International Journal of Entrepreneurial Research (IJER)
Online ISSN: 2663-7588. Print ISSN: 2663-757X
www.readersinsight.net/ijer

What are the factors financial distress? The National Private Commercial Banks in Indonesia Case

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Abstract

This study employs to identify the determinant factors of the potential bankruptcy of National Private Commercial Banks listed on the Indonesia Stock Exchange. The type of data is secondary data derived from the company's financial statements from 2015-2017. The population of this research is all companies of National Private Commercial Banks listed on the Indonesia Stock Exchange with the purposive sampling technique of sampling 40 companies. The analytical method used to identify the potential for bankruptcy is used the modified Altman Z Score model for non-manufacturing companies in developing capital markets. To identify the determinants of potential bankruptcy is used the Factor Analysis method. Based on the analysis, it is obtained that the potential bankruptcy of the company as a sample has a value of Z Score> 2.60 (including safe zone or healthy category). Then based on the results of analysis factors from the 10 variables studied only 9 variables that found the requirements as a determinant of potential bankruptcy, namely: CAR, NPL, ROA, NIM, BOPO, LDR, CR, ECTA, and TATG variables are divided into 2 factors, namely factor 1 which consists of variables CAR, NIM, LDR, CR, ECTA, and TATG which are named Capital variables and Liquidity, while the one that includes factor 2 consists of variables NPL, ROA, and BOPO which are given variable names Asset Quality and Earning.

Keywords: *Potential Bankruptcy, National Private Commercial Banks, Factor Analysis, Altman Z Score Model.*

ARTICLE INFORMATION

Received: 06 April 2019
Revised: 14 April 2019
Accepted: 30 April 2019

DOI: 10.31580/ijer.v2i2.918

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INTRODUCTION

Background of Study

Good financial performance banking can be known by analyzing financial performance by calculating financial ratios or also called financial statement ratio analysis (Keown, 2012). Financial performance analysis consists of liquidity analysis, solvability analysis and profitability analysis and profitability analysis (Brigham, 2014). In addition, financial ratio analysis can be used to predict the possibility of a company potentially business bankruptcy (Nesser and Aryati, 2002). Before a company bankruptcy, it is usually preceded by financial difficulties or Financial Distress (Ross, 2012), so that the company fails in running the company's operations, which is also called distress risk (Altman, 1968). Based on the results of the study (Bambang and Nelmida, 2017) found that of the 14 banking companies studied there appeared that is one banking company including the gray zone and two banking companies that were the distress zone, where the research used the modified Altman Z Score model (Altman, 2014). The companies are included in the gray zone that mean the Company is not good financial performance that condition even though it can still survive in the short term but the potential for bankruptcy in the future is to be considered quite large, while companies that are in the distress zone are Companies is not good financial performance conditions and financial conditions under severe pressure and the potential for bankruptcy in the future are considered to be very high (Altman, 2014). Based on the results of research conducted by (Bambang and Nelmida, 2017), it will be continued by identifying the determinants that influence the likelihood of the potential bankruptcy of a banking company that comes from internal factors and external factors. Internal factors originate from within the company itself, which is related to the company's financial performance such as the liquidity ratio, solvency and profitability and profitability are the result of decisions and policies that are not fixed in the past and management failure to do something when needed. These various internal factors, among others, are too large several troubled loans, inefficient management, lack of capital and abuse of authority and fraud. For banking companies, internal factors refer to Bank Indonesia Regulation Number 6/20 / PBI / 2004 concerning the criteria for evaluating bank soundness. While external factors come from outside the company such as natural disasters, government policies, conditions or conditions of a country's economy and macro factors. Weston and Brigham (2003) argue that financial distress can occur due to a series of errors, improper decisions, and interconnected weaknesses that can contribute directly or indirectly to management and lack of efforts to monitor financial conditions so that the use of money is not in accordance with need. Many factors determine the possibility of hijacking a hijacking company. When viewed from CAMEL's internal ratio factors (Capital, Assets quality, Management, Earning and Liquidity) including variables that influence the possibility of bankruptcy. Which is included in the Capital Adequacy Ratio is CAR (Equity Capital - Fixed Assets / Total Loan plus Securities) and ECTA (Equity Capital / Total Assets) (Hirtle & Lopez 1999; Gilbert et al. 1999; Gunther 1999; Sinkey 1975). Furthermore, the asset quality category consists of RORA (Earning Before Income Tax / Productive Assets) and OBSEQ ratios (Off-Balance Sheet Activities /

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Equity Capital) (Mongid, 2000; Bryan, 1997; Altman, 1968, and 1981).

Next from the Management category which consists of the ratio of ROA (Net Income / Total Assets) and the ratio of NIM (Net Income - Interest Expense / Total Assets). Furthermore, from the earnings category which consists of the ratio of NPM (Earning After Tax / Operating Income or Sales) and OEOI (Operating Expense / Operating Income). Routledge & Gadenne (2000) the Liquidity category which consists of LDR (Total Loan / Total Deposit), TLTA (Total Loan / Total Assets), CTA (Cash / Total Assets), CBTD (Cash & Bank / Total Deposit), and GRWTH (Growth in Loan) (Routledge & Gadenne 2000; Hirtle & Lopez 1999; Altman1968). Furthermore, from the Sensitivity to market risk category which consists of PE (Market Price per Ordinary Equity Share / Earning Per Share) and the category of Size or bank size which consists of NL SB (Natural Log company size) (Hooks 1995; danOhlson 1980). According to Bank Indonesia Regulation No. 6/10 / PBI / 2004 concerning the Soundness Rating System for Commercial Banks, assessment of bank soundness level includes an assessment of factors such as good corporate governance, net cash flow, Cost income ratio, Loan to deposit ratio, non-performing loans to total loans (Wiston, et al., 2010). This study aims to identify the potential for bankruptcy of National Private Commercial Banks and identify the determinants of the potential bankruptcy of National Private Commercial Banks listed on the IDX.

LITERATURE REVIEW

Theoretical Framework

Bankruptcy Theory

A company that has the potential for bankruptcy will be preceded by financial distress, where the company experiences liquidity difficulties and even worse if the company is not able to operate properly and this then causes the company to go bankrupt (Bodie, Kane and Marcus, 2015). Financial distress occurs before bankruptcy is actually experienced by the company. Financial distress as a stage of decline in financial conditions that occur before the occurrence of bankruptcy or liquidation (Plat and Plat, 2002). Foster (2015) defines Financial distress as: "Financial distress is used to mean severe liquidity issues that cannot be resolved without a sizable rescaling of entity 's operations or structure". Bankruptcy can be interpreted as a failure of the company in carrying out the company's operations to obtain profits. Bankruptcy is also often called corporate liquidation or company closure or insolvency. Bankruptcy as a failure is defined as financial or financial failure and economic failure or economic failure (Adnan and Kurniasih, 2003). While according to Lesmana (2003) the definition of bankruptcy is as follows "The risk of bankruptcy is related to uncertainty regarding the ability of a company to continue its operations if the financial condition held has decreased". From the explanation, it is said that bankruptcy is the inability of a company to continue its operations due to a decrease in financial condition and the amount of liabilities or the amount of debt greater than the value of its assets. Bankruptcy can also be interpreted as company liquidation or company closure or insolvency. Bankruptcy as a failure occurs in a company defined in several terms, namely:

Economic Distressed

Economic failure means that the company loses money or the company's income is unable to cover its own costs, this means that the company has a profit rate smaller than the capital cost or the present value of the company's cash flow far below the expected cash flow. Even failure can also mean that the level of income at the historical cost of the investment is smaller than the cost of the company's capital spent on an investment.

Financial Distressed

The definition of financial distressed has the meaning of difficulty in funds both in terms of funds in terms of cash or in working capital (Brigham, 2014). Because liability management assets play an important role in the arrangement to keep them from being exposed to financial distressed.

Determinants of Bankruptcy

Bankruptcy that occurs in companies In general, caused by external factors and internal factors, but in this study to be discussed are internal factors only, namely factors that are within the company itself. Sharpe, Alexander, and Bailey (2003) states that internal factors include financial and non-financial factors. Financial factors include the existence of debt that is too large so that it becomes a heavy fixed burden for the company, the existence of short-term liabilities greater than current assets, the slow collection of receivables or the amount of bad debt, errors in dividend policy, and insufficient depreciation funds. While non-financial factors are the existence of errors in site selection, product determination and determination of business scale, poor organizational structure, errors in the selection of company leaders, managerial incompetence (purchasing, sales, marketing policies). In this study what will be discussed are financial factors. Factors including the financial group especially for banking companies are in accordance with Bank Indonesia Circular Letter No.6 / 23 / DPNP dated 31 May 2014 concerning Commercial Bank Soundness Rating System using the CAMEL ratio (Capital, Asset Quality, Management, Earning, and Liquidity) Identification will be done later to determine the ratios used in this study.

Previous of Research

Previous research that examines bankruptcy or financial distress in Indonesia is not so much or is still limited compared to the results of research abroad. Cultrera Loredana (2015), examines the ratio of liquidity, solvency, operational, structure and profitability. For liquidity ratios with proxies such as current ratios, profitability ratios with proxy comparisons between Earnings before interest and taxes / total assets, structure ratios with Equity / total asset ratio ratios, value added ratios with proxy comparison between Fiscal charges / added value, and solvency ratios with proxy comparison between Cash flow / total debt. The results of the study by Cultrera Loredana (2015) found that from finding that profitability and liquidity ratios can predict company bankruptcy well in the country of Belgium. Furthermore, Mahdi Salehi and Mousavi Shiri (2015) examined the state or situation of the country against the bankruptcy of companies in Tehran. Based on the results of his research that the situation of a country affects the company's bankruptcy. Next Ehab Zaki, Rahim Bah, and Ananth Rao (2011), examined the effect of the CAMEL ratio on reliance. Variables covered include: Net cash flow (NCF), Cost income ratio (CIR), Liquidity (current ratio; CR), Capital (wealth; ETA), Collateral (security represented by total asset growth; TAG), Condition (LLRGL, Market risk (price to earnings ratio; PE), Condition (economy; business cycle indicators - for example GDP and commodity prices such as oil / barrel prices. Based on research results). Ehab Zaki, Rahim Bah, and Ananth Rao (2011) cost income ratio, equity to total assets, total asset growth and ratio of loan loss reserve to gross loans (significant positive effect on bankruptcy potential). There are several research results in Indonesia, namely Nurazi, Ridwan & Evans, Michael (2005), who examined the CAMEL ratio against bankruptcy. Nurazi, Ridwan & Evans, Michael (2005) found that of the 15 variables studied turned out to be from the CAMEL ratio namely capital adequacy ratio or CAR and Equity Capital on Total Assets or ECTA proxies from Capital, return on risk assets or RORA and Off-Balance Sheet Activities on Equity Capital OBSEQ is a proxy for Assets Quality, return on Assets or ROA and Net Income - Interest Expense / Total Assets Proxy or NIM from management, Earning After Tax / Operating Income or Sales or NPM. Saleh and Sudiyanto (2012), examined financial ratios in predicting the possibility of bankruptcy. Financial ratios used include Current Ratio, Debt Ratio, Total Asset Turnover Ratio, Return on Assets,

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Return on Equity, and Net Interest Margin. From the five ratios studied, it turns out that Return on Assets, Return on Equity which affects the potential for bankruptcy.

Figure 1 presents the flow chart of this study,

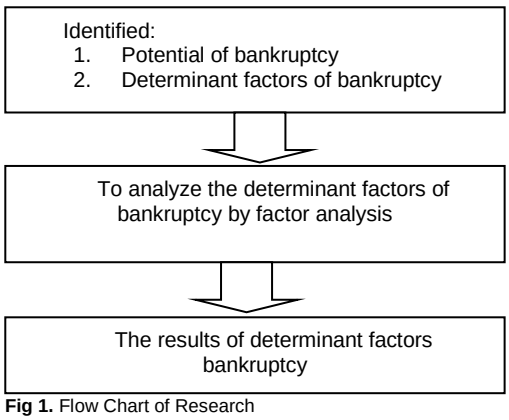

Fig 1. Flow Chart of Research

METHODOLOGY

The Research Design

The Research Design is related descriptive and quantitative research, that meaning is this study identifies banking companies that have the potential for bankruptcy using the modified Altman Z Score method (Altman, 2014) and also identifies bank determinants by using Factor Analysis. Furthermore, describing the variables that determines the potential bankruptcy of the National Private Commercial Bank in the Research Period used is from 2015 to 2017.

Population and Samples

The populations in this study are all companies of National Private Commercial Banks listed on the Indonesia Stock Exchange (IDX). The research sample was selected from all populations using purposive sampling techniques which determine the number of samples according to criteria as follows (Sekaran, 2005): a). Samples taken are included in the industrial sector of the National Commercial Bank in accordance with the classification in the Indonesian Capital Market Directory for 4 years starting from 2015 to2017; b) Shares of the issuer are actively traded during the observation period; c) Publish Financial Statements during the study period.

Types and Sources of Data

In this study the type of data used is secondary data derived from the financial statements of the National Commercial Bank companies listed on the Indonesia Stock Exchange. The research period starts from 2015 to 2017. The company's financial statements are obtained from the Indonesian Capital Market Directory (ICMD), Jakarta Stock Exchange (JSX).

Variable Operational Definitions and Measurement Methods

Operational definitions are used as the basis for data collection so there is no bias towards the data taken. In practical use, operational definitions can play a role in eliminating bias in interpreting an idea of intent which is usually in written form.

Bankruptcy Potential

This study has not analyzed the relationship between potential determinants of bankruptcy and potential bankruptcy, but only identifying potential bankruptcies and determinants of potential bankruptcy. In identifying the potential recruitment model used, the Altman Z Score model is modified for non-manufacturing companies in developing countries or emerging markets (Altman, 2014) with the formula:

$$Z\text{-Score}=3.25+6.56X\_1+3.26X\_2+6.72X\_3+1.05X\_4 \quad (1)$$

Where is:

X1 = (current assets − current liabilities) / total assets

X2 = retained earnings / total assets

X3 = earnings before interest and taxes / total assets

X4 = book value of equity / total liabilities

The Z-Score calculated using the above equation, is then interpreted into 3 Zones of discriminations, as follows (Altman, 2000): 1) Z> 2.6 "Safe" Zone (The company is a good financial performance and the potential for bankruptcy in the future is very small); 2) 1.1 <Z <2.6 "Gray" Zone (The company is not good financial performance condition even though it can still survive in the short term but the potential for bankruptcy in the future is considered to be quite large); 3) Z <1.1 "Distress" Zone (Companies is not good financial performance conditions and financial conditions of severe pressure and potential bankruptcy in the future are considered).

Determinant factors of the bankruptcy potential

In research the determinants of bankruptcy used are as follows: CAR is a comparison between capital and risk-weighted assets, NPL is the ratio of non-performing loans to total credit, ROA is a comparison of net income with total assets, NIM is the difference between the interest earned by the bank and the interest paid to the lender, BOPO is a comparison between operating costs and operating income, LDR is a comparison of the amount of credit given with total third party funds, CR is a comparison between current assets and current debt, ECTA is a comparison between working capital and total assets, TATG is the growth of total assets, and ETA is a ratio of equity to total assets.

Analysis Method

The qualitative and descriptive methods are analyzing that describe the potential for bankruptcy and the determinants of potential bankruptcy. The quantitative methods research is used to identify the determinants of bankruptcy used. In the Factor Analysis method there are several steps that must be passed, namely:

The KMO and Bartlett's Test

The KMO and Bartlett's test aims to determine the adequacy of the sample used. Based on the KMO and Bartlett's test results. If the value of KMO Measure of sampling Adequacy (MSA) is greater than 0.5 which means that the adequacy of the sample used has been fulfilled. Furthermore, the value of KMO and Bartlett's test (without the chi-square value) is 993.377 with a significant zero value, this indicates that there is a correlation between variables and is feasible for further processing.

The Anti-image Matrices Test

The Anti-image Matrices test aims to find out which variables can be processed further, and which variables will be issued. Based on the results of the Anti-image MSA value of each variable is > 0.5, the variable can be processed further, but if it is smaller than 0.5, the variable is issued and after that a factor analysis is done for the second time.

The communalities Test

The next analysis process is to conduct communalities test which aims to test the strength or weakness of the variable relationship with the factors formed. Based on the results of the communalities test, the variance value of each variable can be explained by the factors formed. The smaller the value of communalities means the weaker the relationship with the factors formed.

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THE TOTAL VARIANCE EXPLAINED TEST

The total Variance Explained Test to determine the amount of variance that can be explained by new factors formed. The value of each factor has an eigenvalue > 1.

THE SCREE PLOT GRAPH

The scree plot pictures explain the relationship between the numbers of factors formed with eigenvalue values in graphical form as shown in Figure 2. From Figure 4.1, there are 2 factors formed from 9 variables with eigenvalue > 1.

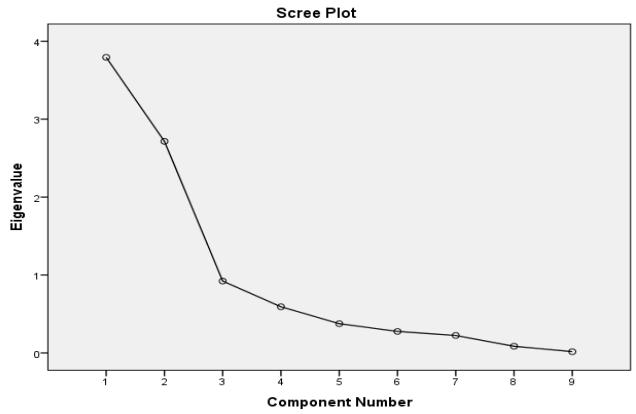

Fig 2. Screeplot

THE ROTATED COMPONENT MATRIX TEST

Rotated Component matrix test aims to determine which variables are included in each group of factors formed, namely the value of the loading factor of each variable. The value of loading factor is the magnitude of the correlation between the factors formed with these variables, where the correlation value taken is the highest value.

THE VARIMAX ROTATION TEST

The varimax rotation test aims to determine whether the variables are distributed to each of the factors formed. Based on the varimax rotation test results as shown in the component transformation matrix Table, it shows the results of varimax rotation. The variables should be distributed to each factor with a small diagonal correlation value of 1 means that the correlation value has met the requirements. After rotating and forming a factor, then give the name of the factor. Naming this factor depends on the researcher and can represent the variables

RESULTS AND FINDINGS

Overview of Research

This study aims to identify the factors that influence the likelihood of potential bankruptcy in the company of the National Private Commercial Banks whose population is 69 companies. To determining the number of samples used in this study is a purposive sampling technique with the number of 40 companies. Gay and Diehl (1992) argued if the population is small, minimum the sample size is 20%. The research period used is three years (2015-2017). The companies that the research samples saw on Table 1

Table 1. The Samples of Research

No.	Names of Banking	No.	Names of Banking
1	Bank Artha Graha	21	Bank Rabobank
2	Bank Bukopin	22	Bank SBI Indonesia
3	Bank Bumi Artha	23	Bank Shinhan
4	Bank Capital Indonesia	24	Bank Sinarmas
5	Bank Central Asia	25	Bank Tabungan Pensiunan Nasional
6	Bank China Construction	26	Bank UOB Indonesia
7	Bank CIMB Niaga	27	Bank Victoria International
8	Bank Danamon	28	BRI Agroniaga
9	Bank Index Selindo	29	Pan Indonesia
10	Bank Keb Hana	30	Bank Amar Indonesia
11	Bank Maspion	31	Bank Bisnis Internasional
12	Bank Mayapada	32	Bank Dinar Indonesia
13	Bank Mayora	33	Bank Fama Internasional
14	Bank Mega	34	Bank Ina Perdana
15	Bank MNC Internasional	35	Bank Jasa Jakarta
16	Bank Multiarta Sentosa	36	Bank Mandiri Taspen Pos
17	Bank Nusantara Parahyangan	37	Bank Mitraniaga
18	Bank OCBC NISP	38	Bank Royal Indonesia
19	Bank Permata	39	Bank Sahabat Sampoerna
20	Bank QNB	40	Bank Yudha Bhakti

Sources: Yahoo Finance.com

The data in this study was taken from the IDX website and Yahoo Finance. The type of data used the secondary data in the form of financial statements of banking companies such as the Balance Sheet and Profit and Loss Statements of banking companies in 2015 to 2017. After all the data collected is done tabulation of data in accordance with what is needed, namely net working capital data, total assets, retained earnings, EBIT , the market value of equity and total debt used to calculate the potential bankruptcy (Z Score) and financial ratios such as CAR, NPL, ROA, NIM, BOPO, LDR, CR, ECTA, TATG, and ETA.

The Research Results

The determining the potential bankruptcy of a banking company used by the modified Altman's Z Score Model for the emerging capital markets (Altman, 2014). The results of finding as shown in Table 4.2. The finding describes that all banking companies had a Z Score greater than 2.6, which means that all banking companies are in safe zone conditions or in a safe and the potential for bankruptcy in the future it is very small (Altman, 2014). The potential for bankruptcy of a company is determined by many factors, namely internal factors and external factors. Internal factors are factors that originate from within the company, while external factors come from outside the company related to company operations or macroeconomic factors.

Table 2. The Z score values of Banking Company

No.	Names of Banking Company	Year		
		2015	2016	2017
1	Bank Artha Graha	3.8564	3.8018	3.7330
2	Bank Bukopin	3.7912	3.7886	3.2581
3	Bank Bumi Artha	4.1211	4.1632	4.2641
4	Bank Capital Indonesia	4.0255	4.1392	4.1625
5	Bank Central Asia	4.8518	4.9073	5.0004
6	Bank China Construction	4.1880	4.4217	4.0321
7	Bank CIMB Niaga	3.9696	4.0561	4.3855
8	Bank Danamon	5.1083	5.4368	5.5675
9	Bank Index Selindo	4.5232	4.4669	4.4940
10	Bank Keb Hana	4.7704	4.6833	4.7830
11	Bank Maspion	4.1243	4.1494	4.3099
12	Bank Mayapada	4.0066	4.1205	4.1121
13	Bank Mega	4.0630	4.1755	4.1074
14	Bank MNC Internasional	4.2413	4.2016	3.0639
15	Bank Multiarta Sentosa	5.5286	4.7510	4.3694
16	Bank Nusantara Parahyangan	4.4202	4.4656	4.3363
17	Bank OCBC NISP	4.4613	4.4208	4.4671
18	Bank Permata	4.2574	3.7522	3.7808
19	Bank QNB	4.3933	3.6846	3.6646
20	Bank Rabobank	3.9700	4.6593	4.6878
21	Bank SBI Indonesia	4.7736	5.4024	5.5069
22	Bank Shinhan	6.2482	6.8282	6.9372
23	Bank Sinarmas	4.0649	4.1959	4.2517
24	Bank Tabungan Pensiunan Nasional	4.8517	4.7921	4.6723

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25	Bank UOB Indonesia	4.6675	4.6143	4.2312
26	Bank Victoria International	3.8740	3.8479	3.9239
27	BRI Agroniaga	4.5516	4.5922	4.7345
28	Pan Indonesia	4.5260	4.6458	4.2096
29	Bank Amar Indonesia	13.6776	14.8230	7.4271
30	Bank Bisnis Internasional	4.9145	5.8369	6.1145
31	Bank Dinar Indonesia	4.5543	4.2312	4.1769
32	Bank Fama Internasional	5.0183	5.4066	5.1641
33	Bank Ina Perdana	4.4918	4.8427	5.9702
34	Bank Jasa Jakarta	4.8041	5.0352	5.0947
35	Bank Mandiri Taspen Pos	5.4216	4.3491	4.1323
36	Bank Mitraniaga	4.0718	4.0252	3.9418
37	Bank Royal Indonesia	5.1148	4.9119	5.2948
38	Bank Sahabat Sampoerna	4.7139	4.3779	4.4803
39	Bank Yudha Bhakti	3.9446	4.4027	4.0950

Sources: The Finding

In this study only discussed internal factors. Internal factors discussed consisted of financial performance ratios, namely the Capital Adequacy Ratio (CAR) ratio, Non-Performance Loan (NPL), Return on Assets (ROA), Net Interest Margin (NIM), Operating Costs and Operating Revenues (BOPO), Loan Deposit Ratio (LDR), Current Ratio (CR), Working Capital / Total Assets (ECTA), Total Asset Growth (TATG) and Equity / Total Asset ETA. In this study the determinant variables used amounted to 10 variables. All of these variables were analyzed by factor. In the process of factor analysis, the results are obtained through several stages of testing as follows:

KMO and Barlett's Test Results

KMO and Bartlett's test aims to determine the adequacy of the sample used. Based on the results of KMO and Bartlett's test, it can be seen in Table 3 that the value of the Measure of sampling Adequacy (MSA) KMO is 0.715. This value is greater than 0.5, which means that the adequacy of the sample used has been fulfilled. Furthermore, the value of KMO and Barlett's test (without the chi-square value) is 993.377 with a significant zero value, this indicates that there is a correlation between variables and is feasible for further processing.

Table 3. KMO and Bartlett's Test Result

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.715
Bartlett's Test of Sphericity	Approx. Chi-Square	993.377
	Df	45
	Sig.	0.000

Anti-image Matrices Test Results

The Anti-image Matrices test aims to find out which variables can be processed further, and which variables will be issued. Based on the results of the Anti-image Matrices results obtained as shown in Table 4.4. In the Anti-image Matrices Table in Table 4, specifically in the section (anti Image Correlation) there is a number marked (a) which indicates the MSA magnitude of a variable. The variable CAR values are 0.785, 0.837 NPL, 0.552 ROA, 0.708 NIM, BOPO 0.573, LDR 0.749, 0.869 CR, ECTA 0.756, TATG 0.650, and ETA 0.292. The MSA value of each variable is > 0.5 except the ETA variable < 0.5, then the ETA variable is issued in the factor analysis and after that the factor analysis is done again for the second time.

Table 4. Anti-image Matrices

Variable		CAR	NPL	ROA	NIM	BOPO	LDR	CR	ECTA	TATG	ETA
Anti-image Correlation	CAR	0.785[a]	0.074	-0.020	-0.030	-0.061	0.021	-0.290	-0.707	0.133	-0.051
	NPL	0.074	0.837[a]	0.205	-0.139	0.004	0.177	-0.218	-0.013	0.260	0.082
	ROA	-0.020	0.205	0.552[a]	-0.400	0.960	0.384	0.084	-0.040	0.054	0.103
	NIM	-0.030	-0.139	-0.400	0.708[a]	-0.317	0.305	-0.359	0.046	-0.022	0.057
	BOPO	-0.061	0.004	0.960	-0.317	0.573[a]	0.333	0.101	-0.029	0.028	0.088
	LDR	0.021	0.177	0.384	-0.305	0.338	0.749[a]	-0.069	-0.385	0.185	0.114
	CR	-0.290	-0.218	0.084	-0.359	0.101	-0.069	0.869[a]	-0.107	0.107	0.034
	ECTA	-0.707	-0.013	0.040	0.046	-0.029	-0.385	-0.107	0.756[a]	-0.287	0.014
	TATG	0.133	0.260	0.054	-0.022	0.028	0.185	-0.107	-0.287	0.650[a]	-0.022
	ETA	-0.051	0.082	0.103	-0.057	0.088	0.114	-0.034	0.014	-0.022	0.292[a]

a. Measures of Sampling Adequacy (MSA)

The Second KMO and Bartlett's Test Results

Based on the second factor analysis, it was obtained the KMO and Bartlett's Test results as shown in Table 5 that the value of measure of sampling adequacy (MSA), the value of the KMO is 0.718, that is greater than 0.5 which means that the adequacy of the sample used has been fulfilled. Furthermore, the value of the KMO and Barlett's test (without the chi-square value) is 992.770 with a significant zero value, this indicates that there is a correlation between variables and is feasible for further processing.

Table 5. Results of KMO dan Barlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.718
Bartlett's Test of Sphericity	Approx. Chi-Square	992.770
	Df	36
	Sig.	0.000

Anti-image Matrices Test Results

Based on the second factor analysis, the results obtained are shown in Table 6. The Anti-image Matrices value in Table 6, specifically in the section (anti Image Correlation) shows a number marked (a) which indicates the MSA size of a variable. The value of variable CAR 0.784, NPL 0.845, ROA 0.556, NIM 0.711, BOPO 0.576, LDR 0.756, CR 0.868, ECTA 0.755, and TATG 0.645. All MSA values of each variable are > 0.5, then all variables can be done in the next process.

Table 6. Anti-image Matrices

Variabel		CAR	NPL	ROA	NIM	BOPO	LDR	CR	ECTA	TATG
Anti-image Correlation	CAR	0.784[a]	0.078	-0.015	-0.033	-0.057	0.027	-0.292	-0.707	0.132
	NPL	0.078	0.845[a]	0.199	-0.135	-0.003	0.169	-0.216	-0.014	0.263
	ROA	-0.015	0.199	0.556[a]	-0.397	0.960	0.377	0.088	-0.042	0.056
	NIM	-0.033	-0.135	-0.397	0.711[a]	-0.313	-0.301	-0.361	0.046	-0.023
	BOPO	-0.057	-0.003	0.960	-0.313	0.576[a]	0.332	0.104	-0.023	0.030
	LDR	0.027	0.169	0.377	-0.301	0.332	0.756[a]	-0.065	-0.392	0.188
	CR	-0.292	-0.216	0.088	-0.361	0.104	-0.065	0.868[a]	-0.106	-0.108
	ECTA	-0.707	-0.014	-0.042	0.046	-0.023	-0.392	-0.106	0.755[a]	-0.287
	TATG	0.132	0.263	0.056	-0.023	0.030	0.188	-0.108	-0.287	0.645[a]

a. Measures of Sampling Adequacy (MSA)

Test Results for Commonalities

The next analysis process is to conduct Communalities test which aims to test the strength or weakness of the variable relationship with

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the factors formed. Based on the results of the Communalities test as shown in Table 4.7 the Communalities value for the CAR variable is 0.839 (83.9%), NPL is 0.745 (74.5%), ROA is 0.930 (93.0%), NIM is 0.538 (53.8%), BOPO 0.919 (91.9%), LDR 0.690 (69%), CR 0.778 (77.8%), ECTA 0.864 (86.4%), and TATG variables 0.210 (21.0%). The results of the Communalities test, the variance value of each variable can be explained by the factors formed. The smaller the value of commonalities means the weaker the relationship with the factors formed.

Table 7. Communalities

Variables	Initial	Extraction
CAR	1.000	0.839
NPL	1.000	0.735
ROA	1.000	0.930
NIM	1.000	0.538
BOPO	1.000	0.919
LDR	1.000	0.690
CR	1.000	0.778
ECTA	1.000	0.864
TATG	1.000	0.216

Extraction Method: Principal Component Analysis.

The Total Variance Explained Test Results

The Total Variance Explained Test to determine the amount of variance that can be explained by new factors formed. The results of the Total Variance Explained test can be seen in Table 8. From the test results, the Total Variance Explained Test shows that there are 2 factors which are formed from 9 variables entered. The value of each factor has an eigenvalue > 1. Factor 1 has an Eigenvalue of 3.793 with variance (42.148% = 3.793 / 9 x 100%), factor 2 has an eigenvalue of 2.715 with variance (30.173% = 2.715 / 9 x 100%). The eigenvalue values describe the relative importance of each factor in calculating the variance of the 9 variables analyzed. In case all variables are worth 9 (equal to the number of variables). Total variance of 9 variables extracted into 2 factors are: 42.14% + 30.17% = 72.31%. The amount of variance that can be explained by the new factors formed is 72.31% while the remaining 27.69% is explained by other factors not examined.

Table 8. Nilai Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.793	42.148	42.148	3.773	41.923	41.923
2	2.715	30.172	72.320	2.736	30.396	72.320
3	0.922	10.244	82.563			
4	0.592	6.580	89.144			
5	0.375	4.170	93.314			
6	0.276	3.066	96.380			
7	0.224	2.489	98.869			
8	0.086	0.952	99.821			
9	0.016	0.179	100.000			

The Scree plot Graph

Scree plot images explain the relationship between the numbers of factors formed with eigenvalue values in graphical form as shown in Figure 3. From Figure 3, there are 2 factors formed from 9 variables with eigenvalue > 1.

The Rotated Component Matrix Test Results

The Rotated Component matrix test aims to determine which variables are included in each group of factors formed, namely the value of the loading factor of each variable. The value of loading factor is the magnitude of the correlation between the factors formed with these variables, where the correlation value taken is the highest value of the value of factor 1 and factor 2. Based on the results of the Rotated Component matrix test as shown in Table 9. For the CAR variable has a value of loading factor by factor 1 is (0.908), and factor 2 (0.120). It can be said that the CAR variable enters Factor 1, because the correlation is the highest among the other factors. Likewise, the loading factor for other variables. NPL variable value factor loading by factor 1 (0.016), and factor 2 (0.857), then the variable NPL goes to Factor 2 because the correlation is highest among other factors.

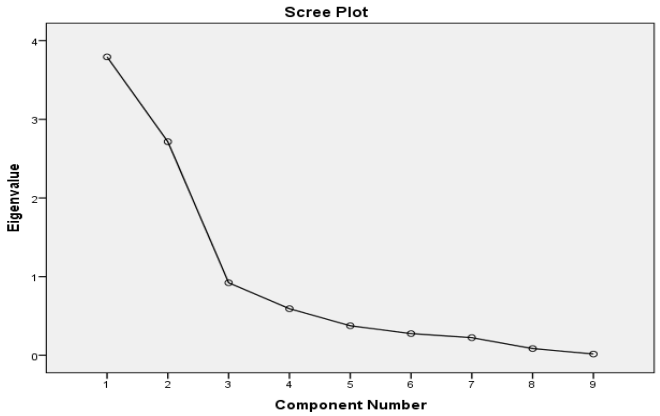

Figure 3. Screeplot of Factors

ROA variable loading factor value with a factor of 1 (-0.041), and factor 2 (-0,963), then the variable ROA is entered in Factor 2. NIM variable value of loading factor by factor 1 (0.703), and factor 2 (-0.210), then variable NIM entered Factor 1. BOPO variable loading factor value with a factor of 1 (0.015), and factor 2 (0.950), then the BOPO variable goes to Factor 2. LDR variable value of loading factor by factor 1 (0.826), and factor 2 (0.087), then the LDR variable is entered in Factor 1. Variable CR loading factor with factor 1 (0.874), and factor 2 (0.181), then the CR variable goes into Factor 1. The ECTA variable is the value of loading factor by factor one (0.928), and factor two (0.047), the variable diversity of ECTA enters Factor 1. Finally, the TATG variable is the value of loading factor with factor 1 (0.380), and factor 2 (-0.268), then the TATG variable enters Factor 1.

Table 9. The Rotated Component Matrix[a]

	Component	
	1	2
CAR	0.908	0120
NPL	0.016	0.857
ROA	-0.041	-0.963
NIM	0.703	-0.210
BOPO	0.015	0.958
LDR	0.826	0.087
CR	0.874	0.118
ECTA	0.928	0.047
TATG	0.380	-0.268

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
[a]Rotation converged in 3 iterations.

The Varimax Rotation Test results

The Varimax Rotation Test aims to find out whether the variables are distributed to each factor, namely 2 factors formed. Based on the results of the varimax rotation test as shown in Table 10, the Table of Component Transformation Matrix, shows the results of varimax rotation. The variables have been distributed to each factor, namely 2 factors formed with a small diagonal correlation value of 1, meaning that the correlation value has met the requirements.

Table 10. Component Transformation Matrix

Component	1	2
1	0.991	0.137
2	-0.137	0.991

Extraction Method: Principal Component Analysis.
Rotation Method: The Varimax with Kaiser ormalization.

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After rotating and forming two factors, as shown in Table 11 then name the factor. Naming this factor depends on the researcher and can represent the variables. Factor 1 consists of variables CAR, NIM, LDR, CR, ECTA, and TATG variables which are given variable names Capital and Liquidity. Factor 2 consists of variables NPL, ROA, and BOPO named Variable Asset Quality and Earning.

Table 11. Variables that include of Factor 1 and Factor 2

No.	Factor 1	Factor 2
1	CAR	NPL
2	NIM	ROA
3	LDR	BOPO
4	CR	
5	ECTA	
6	TATG	

CONCLUSION

Based on the results of research and discussion of 40 (forty) banking companies that were the object of research by identifying the possibility of potential bankruptcy using the modified Z Score model (Altman et al., 2014), the Z Score obtained were as follows; 1) The companies had Z Score value greater than 2.60 with the company being in safe zone, which meant that the company was a good financial performance and the potential for bankruptcy in the future was very small. 2) Based on the analysis of the determinants of bankruptcy potential of the 10 variables, it turns out that 9 factors meet the requirements, namely: CAR, NPL, ROA, NIM, BOPO, LDR, CR, ECTA, and TATG variables. The 9 (nine) variables that meet the requirements can be grouped on two factors, namely factor 1 which consists of variables CAR, NIM, LDR, CR, ECTA, and TATG, the variables which are given variable names Capital and Liquidity. Factor 2 consists of variables NPL, ROA, and BOPO named Variable Asset Quality and Earning.

Research Implications

Based on the results of the research and conclusions, the research implications can be made as follows: 1) The value of Z score the banking companies that is in the safe zone category with an indicates that the company is safe or a good financial performance, this will have implications for the sustainability and survival of the company, where the banking companies in the safe zone will not financial difficulties or potentially go bankrupt. This situation must be maintained by maintaining the value of financial ratios such as the ratio of working capital to total assets, the retained earnings ratio with total assets, the EBIT ratio to total assets and the ratio of market value of equity to total debt. 2) Based on the results of factor analysis there are 9 variables that determine the potential for bankruptcy, namely CAR, NPL, ROA, NIM, BOPO, LDR, CR, ECTA, and TATG variables. In maintaining the potential for bankruptcy in the safe zone category nine variables studied should be controlled or maintained in a good category.

Limitations of Research and Suggestions

Based on the results of the research and discussion, the research can be made as follows: 1). This research only examines the banking companies including the National private commercial Banking Company listed on the Indonesia Stock Exchange, which number 69 banking companies with a sample of 40 companies. It is recommended for future research to expand the scope of the research so that the number of samples will be even more numerous, and the results of the research can be more generalized. 2). This research in identifying the possibility of bankruptcy is only by using a modified Model Z Score (Altman et al., 2014) for non-manufacturing companies registered in the capital market for emerging markets. It is recommended that future researchers use the Z Score model other than the Z Score Model (Altman et al., 2014) such as the O Score. Springate S-Score model. 3). This study only assesses the potential determinants of bankruptcy by using the factor analysis and has not yet examined which factors influence the potential for bankruptcy. It is recommended for future research to conduct a study of the dominant factors affecting the potential for bankruptcy.

Acknowledgements

This research work is supported by STIE Indonesia Banking School.

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