BANKING GOOD GOVERNANCE AND
BANKRUPTCY PREDICTION IN ASEAN 8

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Abstract

This study aims to determine and analyze the effect of bank soundness in 8 ASEAN member countries as seen from the magnitude of financial ratios such as Non-Performing Loans, Self-Assessment, Return on Assets, and Capital Adequacy Ratio on bankruptcy predictions as seen from the Altman Z Score Modification in public banking companies in the period 2014-2019. The RGEC method is a method which uses risk approach (Risk-based Bank Rating/ RBBR) which consists of Risk Profile, Good Corporate Governance (GCG), Profitability (Earning), and Capital. The research used quantitative methods using panel data. The sample used in this study is 11 banking companies spread across 8 ASEAN countries which were always active in 2014-2020

with purposive sampling method. The data analysis technique used is panel data regression analysis that combines time series data and cross section using Stata software. The results of the study are Non-Performing Loan (NPL) and ROA have significant effect on the prediction of bank bankruptcy in ASEAN 8. Meanwhile, the self assessment and CAR are not significant to the prediction of bankruptcy.

Keywords: Prediction of bankruptcy, Non-Performing Loan, Self Assessment, Return On Asset, Capital Adequacy Ratio

INTRODUCTION

One of the challenges faced by banks in the ASEAN region is the plan to form the ASEAN Banking Integration Framework (ABIF). ABIF is one of the concrete steps towards the ASEAN Economic Community (AEC) since 2015. The reason is clear, economic unity is inseparable and must be supported by banking units (Banks et al., 2015). At the annual meeting at the level of the Governor of the Central Bank and ASEAN Finance Ministers on April 5, 2019 in Chiang Rai, Thailand reaffirmed its commitment to achieve ASEAN financial integration in order to support economic growth and strengthen financial stability in the ASEAN Region.

Banking is an industry that is directly related to society so that banking needs trust from the public, because trust is the basis for the operation of a bank. The loss of public confidence in the banking sector as an intermediary institution will create pressures in the financial sector leading to bankruptcy. Trust from the public can be grown from banking institutions that are always in good health, as described in Law Number 7 of 1992. So that Bank Indonesia issued a new policy in Bank Indonesia Regulation No.13 / 1 / PBI / 2011 concerning the Health Assessment of Commercial Banks with the RGEC method (Risk Profile, Good Corporate Governance, Earnings, Capital).

Figure 1. Return of Asset Banks in ASEAN 8
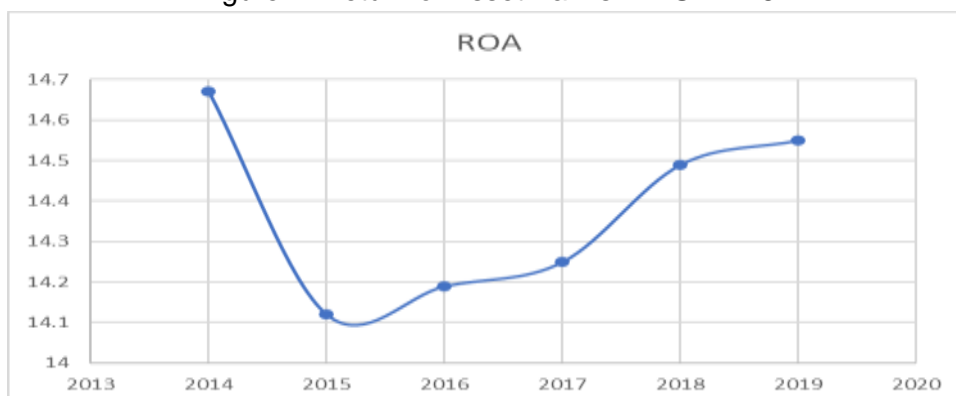
Source: Official 11 bank's websites, 2014-2020

The graph above shows that the indicators of Return of Assets (ROA) for 11 banking companies in 8 ASEAN member countries, Indonesia, Vietnam, Singapore, Malaysia, Cambodia, Philippines, Brunei Darussalam and Thailand. ROA, as a reflection of the development of banking company assets, appears to have increased after 2015. In 2015 there was a decline in ROA due to a global crisis hitting the world capital market.

However, in line with the global economic slowdown that will be faced, the shadow of bank bankruptcy continues to haunt. Therefore, in maintaining its existence, banks must be able to compete and maintain their performance in facing all forms of risk. To anticipate the various risks that may occur, it is necessary to take action as early as possible to measure the soundness of the bank. Bankruptcy prediction is estimating the inability of a company to pay its financial obligations at maturity which causes bankruptcy or liquidity difficulties (Takahashi et al., 2018). In order for banking companies to reduce the problems that lead to bankruptcy, it is necessary to assess the soundness of the bank using the RGEC method. The RGEC method is a method which use risk approach (Risk-based Bank Rating/ RBBR) which consists of Risk Profile, Good Corporate Governance (GCG), Profitability (Earning), and Capital.

In detecting the health of a bank against a prediction of company bankruptcy, the Altman Z-Score model of bankruptcy prediction analysis proposed by Edward I Altman can be used. The Altman Z-Score bankruptcy prediction analysis is considered a statistical technique that is more precise than ratio analysis and other approaches to predict company bankruptcy, in addition the discriminant analysis of the Altman Z-score model has a fairly high degree of accuracy, namely 94 to 95% in predicting bankruptcy (Takahashi et al., 2018). This study aims to determine the health condition of a bank by analyzing financial reports through the RGEC method (Risk Profile, Good Corporate Governance, Earnings, Capital) in anticipation of the bankruptcy of 11 banking core.

LITERATURE REVIEW
Financial Report

Every company, both bank and non-bank, will at one time report all its financial activities. In reporting activities, it can be in the form of financial reports that can provide company financial information to owners, management and outside parties with an interest in the financial statements. The financial statements show the bank's current financial condition or a certain period as a whole. Complete financial statements consisting of balance sheets, income statements, cash flow statements, changes in equity, changes in binding investment funds, and financial statement notes (Basioudis, 2019).

The global financial crisis that has occurred in the last few years has provided valuable lessons that innovation in banking products, services and activities that were not matched by the implementation of adequate risk management has resulted in various fundamental problems both at banks and on the financial system as a whole. Bank soundness is the ability of a bank to carry out normal banking operations and is able to fulfill all its obligations properly in a manner that is in accordance with applicable banking regulations (McKibbin & Stoeckel, 2010).

In Bank Indonesia Regulation No.13/1/PBI/2011 concerning the Rating of Commercial Banks, Bank Indonesia has established a bank soundness rating system using a risk approach (Risk-based Bank Rating/RBBR), both individually and on a consolidated basis, which replaces the CAMELS assessment which was previously regulated in PBI No.6/10/PBI/2004 with the scope of the assessment includes the following factors: Risk Profile, Good Corporate Governance (GCG) Assessment, Profitability (earnings) and Capital (capital) or abbreviated as the RGEC method (Bank Indonesia, 2011).

Credit risk variable because if there were many problem loans, it would certainly affect the bankruptcy of a bank. If the number of non-performing loans increase, profits will decrease and banks will experience financial difficulties. Non-Performing Loan (NPL) is the failure of the debtor to fulfill its obligation to pay the agreed loan principal installments (installments).

Bankruptcy Prediction

Bankruptcy prediction is predicting or predicting the company's inability to pay its financial obligations at maturity which causes bankruptcy or liquidity difficulties. Financial difficulties can be reflected in performance indicators, namely companies that experience short-term financial difficulties but are not resolved immediately, which will cause long-term financial difficulties that can lead to bankruptcy. Bankruptcy is a problem that every company must be aware of. Bankruptcy can create problems that can harm various parties (Ball & Gold, 2006). Bank should monitor financial conditions using financial statement analysis techniques to minimize the problems caused by bankruptcy as early as possible because bankruptcy can caused by:

Economic Distressed, namely the condition of the company losing money or the company's income is unable to cover its own costs, this means that the profit level is less than the cost of capital or the present value of the flow is smaller than the liabilities. Failure can occur if the actual cash flow from the company is far below the expected cash flow.

Financial Distressed, namely the condition of the company where the difficulty of funds is either in the sense of funds in the sense of cash or in terms of working capital. Some asset liability management plays a very important role in the arrangement to prevent financial failure.

Bias financial failure is also interpreted as insolvency that differentiates between cash flow basis and stock basis.

Bankruptcy can be influenced by internal and external factors. Determining the factors that cause bankruptcy is not an easy thing. This is because the factors that affect bankruptcy must be identified correctly so that the problems faced can be handled appropriately so that bankruptcy can be minimized. Broadly speaking, the causes of bankruptcy can be divided into two, namely internal factors and external factors. Internal factors is a factor that comes from the internal management of the company. Internal factors that can cause company bankruptcy include:

a. Management that is not efficient will result in continuous losses which in turn cause the company to be unable to pay its obligations. This inefficient is caused by waste in costs, lack of management skills and expertise. Cost efficiency to gain more asset can be measured by Return of Asset (ROA).

b. Owned capital is not balanced with the amount of accounts owed. Debt that is too large will result in large interest costs, thereby reducing profits and even losses. Meanwhile, large receivables will also be detrimental because too many idle assets will not generate income. Monitoring Non-Performing Loan (NPL) becomes very important to maintain debt rate.

c. Fraud committed by company management can lead to bankruptcy. This fraud can take the form of management that is corrupt or provides wrong information to shareholders or investors. Assessment of Good Corporate Governance (GCG) is an assessment of bank's quality management on the implementation of GCG principles, concerning the Implementation of GCG for Commercial Banks by taking into account the characteristics and complexity of bank business.

External factors is a factor originating from outside that is directly related to the company's operations or macroeconomic factors such as customers, suppliers, debtors, creditors, competitors or from the government (Ball & Gold, 2006).

Bankcruptcy Prediction Model

a. *Altman Z-Score Model* - The Z-score model by Edward I Altman, a professor at New York University, uses the function of discriminant analysis to predict bankruptcy in a company. In building his model Altman uses financial ratios that can be combined and based on their relevance to research. Model Altman divided into 3 discriminant function.

b. *First Altman Z-Score Model* - Initially Altman tested 22 financial ratios of 33 bankrupt manufacturing companies and 33 companies that did not go bankrupt from 1960 to 1965 and in the end, it was found that five financial ratios were combined and considered the most influential to predict the company's potential bankruptcy. The first Altman model equation is:

$$Z = 1,2\ X1 + 1,4\ X2 + 3,3\ X3 + 0,6\ X4 + 0,999\ X5$$

Z = Bankruptcy Index
X1 = Net Working Capital / Total Assets
X2 = Retained Earning / Total Assets
X3 = Earning Before Interest / Total Assets
X4 = Market Value of Equity / Total Assets
X5 = Sales / Total Assets

The model developed by Altman underwent a revision. In this research, Altman made adjustments so that this bankruptcy prediction model can be used for companies that do not have equity market value or non-public companies. Changes were made to variable X4 where the previous variable was the market value of equity to book value of equity. The revised results of the initial Z-Score model are not only on the X4 ratio variable but also on the coefficient value for each variable.

$$Z = 0,717\ X1 + 0,847\ X2 + 3,107\ X3 + 0,420\ X4 + 0,998\ X5$$

The criteria for the Z value in this model are lower than the previous value:
1) Z value < 1.23 then it is a bankrupt company.
2) Value 1.23 < Z < 2.90 then the company is included in the gray area, because the company cannot be said to be bankrupt but also cannot be said to be healthy.
3) Z value > 2.90 then the company is categorized in a healthy condition and has a low probability of bankruptcy.
c. *Modified Altman Z-Score Model*

Altman continues to develop alternative discriminant analysis models, so that its bankruptcy prediction model can be used for all types of companies, such as manufacturing companies, non-manufacturers and bond issuing companies in developing countries. Altman's modified Z-Score eliminates the X5 variable (sales / total assets) because this ratio varies widely in

industries with different asset sizes. So, the formula for the Z-score equation that has been modified by Altman et al is as follows:

$$Z = 6,56\ X1 + 3,26\ X2 + 6,72\ X3 + 1,05\ X4$$

X1 = Net Working Capital/Total Assets

X2 = Retained Earning/Total Assets

X3 = Earnings Before Interest And Tax/Total Assets

X4 = Book Value of Equity/Book Value of Debt

Z = Bankcruptcy Index

      The classification of bankrupt, gray area and non-bankrupt companies is based on the modified Z-Score value is:

1) Z value < 1.23 is categorized as a bankrupt company.
2) The value of 1.23 < Z < 2.90 is categorized in the gray area, the company cannot be said to be bankrupt but also cannot be said to be healthy.
3) Z value > 2.90 is categorized as a company that is not bankrupt.

      Bankruptcy prediction analysis using the Altman Z-Score model is considered a more precise statistical technique than ratio analysis and other approaches to predicting corporate bankruptcy, in addition to the discriminant analysis of the Altman Z-Score model, it has a fairly high degree of accuracy, which is 94 to 95%. in predicting bankruptcy predictions. In addition, the modified Altman Z-Score analysis model can be applied to all companies such as manufacturing, non-manufacturing and bond issuing companies in developing countries. Therefore, in this study, to predict company bankruptcy, the modified Altman Z-Score analysis model is used.

RESEARCH METHOD

      This study uses quantitative approach to analyze registered banks with the Financial Services Authority. The sample used in this study amounted to 11 banks using purposive sampling method. The data used in this study are secondary data obtained from annual reports and bank good corporate governance reports published on their respective official websites for the period 2014-2020 because in those years there was pandemic Covid-19 phenomenon. The official websites of the 11 banking companies are:

1) Bank Central Asia: www.bca.co.id
2) Bank Rakyat Indonesia: www.bri.co.id
3) VP Bank: www.vpbank.com

4) Development Bank of Singapore: www.dbs.com

5) Oversea-Chinese Banking Corporation: www.ocbc.com

6) Philippine National Bank : www.pnb.com

7) Bank Acleda: www.acledabank.com

8) Bank Affin: www.affinbank.com

9) Bank Alliance: www.alliancebank.com

10) Standard Chartered Bank: www.scb.co.th

11) Bank Islam of Brunei Darussalam: www.bidv.com

The data used in this research is secondary data. "Secondary data is data obtained in a ready-made form, has been collected and processed by other parties, usually in the form of data publications" (Suryani & Hendryadi, 2005). In this study, data were obtained from financial statements consisting of balance sheets, income statements, and financial ratio reports issued by Islamic commercial banks in the form of annual reports or banking annual reports, previous research results and literature related to this research. Meanwhile, the research data uses pooling data (panel data), which is a combination of cross section and time series data during the period 2014-2018 with nine research objects so that the number of observations is 55 obtained from the multiplication between the research object and the amount of time. In this study, the research instrument used was Eviews 8 software.

The data analysis model used in this study is the panel data regression analysis method, namely combining cross section and time series using Eviews 8 software. The panel data regression equation is as follows:

$$Y_{it} = \beta_0 + \beta_1\, NPL_{it} + \beta_2\, SA_{it} + \beta_3\, ROA_{it} + \beta_4\, CAR_{it} + \varepsilon_{it}$$

Y	=	bankruptcy prediction
β_0	=	constant
β_1	=	Non Performing Loan
β_2	=	Self Assessment
β_3	=	Return On Asset
β_4	=	Capital Adequacy Ratio
ε	=	Error Term
i	=	Cross Section 11 banks in ASEAN 8
t	=	Time Series 2015-2020

RESULTS AND DISCUSSION

Analysis of research data is an important part of a study. The data analysis method used in this research is the panel data regression analysis method, namely the combination of cross section and time series. In panel data regression there are several models that can be used including:

Table 1. Result of Fixed Effect, Random Effect,
and Common Effect Model

Variable	FE	RE	OLS
NPL	.11428712*	.11428712*	.11428712*
director_board	.01438638	.01438638	-0.009178
ROA	.27203484***	.27203484***	.27203484***
CAR	.01702272	.01702272	.01702272
_cons	.16138474	.16138474	.16138474
N	72	72	72
R2			
R2_A			

legend: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

The Chow test is used to select one of the models in panel data regression, namely between the fixed effect model and the common effect model. If the probability value of the random cross section F is less than the 5% significance level, then H0 is rejected so that the most appropriate model to use is the fixed effect, and if the F cross section probability is more than the 5% significance level, then H0 is accepted, which means that the most appropriate model is the common effect. If in the first test the results lead to the common effect model, then there is no need to do Hausman test.

From the results of the Chow test table, the value generated in the statistical distribution based on data processing with eviews 8 resulted that Cross Section F was 10.803268 with a significance value of 0.0000, which means that the p value was less than 0.05, the model chosen was fixed effect model.
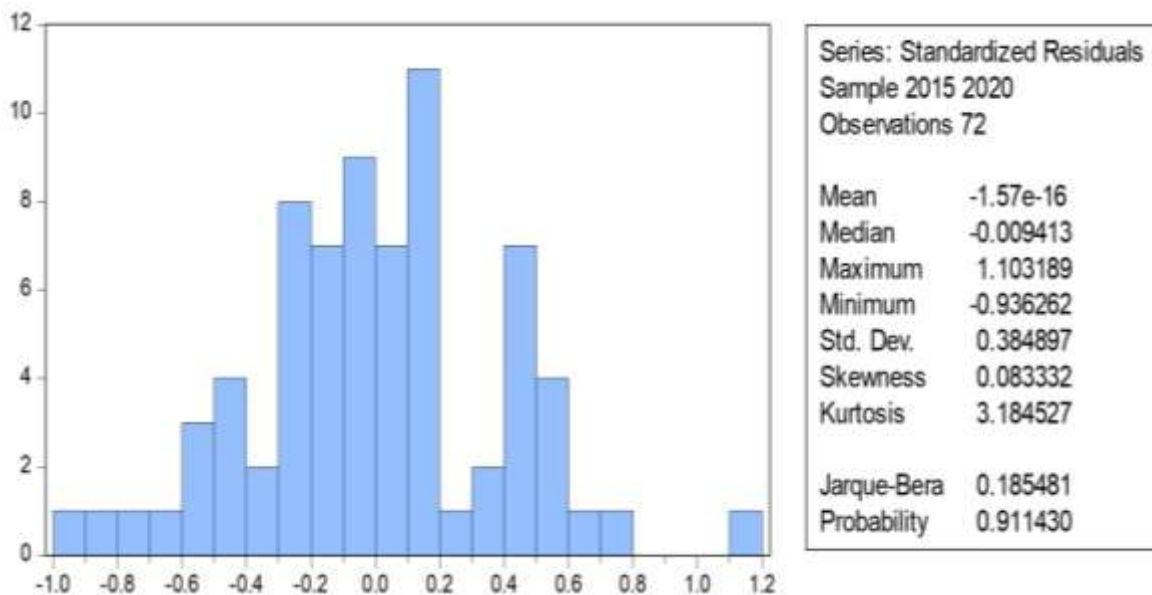
Hausman test develops a test to select the Fixed Effect method and the Random Effect method. If the probability of Cross Section Random is less than 5% significance level, then H0 is rejected so that the most appropriate model is fixed effect. On the other hand, if the probability of Cross Section Random is greater than the 5% significance level, then H0 is accepted and the most appropriate model is random effect.

From the results of the Hausman Test table above, the value generated in the statistical distribution based on data processing with eviews 8 resulted in a probability value (Cross-section random) of 3.940517 with a significance value of 0.4141, which means that the p value is greater than 0.05 then the selected model is a random effect model.

Normality test is used to determine whether the data is normally distributed or not. In this study, the Jarque-Bera test (J-B test) was used to see whether the data were normally distributed or not. This test uses residual results and probability distribution. If the probability value is more than 0.05 then the data is normally distributed so that it meets the normality test. Vice versa if the probability value is less than 0.05 the data is not normally distributed.

Based on the results of the normality test in the figure above, it shows that the significance value of the regression residual formed is 0.911430, which means it is greater than the 0.05 significance level, so it can be concluded that the data is normally distributed and meets the assumption of normality.

Figure 2. Normality Test Result

Series: Standardized Residuals	
Sample 2015 2020	
Observations 72	
Mean	-1.57e-16
Median	-0.009413
Maximum	1.103189
Minimum	-0.936262
Std. Dev.	0.384897
Skewness	0.083332
Kurtosis	3.184527
Jarque-Bera	0.185481
Probability	0.911430

The multicollinearity test aims to test whether or not there is a correlation between the independent variables in a regression model. Multicollinearity test occurs only in multiple regression. A good model should not have a high correlation between the independent variables. If there is a perfect linear relationship between some or all of the independent variables of a regression model, it is said that there is a multicollinearity problem in the model. The existence of multicollinearity problems results in difficulties in being able to see the effect of the explanatory variables on the variables described. Testing for the presence or absence of multicollinearity can be done using the VIF (Variance Inflation Factor) method. If the VIF value is not more than 10 then the model can be said to be free of multicollinearity. Another way is to look at the results of the correlation coefficient. If the value of the correlation coefficient between each independent variable is less than 0.85, it means that it meets the assumption of multicollinearity.

Table 2. Multicollinearity Test Result

	NPL	DEWAN_ DIREKSI	ROA	CAR
NPL	1.000000	-0.167189	-0.089309	0.161611
DEWAN_DIREKSI	-0.167189	1.000000	0.015351	0.128203
ROA	-0.089309	0.015351	1.000000	0.541190
CAR	0.161611	0.128203	0.541190	1.000000

Based on the table above, it can be seen that the correlation value of all variables is below 0.85, namely -0.167189, -0.089309, 0.161611, 0.015351, 0.128203, 0.541190, which means there is no correlation between the independent variables. So it can be concluded that it meets the assumption of non multicollinearity.

Heteroscedasticity appears when the observed error or residual model does not have a constant variance from one observation to another. As a result of heteroscedasticity in the regression model, the estimator obtained is not efficient. Heteroscedasticity can be done by looking at the probability of the residual, if the probability is more than 0.05, it means that it meets the heteroscedasticity test. Based on the table below, the probability value for the constant is 0.2838, X1 is 0.0893, X2 is 0.6614, X3 is 0.1070, and X4 is 0.1313 indicating that it is higher than the significance value of 0.05, so it can be concluded that there is no heteroscedasticity or in other words meet the non-heteroscedasticity assumption.

Table 3. Heteroscedasticity Test Result

| Method: Panel EGLS				
(Cross-section random effects)				
Date: 06/08/20 Time: 01:40				
Sample: 2015 2020				
Periods included: 6				
Cross-sections included: 12				
Total panel (balanced) observations: 72				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.211258	0.195520	1.080493	0.2838
NPL	0.063324	0.036733	1.723928	0.0893
DEWAN_DIREKSI	0.005274	0.011986	0.439994	0.6614
ROA	0.078038	0.047760	1.633940	0.1070
CAR	-0.013822	0.009049	-1.527580	0.1313
	Effects Specification			
			S.D.	Rho
Cross-section random			0.191923	0.5509
Idiosyncratic random			0.173273	0.4491
	Weighted Statistics			
R-squared	0.065196	Mean dependent var		0.102797
Adjusted R-squared	0.009387	S.D. dependent var		0.177817
S.E. of regression	0.176981	Sum squared resid		2.098589
F-statistic	1.168198	Durbin-Watson stat		1.531342
Prob(F-statistic)	0.332750			
	Unweighted Statistics			
R-squared	-0.017398	Mean dependent var		0.297244
Sum squared resid	4.229193	Durbin-Watson stat		0.964370

Autocorrelation test aims to test whether or not there is a correlation between the dependent variable and the independent variable in the regression model. One way to detect autocorrelation symptoms is the Durbin Watson test (D-W test).

Table 4. Autocorrelation Test Result

R-squared	0.292397	Mean dependent var	0.344161
Adjusted R-squared	0.250152	S.D. dependent var	0.264293
S.E. of regression	0.228861	Sum squared resid	3.509288
F-statistic	6.921459	Durbin-Watson stat	1.483339
Prob(F-statistic)	0.000100		

From the Durbin Watson test table, it can be seen that the Durbin Watson statistical value is 1.483339. So to detect the autocorrelation problem, Durbin Watson statistical table with limitations can be used. With the results of a positive autocorrelation, it is necessary to have treatment to eliminate the symptoms of autocorrelation. Autocorrelation can be treated by the Cochrane Orcutt method. Results of the autocorrelation treatment in this study are as follows:

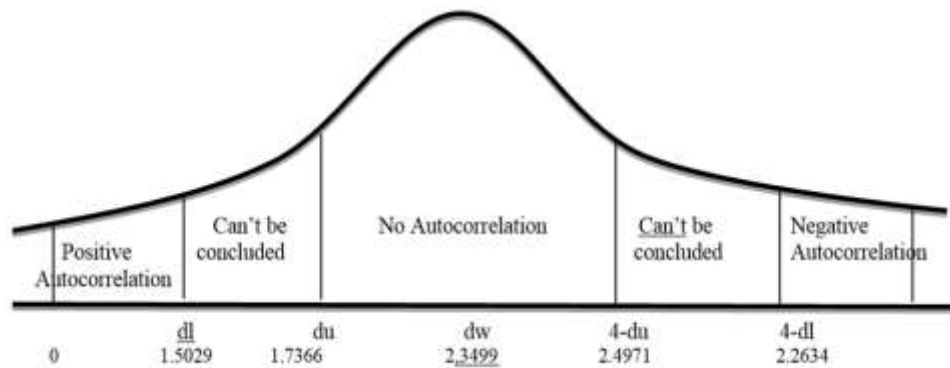Figure 3. Result of Autocorrelation Test
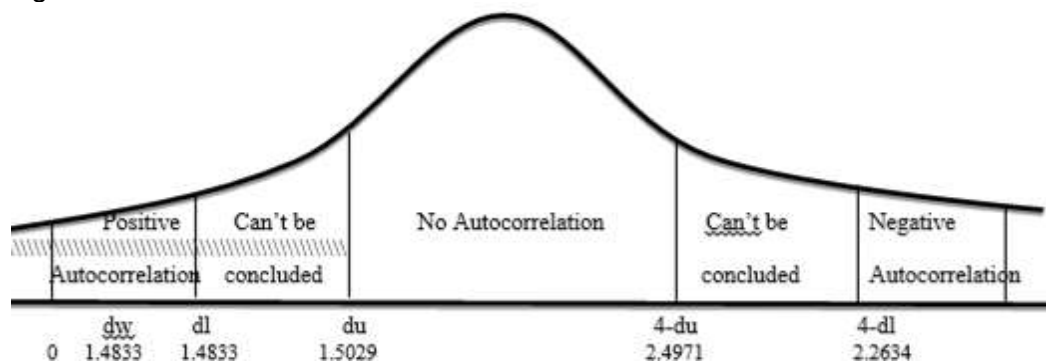
From the Durbin Watson picture above, it can be seen that the DW value is located on the left side, which is next to dl which indicates there is a positive autocorrelation.

Table 5. Treatment of Autocorrelation using Cochrane Orcutt Method

R-squared	0.812910	Mean dependent var	1.341907
Adjusted R-squared	0.795587	S.D. dependent var	0.481765
S.E. of regression	0.217816	Akaike info criterion	-0.115695
Sum squared resid	2.561959	Schwarz criterion	0.093739
Log likelihood	9.470862	Hannan-Quinn criter.	-0.033774
F-statistic	46.92637	Durbin-Watson stat	2.349939
Prob(F-statistic)	0.000000		
Inverted AR Roots	.78		

Based on the table above, it is known that the Durbin Watson value is 2.349939 after treatment using the *Cochrane Orcutt method.* So to detect the problem of autocorrelation can be used constraints.

Figure 4. Durbin Watson value after Treatment

Jjudging from the figure above, the Durbin Watson figure lies between dU and 4dU (dU < DW < 4-dU), it can be said that there is no autocorrelation problem so that it can be said to meet the autocorrelation assumption.

Table 6. t-Test Result

Dependent Variable: Z_SCORE				
Method: Panel EGLS				
(Cross-section random effects)				
Date: 06/08/20 Time: 01:19				
Sample: 2015 2020				
Periods included: 6				
Cross-sections included: 12				
Total panel (balanced) observations: 72				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.148792	0.288398	0.515925	0.6076
NPL	0.108596	0.052516	2.067879	0.0425
DEWAN_DIREKSI	0.013631	0.017239	0.790732	0.4319
ROA	0.280895	0.072883	3.854073	0.0003
CAR	0.018171	0.012359	1.470203	0.1462

Effects Specification			
		S.D.	Rho
Cross-section random		0.341957	0.6905
Idiosyncratic random		0.228963	0.3095
Weighted Statistics			
R-squared	0.292397	Mean dependent var	0.344161
Adjusted R-squared	0.250152	S.D. dependent var	0.264293
S.E. of regression	0.228861	Sum squared resid	3.509288
F-statistic	6.921459	Durbin-Watson stat	1.483339
Prob(F-statistic)	0.000100		
Unweighted Statistics			
R-squared	0.327688	Mean dependent var	1.305243
Sum squared resid	10.51835	Durbin-Watson stat	0.666301

Based on Random Effect Model Table, probability F value 0.000100 < 0,05 so it can be concluded that independent variables altogether give significant impact to dependent variables. Based on Random Effect Model Table, Adjusted R-Square value 0.250152. So it can be conclude that capability of independent variables variance to explain dependent variables variance is 25,01% and the rest is 74,99% explained by other variables outside the model.

DISCUSSION

The non-performing loan (NPL) reflects the risk of banking financing. The higher the value of the non-performing loan, the higher the arrears in financing that have the potential for the bank to go bankrupt. With the bigger the problematic financing, the greater the costs that must be borne by banks. However, based on the analysis, it shows that non-performing loans have a negative and insignificant effect on the prediction of bank bankruptcy. The amount of non-performing loans does not necessarily indicate bank bankruptcy. This is because banks do not only channel financing to third party funds but to other banks that need funds.

Based on the results of the analysis, it shows that Non-Performing Loan has a positive and significant effect on the prediction of bank bankruptcy in ASEAN 8. Therefore, Non-Performing Loan indicates that bankruptcy will occur. This is because banks have difficulty managing credit properly / there is a recession so that the flow of credit is hampered and credit is not paid according to the provisions. Based on the analysis, it shows that the Self Assessment has a negative and insignificant effect on the prediction of Islamic bank bankruptcy.

Self Assessment is an assessment of the implementation of Good Corporate Governance carried out by the company's internal or commonly called self-assessment. Self-assessment of the implementation of Good Corporate Governance is carried out to determine the company's management and to anticipate possible risks that may impact the company. Based on Bank Indonesia Circular Letter No. 13/1 / PBI / 2011, the effective implementation of Good Corporate Governance indicates better company management. This is shown in the smaller self-assessment composite score indicating good management in accordance with the standards set by Bank Indonesia. With a good self-assessment composite score, it will create a stable relationship and will create a good company performance. So it is unlikely that the company will experience financial difficulties which will result in bankruptcy.

The results showed that the self-assessment did not affect the prediction of bankruptcy in Islamic banks. This is because the implementation of Good Corporate Governance is only considered as a formality to fulfill the stipulated conditions without being supported by efficient performance. Therefore, self-assessment is not able to predict the bankruptcy of a bank. Good Corporate Governance practices are indeed carried out, but the implementation is still not perfectly implemented by the company in accordance with the principles of GCG or it can be said that the practice of GCG carried out by companies is only a formality (Amanti, 2011). In addition, the implementation of Good Corporate Governance requires knowledge and understanding from all parties regarding Good Corporate Governance to support the performance of a banking company.

Return On Asset is a ratio used to measure management's ability to manage assets to generate overall profit. The higher the Return On Asset value, the higher the profit, so that the possibility of the company going bankrupt is getting smaller. Vice versa, if the value of Return On Assets is lower, the profit earned will also be low which can cause the company to experience financial difficulties, leading to bankruptcy. In this study, it shows that Return On Asset has a negative and insignificant effect on prediction of bank bankruptcy.

With significant analysis results, it can be explained that the higher the value of Return On Assets is followed by an increase in bankruptcy predictions. So it can be said that the amount of Return On Assets does not prevent banks from going bankrupt. If bank risk management only aims to increase ROA without prioritizing other bank health indicators, it can increase the bank's risk of bankruptcy. Banking activities that can increase ROA are:

a. *Lowering the cost of funds*

Such as lowering the interest rate on third party funds (DPK), namely lowering the interest rate on savings, time deposits and current accounts. As a result, banks may lose popularity among investors because of the low deposit interest rates offered by banks. So that bank deposits can

decrease and can result in lowering funds that can be managed by banks for lending and other investment activities

b. Increase lending

Lending activity also carries the risk of bad credit, especially when the economy is experiencing a long recession

c. Increase fee based income

Fee based income can be in the form of administration fees and banking fees. The imposition of high fee-based income in the short term can indeed increase bank profitability, but in the long run it will motivate customers to leave the bank because they are burdened by high administration fees and bank service fees.

d. Investment bank

To obtain higher profits, banks can invest in other banking institutions. However, like investing in general, it also contains investment risks. In internal banking, if too much funds are invested, it will interfere with the availability of funds for lending and can endanger the liquidity capacity of banks so that it can lead to bankruptcy.

The data obtained on banks in ASEAN 8 in 2014-2019 have ROA in the very high category which tends to be dangerous and gives a signal of bankruptcy. Therefore, it can be concluded that the high Return On Asset ratio will affect bank bankruptcy.

This study shows that the Capital Adequacy Ratio (CAR) has a negative and significant effect on bankruptcy predictions. Capital Adequacy Ratio (CAR) is a capital ratio that shows a bank's ability to provide funds. This ratio shows how much risky assets are financed from own capital and funds from outside the bank. The higher the Capital Adequacy Ratio, the better the capital capacity, which indicates the better the soundness of the bank. A healthy bank is certainly far from financial difficulties that can lead to bankruptcy. Vice versa, the lower the CAR value, the poor capital capacity can lead to bankruptcy. In accordance with Bank Indonesia Regulation Number 15/12 / PBI / 2013 concerning the minimum capital requirement for commercial banks, the Capital Adequacy Ratio is at least 8%. The results showed that the Capital Adequacy Ratio variable was not able to be used in predicting bank bankruptcy in ASEAN 8. This is because capital can cover the risk of losses that may occur from risky financing and investment activities. However, if the risk of financing (credit) and investment is so high, the bank will also lose its liquidity strength.

CONCLUSION AND RECOMMENDATIONS

Based on the results of research conducted by researchers regarding the Level of Bank Soundness with the RGEC Method on the Prediction of Bankruptcy for Islamic Banks in 2015-

2020, the following conclusions can be drawn. Non-performing loans (NPLs) have a positive and significant effect on the prediction of bank bankruptcy in ASEAN 8. Then the Non-Performing Loans indicate that bankruptcy will occur. This is because banks have difficulty managing credit properly / there is a recession so that the flow of credit is hampered and credit is not paid according to the provisions. The result will affect the liquidity of the bank.

Self-assessment has no significant effect on prediction of bankruptcy of ASEAN banks. 8. The results show that self-assessment has no effect on prediction of bankruptcy in Islamic banks. This is because the implementation of Good Corporate Governance is only considered as a formality to fulfill the stipulated conditions without being supported by efficient performance.

Return On Asset (ROA) has a significant effect on the prediction of bank bankruptcy in ASEAN 8. With significant analysis results, it can be explained that the higher the value of Return On Asset is followed by an increase in bankruptcy predictions. So it can be said that the amount of Return On Assets does not prevent banks from going bankrupt. If bank risk management only aims to increase ROA without prioritizing other bank health indicators, it can increase the bank's risk of bankruptcy.

Capital Adequacy Ratio (CAR) does not have a significant effect on prediction of bank bankruptcy in ASEAN 8. The results show that the Capital Adequacy Ratio variable cannot be used in predicting bank bankruptcy in ASEAN 8. This is because capital can cover the risk of loss that may occur from financing and investment activities that contain risks. However, if the risk of financing (credit) and investment is so high, the bank will also lose its liquidity strength. Simultaneously, the variable Non performing loan, Self Assessment, Return on Assets and Capital Adequacy Ratio have a significant effect on the prediction of bankruptcy of Islamic banks.

Information regarding bank health assessment using the RGEC method should be well disseminated to all banking parties, so that all banks can understand the RGEC method so that its implementation can be more ideal as expected. In addition, the bank health assessment using the RGEC method is not only used as a formality to comply with Bank Indonesia regulations but to improve banking performance.

Investors are expected to pay attention to financial reports, bank health assessments using the RGEC method and the bankruptcy index to be used as consideration in making investment decisions in banks in ASEAN 8 as well as an effort to save further investment. The next researcher could use other variables which predicts bankruptcy both internally and externally.

This research only analyzed government bank and 8 ASEAN countries. For further studies could analize RGEC method in larger sample of countries and private banks to gain more explanation about implementation of financial and macroprudential policy.

REFERENCES

Ball, M. J., & Gold, J. (2006). Banking on health: Personal records and information exchange. *Journal of Healthcare Information Management : JHIM*, *20*(2), 71–83.

Bank Indonesia. (2011). Peraturan Bank Indonesia No.13/1/PBI/2011 Tentang Penilaian Tingkat Kesehatan Bank. *Peraturan Bank Indonesia*, 1–31.

Banks, S. R., Robust, M., & Growth, I. (2015). *Building the ASEAN Community ASEAN Banking Integration*.

Basioudis, I. G. (2019). Financial Accounting. *Financial Accounting*. https://doi.org/10.4324/9780429468063

McKibbin, W. J., & Stoeckel, A. (2010). The global financial crisis: Causes and consequences. *Asian Economic Papers*, *9*(1), 54–86. https://doi.org/10.1162/asep.2010.9.1.54

Takahashi, M., Taques, F. H., & Basso, L. (2018). Altman's Bankruptcy Prediction Model: Test on a Wide Out of Business Private Companies Sample. *IBusiness*, *10*(01), 21–39. https://doi.org/10.4236/ib.2018.101002

Altman, Edward I. 1968. *Financial Ratio, Discriminant Analysis and The Prediction of Corporate Bankruptcy.* Journal of Finance..

Andari, Ni Made Meliani dan I Gusti Bagus Wiksuana. 2017. *RGEC Sebagai Determinasi dalam Menanggulangi Financial Distress Pada Perusahaan Perbankan di Bursa Efek Indonesia.* E-Jurnal Manajemen Unud.

Bank Indonesia. 2019. Joint Statement of the 5 th ASEAN Finance Ministers' and Central Bank Governors' Meeting (AFMGM) Chiang Rai, Thailand, 5 April 2019. https://www.bi.go.id/id/ruang-media/siaran-pers/Pages/SP_212119.aspx

Bank Indonesia. 2011. Peraturan Bank Indonesia Nomor 13/ 1 /PBI/2011 tentang Penilaian Tingkat Kesehatan Bank Umum.

Bank Indonesia. 2004. Peraturan Bank Indonesia Nomor 6/10/PBI/2004 Tentang Sistem Penilaian Tingkat Kesehatan Bank Umum.

Bank Indonesia. 1998. Undang-Undang Nomor 10 Tahun 1998 Tentang Perubahan Atas Undang-Undang Nomor 7 Tahun 1992 Tentang Perbankan.

Endri. 2008. *Prediksi Kebangkrutan Bank Untuk Menghadapi dan Mengelola Perubahan Lingkungan Bisnis: Analisis Model Altman's Z-Score. Perbanas Quartely Review*

Gujarati, Damodar N dan Dawn C.Porter. 2013. *Dasar-dasar Ekonometrika, Edisi Kelima.* Mangunsong, R. C. penerjemah. Jakarta: Salemba Empat.

Jensen, Michael C dan William H. Meckling. 1976. *Theory of The Firm : Managerial Behavior Aency Costs and Ownership Structure*. Journal of Financial Economic.

Nadratuzzaman, Muhamad dan Shofaun Nada. *Pengukuran Tingkat Kesehatan dan Gejala Financial Distress Bank Umum Syariah. Jurnal Economia*

Otoritas Jasa Keuangan. 2018. *Statistik Perbankan Syariah*.

Rudianto. 2013*. Akuntansi Manajemen Informasi Untuk Pengambilan Keputusan* Strategis. Jakarta : Erlangga.

Sistiyarini, E., & Supriyono, S. E. 2017. *The Application of Risk Based Bank Rating on Bankruptcy Prediction of Banks In Indonesia*. Jurnal Keuangan dan Perbankan

Suharman, H. 2007. *Analisis Risiko Keuangan untuk Memprediksi Tingkat Kegagalan Usaha Bank.* Jurnal Imiah ASET.

Spence, Michael. 1973. *Job Market Signalling. The Quartely Journal of Economics.*

Syadullah, Makmun. 2018. ASEAN Banking Integration Framework dan Tantangan Perbankan Indonesia. Investor. 26 Maret 2018. https://investor.id/archive/asean-banking-integration-framework-dan-tantangan-perbankan-indonesia

Zaki, Ehab, Rahim Bah & Annanth Rao. 2010. *Assessing Probabilities of Financial Distress of Banks in UEA.* International Journal of Managerial Finance