (2002) and Laely Aghe Africa (2016) which prove that LDR is statistically significant in predicting financial distress conditions.

2. NPL in predicting financial distress conditions.

NPL is not significant in predicting financial distress conditions. Predictable because even though during the study period the average NPL trend tends to increase, but the average trend of ROA also tends to increase. ROA is the ratio of comparison between earnings before tax and total assets. If the ROA increases it indicates that an increase in pre-tax profit is greater than the increase in total assets. Increased profit can benefit the bank so that the potential for financial distress is low. In addition, the results of the study show that the average NPL of banks in this study is 1.34%, far lower than the criteria for unhealthy bank NPLs which can reach 8-12% according to regulatory provisions. These results indicate that the performance of the bank's earning asset quality is considered good so that it does not have the effect of financial distress on the bank.

The results of this study are in accordance with the results of a

study from Vidyarto Nugroho (2012) which proved statistically that NPL was not significant in predicting financial distress conditions.

3. BOPO in predicting financial distress conditions

BOPO is not significant in predicting financial distress conditions. Can be estimated because even though during the research period the average trend of BOPO tends to increase, but the average trend of ROA also tends to increase. If the ROA increases it indicates that there is an increase in pre-tax profit which is relatively greater than the increase in total assets. Profit before tax increases, benefits the bank and minimizes the financial distress potential of the bank.

The results of this study are not in accordance with the results of research from Hesti Budiwati (2011), Luciana Spica Almilia and Winny Herdiningtyas (2005) and Titik Aryati and Hekinus Manao (2002) which prove statistically that BOPO is significant in predicting financial distress.

4. ROA in predicting financial distress conditions

ROA is not significant in predicting financial distress conditions. ROA is the ratio of comparison between earnings before tax and total assets. Increased ROA indicates that the increase in pre-tax profit tends to be greater than the increase in total assets. Increased profit before tax can provide benefits to the bank and minimize the potential for financial distress. In addition, based on the results of the research obtained, the average value of ROA owned by conventional public banks going public in this study does not range

from 0% -0.5% and has met the criteria for setting regulations which is equal to 1.31%. These results indicate that the bank's profitability performance is considered good so it does not cause financial distress to the bank.

The results of this study are in accordance with the results of the research of Vidyarto Nugroho (2012) which prove statistically that ROA is not significant in predicting financial distress conditions. It is different from the research of Zeineb Affes and Rania Hentati Kaffel (2016) and Titik Aryati and Hekinus Manao (2002) which prove that statistically ROA is significant in predicting financial distress conditions.

5. CAR in predicting financial distress conditions

CAR is significant in predicting financial distress conditions. CAR is the ratio of comparison between own capital and risk-weighted assets (RWA). Increased CAR indicates that an increase in capital is greater than the increase in Risk Weighted Assets (RWA). Although in theory capital can benefit the bank, but the amount of capital that is too high indicates that the bank has too many unemployed funds, the result is a lack of utilization of productive funds so that the profit is not maximally obtained by the bank and increases the potential for financial distress at the bank.

The results of this study support the results of research from Titis Juniarsi AS and Agus Endro Suwarno (2005), Zeineb Affes and Rania Hentati Kaffel (2016) and Titik Aryati and Hekinus Manao (2002) which prove statistically that CAR is significant in predicting financial

distress. Another case with research from Vidyarto Nugroho (2012) which proves that statistically CAR is not significant in predicting financial distress conditions.

CONCLUSION

Based on the research that has been carried out, it can be concluded that there are significant financial ratios and can be used as predictors of conditions of financial difficulties in Conventional Go-Public Banks in Indonesia in 2013-2017. The explanation is as follows:

1. Median Panel

Equation 3 with the percentage of prediction model accuracy of 71.1% and the NPL ratio as the ratio predictor of financial difficulties.

2. Mean Panel (average)

Equation 1 with the percentage of accuracy of the prediction model is 86.7% along with the ratio of LDR and CAR as the ratio of predictors of financial difficulties.

Recommendation for the next research is to enrich the range (year) of research and variables used, so the research become more various and become more specified.

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