Case study

THE INFLUENCE OF BANK HEALTH LEVEL WITH RGEC ON BANK FINANCIAL PERFORMANCE

Abstract

This study aims to analyze the effect of Bank RGEC's health indicators on bank financial performance at commercial banks listed on the Indonesia Stock Exchange (IDX). In this study, a sample of 43 banks was used. The sampling method in this study used a purposive sampling technique. The analysis technique used in this study uses dynamic panel data analysis Error Correction Model. The results of the analysis that has been carried out show that Non Performing Loans (NPL) have a negative and significant effect on bank financial performance (ROA), Good Corporate Governance does not have a significant effect on bank financial performance (ROA), Net Interest Margin (NIM) has a positive influence and significant to the bank's financial performance (ROA), and the Capital Adequacy Ratio (CAR) has no significant effect on the bank's financial performance (ROA).

Keywords: Indonesia Stock Exchange, Error Correction Model, Return on Assets, Bank Health indicators.

Introduction

Vulnerable banking conditions encourage interested parties to review the bank's soundness level. Assessment of the soundness of a bank can be known through several indicators. One of them is the bank's financial statements through the analysis of financial ratios that reflect the condition of a bank. Based on PBI No.13/1/PBI/2011 concerning Assessment of Bank Soundness Level individually using a risk-based bank rating approach as referred to in Article 2 Paragraph (3), with an assessment coverage of 4 factors, these factors are: risk profile factors (bank risk), Good Corporate Governance (GCG) factors, earnings (profitability) factors and capital factors (capital) or known as RGEC (Yunika, 2016).

The risk profile factor (Risk Profile) is assessed through inherent risk and the quality of risk management implementation in bank operations which consists of eight risks including credit risk, market risk, liquidity risk, legal risk, operational risk, strategic risk, compliance risk and reputation risk. . Assessment of risk profile factors includes Non Performing Loans (NPL). Assessment of the Good Corporate Governance (GCG) factor is an assessment of the bank's management on the implementation of GCG principles. GCG assessment indicators are using assessment weights based on Governance Structure, Governance Processes, and Governance Outcomes. The assessment of the Earnings factor includes an assessment of the bank's ability to create profits by using the Net Interest Margin (NIM) ratio. Assessment of the capital factor (Capital) includes an assessment of the level of capital adequacy and capital management using the Capital Adequency Ratio (CAR).

Non-Performing Loan (NPL) is the total non-performing loan compared to all loans given to creditors. A bank is declared to have a high NPL if the amount of non-performing loans is higher than the amount of credit given to the debtor. The higher the non-performing loans that are owned can reduce profitability because it causes the income that can be received by banks to be delayed and the opportunity to earn profits from loans is

lost. So, the more the NPL of a bank increases, the lower the performance of a bank (Pinasti & Mustikawati, 2018).

Good Corporate Governance (GCG) is an assessment of the quality of bank management on the implemented GCG principles (Yunika, et al. 2016). Based on Bank Indonesia Circular No. 15/15/DPNP/2011 concerning GCG principles in bank management, namely the implementation of the principles of transparency, accountability, accountability, independence, and obligations. In addition, banks are required to conduct a self-assessment of GCG implementation. The GCG composite value is used as a parameter for the GCG condition of a bank (Febrianti, 2021). Smaller composite values reflect better GCG implementation. So, the smaller the GCG composite value, the more effective the bank's performance. According to (Irman & Wulansari, 2018) Net Interest Margin (NIM) reflects the ability of bank management to manage productive assets for net interest income. Net interest income is obtained from the difference between interest income and interest expense. So the greater the NIM ratio means the more effective the bank is in managing its productive assets in the form of financing. The NIM ratio can affect bank profits and losses, which in turn can affect bank performance. According to (Sarra et al., 2022) the Capital Adequacy Ratio (CAR) is a ratio for making measurements related to the adequacy of capital owned by banks to bear assets that have risks (credit, investments, securities, claims on other banks). The higher the total CAR ratio, the more capital owned by the bank, so it is considered that the stronger the bank's ability to bear the risks it owns. The greater this ratio, the smaller the probability of a bank experiencing a loss, meaning that the CAR ratio contributes to a bank's performance. This study aims to analyze the effect of NPL, GCG, NIM, and CAR on bank financial performance (ROA). The following is the development of NPL, NIM, and CAR at commercial banks in Indonesia for the 2017-2021 period.

Table 1
Development of Indicators in Commercial Banks

Ratio	BI Standart	2017	2018	2019	2020	2021	Average
NPL	< 5%	2,59%	2,37%	2,53%	3,06%	3,00%	2,71%
GCG	-	2,08	2,08	2,08	2,12	2,00	2,072
NIM	> 3%	5,32%	5,14%	4,91%	4,45%	4,51%	4,87%
CAR	> 8%	23,93%	22,97%	23,40%	23,89%	25,67%	23,92%

Source: OJK, Data processed, 2013.

Based on the data in table 1 above, it can be seen that the value of financial ratios at commercial banks in Indonesia for the 2017-2021 period fluctuated. The average NPL value for that period has increased to reach its highest value of 3.06% in 2020. However, the NPL value for that period was still below the BI standard limit of 5% indicating that the bank was in a healthy condition. The GCG self-assessment rating during that period was at a maintained value with an average of 2.07 which was included in the "good" category. While the average value of NIM has decreased continuously every year until it reaches the lowest point of 4.51%. However, this value is still above the standard 3% which indicates that the bank is in sound condition because it is able to maintain a consistent level of profit generated from earning assets that are very well owned. While the value of capital adequacy or CAR for this period was very high with an average of 23.92%, far above the lower limit of BI's standard of 8% indicating that the bank was in a very healthy condition.

Seeing the development of the NPL, GCG, NIM, and CAR ratios which fluctuated during the 2017-2021 period, it is necessary to conduct research to analyze the effect of NPL, GCG, NIM, and CAR on a bank's financial performance as measured by ROA.

Previous Research

Research conducted by (Yee & Hlaing, n.d.), (Pinasti & Mustikawati, 2018), and (Linda et al., 2021) states that NPL has a positive relationship to bank financial performance (ROA). While the results of research from (Hutagalung et al., 2013), (Mustafa, 2020), and (Godebo, 2015) state that NPL has a negative relationship to bank financial performance (ROA).

Research conducted by (Dani, 2020) shows that GCG has a positive influence on bank financial performance (ROA). Meanwhile, according to (Sarra et al., 2022) GCG has a negative effect on bank financial performance (ROA). Meanwhile, research conducted by (Hutagalung et al., 2013) and (Pinasti & Mustikawati, 2018) states that NIM has a positive relationship to bank financial performance (ROA) in line with (Badawi, 2017). In contrast, research conducted by (Mustafa, 2020) and (Zulfikar, 2014) states that NIM has a negative relationship to bank financial performance (ROA).

Research conducted by (Mustafa, 2020), (Hutagalung et al., 2013), (Linda et al., 2021), and (Sarra et al., 2022) shows that CAR has a positive effect on bank financial performance (ROA). Meanwhile, based on research according to (Godebo, 2015), (Pinasti & Mustikawati, 2018), (Dani, 2020), and (Subhan, 2021) states that CAR has a negative effect on bank financial performance (ROA).

The purpose of this study was to analyze the effect of RGEC Bank Health Indicators on Bank Financial Performance at Commercial Banks Listed on the Indonesia Stock Exchange for the 2012-2021 Period.

Research Methodology

The data used is in the form of panel data consisting of cross section units and time units. Secondary data in this study are 43 commercial banks listed on the Indonesia Stock Exchange. The time unit used in this study is 2012-2021. The secondary data includes one dependent variable, which is ROA, and various independent variables, such as NPL, GCG, NIM, and CAR.

The data analysis method used in this study is using the Error Correction Model. Before carrying out ECM dynamic panel estimation and descriptive analysis, it is necessary to carry out various stages including data stationarity testing, determining the length of the lag and testing the degree of cointegration. After the data is estimated using ECM, analysis can be carried out using the IRF method and variance decomposition. The steps in formulating the ECM model (Basuki, 2014) include:

$ROA_t = \alpha_0 + \alpha_1 NPL_t + \alpha_2 GCG_t + \alpha_3 NIM_t + \alpha_4 CAR_t$…….(1)

Keterangan:

ROA_t	: bank's Return on Asset period t
NPL_t	: bank's Non Performing Loan bank period t
GCG_t	: bank's Good Corporate Governance periode t
NIM_t	: bank's Net Interest Margin periode t
CAR_t	: bank's Capital Adequacy Ratio period t
α_i	: Sohrt-term Coefisien

Making the formation of a single cost function in the error correction method:

$C_t = b_1 (ROA_t – ROA_t*) + b_2 \{(ROA_t - ROA_t-1) – f_t (Z_t - Z_{t-1})\}^2$..……...(2)

Information:

Ct	:	Quadratic cost function
ROAt	:	ROA per year in period t
Zt	:	Vector variable that influences bank ROA and is considered to be linearly influenced by NPL, GCG, NIM, and CAR
b1 and b2	:	Row vectors that give weights to Zt-1.

The first component of the single cost function above is an imbalance cost and the second component is an adjustment cost component. While B is a time lag operation. Zt is a variable factor that affects ROA.

a. Minimizing the cost function of the equation with respect to Rt, it will be obtained:
   $ROA_t = \varepsilon ROA_t + (1- e) ROA_{t-1} – (1 – e) f_t (1-B) Z_t$…….……..(3)
b. Substituting ROAt – ROAt-1 to obtain:
   $LnROA_t = \beta_0 + \beta_1 LnNPL_t + \beta_2 lnGCG_t + \beta_3 LnNIM_t + \beta_4 LnCAR_t$……....(4)
   Information:
   B : Time lag operation
   β1 β2 β3 β4 : Long term coefficient

While short-term relationships are stated using the following equation:

$DLnROA = \alpha_1 DLnNPLt + \alpha_2 DLnGCGt + \alpha_3 DLnNIMt + \alpha_4 DLnCARt$ ……(5)

$DLogROA_t = IR_t - \alpha (LogROA_{t-1} – \beta_0 – \beta_1 LogNPL_{t-1} + \beta_2 LogGCG_{t-1} + \beta_3 LogNIM_{t-1} + \beta_4 LogCAR_{t-1}) + \mu_t$……..…….……..……(6)

From the results of the parameterization of the short-term equation it is possible to produce a new equation, the equation is developed using the previous equation in order to measure long-term parameters using econometric regression using the ECM model as follows:

$DLnROA_t = \beta_0 + \beta_1 DLnNPL_t + \beta_2 DLnGCG_t + \beta_3 DLnNIM_t + \beta_4 DLnCARt + \beta_5 DLnNPL_{t-1} + \beta_6 DLnGCG_{t-1} + DLnNIM_{t-1} + DLnCAR_{t-1} + ECT + \mu_t$……..…(7)

$ECT = LnNPL_{t-1} + LnGCG_{t-1} + LnNIM_{t-1} + LnCAR_{t-1}$ ……(8)

Information:

$DLnROA_t$	: ROA change in period t
$DLnNPL_t$	: NPL change in period t
$DLnGCG_t$	: GCG change in period t
$DLnNIM_t$	: NIM change in period t
$DLnCAR_t$	: CAR change in periode t
$DLnNPL_{t-1}$	: Change in NPL lag
$DLnGCG_{t-1}$	: Change in GCG lag
$DLnNIM_{t-1}$	: Change in NIM lag
$DLnCAR_{t-1}$	: Change in CAR lag
μ_t	: Residual
D	: Change
t	: time

ECT : *Error Correction Term*

Results and Discussion

Before moving on to the Error Correction Model (ECM) model regression, firstly, we tested the data for stationarity to find out whether the variables used were stationary or not. In this case, to find out whether there is stationary in the data to be regressed, each variable will be tested with the unit root test with the Augmented Dickey-Fuller (ADF) method using the intercept model, so the results of the stationarity test are as follows :

Table 2 Stationary Test Results

Data Level			Data First Difference	
Variable	**ADF t-Statistic**	**Probability**	**ADF t-Statistic**	**Probability**
ROA	681,835	0,0000	167,621	0,0000
NPL	573,874	0,1663	148,362	0,0000
GCG	170,464	0,3826	821,771	0,0000
NIM	471,566	0,5073	123,981	0,0000
CAR	344,084	0,9299	124,362	0,0000

Source: processed data, 2023

From the table above it can be concluded that only the ROA variable is stationary at the data level because the probability value is less than 0.05. Meanwhile, the variables NPL, GCG, NIM, and CAR are not stationary at the data level because the probability is above 0.05. In testing the level data, there are still variables that are not stationary. The solution is that there is a stationary unit root test, it is increased to the first difference level test. Based on Table 2 all variables are stationary at the first difference. It is declared stationary because the probability is below 0.05.

Before determining the long-term estimation equation, it is necessary to test the model first to get the best long-term estimation model. Panel data regression will produce common effect, fixed effect and random effect models as follows:

Table 3 Regression Results of Common Effect Models, Fixed Effects, and Random Effects

Variable	**Model**		
	Common Effect	**Fixed Effect**	**Random Effect**
C	0,020237	0,000962	0,010671
	(0,0000)***	(0,7973)	(0,2054)
NPL	-0,316378	-0,327425	-0,321921
	(0,00000)***	(0,0000)***	(0,0000)***
GCG	-0,0008780	-0,001967	-0,007539
	(0,0000)***	(0,0936)*	(0,0068)***
NIM	0,358808	0,385350	0,368133
	(0,0000)***	(0,0000)***	(0,0000)***
CAR	0,014193	0,028445	0,040330
	(0,2215)	(0,0013)***	(0,0678)*
R-squared	0,640928	0,912877	0,370351
F-Statistic	1,048,664	8,227,238	3,455,592
Probability	0,000000	0,000000	0,000000

Source: processed data, 2023

Based on the results of selecting the panel data regression model which was carried out through the Chow test, Hausman test, and the Lagrange multiplier test, it was concluded that the panel data regression estimation method used included:

Table 4
Results Conclusion Model Selection

No.	Metode	Hypothesis	Result
1	Chow Test	Common Effect vs Fixed Effect	Fixed effect
2	Hausman Test	Random Effect vs Fixed Effect	Random Effect
3	Lagrange Multiplier Test	Random Effect vs Common Effect	Random Effect

Source: processed data, 2023

Based on the table it can be seen if the panel data regression model used is the Random Effect Model. Then the results of the Random Effect Model are carried out cointegration test. The cointegration test is used to find out earlier if the model used contains a long-term relationship (cointegration relation). Cointegration test results are generated through the formation of residuals which are obtained by regressing the independent variables to the dependent variable with OLS. The residual must be stationary at levels to be said to have cointegration. To carry out the cointegration test in this study, the Augmented Dickey-Fuller (ADF) was carried out on the unit root test on the residual series data with the following results:

Table 5
Cointegration Test Results

Variable	Probability	Conclusion
ECT	0,0035	There is Cointegration

Source: processed data, 2023

From the table above it can be seen that the probability value of the ECT variable is 0.0035 or less than 0.05 which indicates that the ECT variable is stationary at level. This shows that the NPL, GCG, NIM, and CAR variables are cointegrated with each other so that the test can proceed to the short-term equation estimation stage. Then a short-term regression (ECM model) was performed. ECM can be declared good and valid if the ECT is significant from the balance and has a negative coefficient.

Table 6

Long-Term and Short-Term Regression Results

Variabel	*Coefficient*	*t-Statistic*	Prob	Variabel	*Coefficient*	*t-Statistic*	Prob
C	0,010671	1,269	0,2054	C	-0,000561	-0.4428	0,6584
NPL	-0,321921	-5,715	0,0000***	D(NPL)	-0,264525	-4.6245	0,0000***
GCG	-0,007539	-2,731	0,0068***	D(GCG)	-0,003854	-1.4205	0,1569
NIM	0,368133	5,938	0,0000***	D(NIM)	0,504272	3.8030	0,0002***
CAR	0,040330	1,834	0,0678*	D(CAR)	0,036360	1.1402	0,2555
				ECT(-1)	-0,589298	-6.8695	0,0000***
R-Square	0,370351	Prob (F-stat)	0,000000	*R-Squared*	0,298644	Prob (F-stat)	0,0000

Source: processed data, 2023

Table 6 shows that the effect of NPL on ROA in the short term has a coefficient value of -0.264525 with a significant value of 0.0000 and a long-term coefficient value of -0.321921 with a significant value of 0.0000. This shows that the NPL

variable has a negative and significant effect on ROA. The results of this study are in line with research conducted (Hutagalung et al., 2013), (Mustafa, 2020), and (Dani, 2020) which state that high problem financing will reduce bank profitability. NPL reflects the ratio of non-performing loans to total loans. With the increase in non-performing loans, it can have an impact on the loss of the opportunity to earn profits from loans provided. In addition, an increase in non-performing loans such as uncollectible loans also resulted in losses which in turn had a negative impact on bank profitability.

BI Regulation Number 6/10/PBI/2004 concerning the Rating System for Commercial Banks stipulates a limit on the NPL of 5%. Supervision of credit or financing disbursed by banks aims to determine credit collectability so that banks can evaluate and implement strategies to secure credit and financing which can further assist banks and minimize opportunities for risk of loss.

Table 6 shows that the effect of GCG on ROA in the short term has a coefficient value of -0.003854 with a significant value of 0.1569 and a long-term coefficient value of -0.007539 with a significant value of 0.0068. This shows that the GCG variable does not have a significant effect on the ROA variable in the short term, whereas in the long term GCG has a negative and significant effect on ROA. GCG is a company management practice based on established principles to increase stakeholder confidence in the company. The smaller the GCG composite value, the higher the rating which indicates the better the bank's governance. The results of this research indicate that in the short term GCG does not have a significant effect on bank performance (ROA) because there is a need for consistency in the implementation of GCG so as to be able to form a reliable system of internal control and risk management. As (Meythi & Devita, 2011) which states that the implementation of GCG cannot be carried out directly or in the short term, because implementing GCG requires time, planning, and information about the characteristics, culture, and relationships between company organs. Thus, the higher the GCG self-assessment rating does not guarantee that the company has maximally implemented GCG principles.

However, in the long run GCG has a negative and significant impact on bank performance (ROA). This means that the smaller the GCG composite value or the better the bank's governance, the higher the profitability, and vice versa. Implementation of good corporate governance if carried out consistently from year to year can maximize the potential of a company that is flexible and adaptive to changes in the competitive business environment. In addition, the role of GCG in supervision and control can suppress deviant behavior that can cause bank losses. The combination of good and sustainable GCG implementation can increase bank profitability.

Table 6 shows that the effect of NIM on ROA in the short term has a coefficient value of 0.504272 with a significant value of 0.0002 and a long-term coefficient value of 0.368133 with a significant value of 0.0000. This shows that the NIM variable has a positive and significant effect on ROA. The results of this study are in line with research conducted by (Hutagalung et al., 2013), (Pinasti & Mustikawati, 2018), and (Badawi, 2017) which state that the greater the NIM, the higher the profitability. The greater the NIM ratio indicates an increase in interest income on productive assets managed by the bank so that the possibility of a bank in a troubled condition is smaller so that it can contribute profits to the bank. So it

can be concluded that the greater the NIM, the greater the bank's profitability, which also means that the bank's financial performance is increasing.

Table 6 shows that the effect of Net Interest Margin (NIM) on ROA in the short term has a coefficient value of 0.504272 with a significant value of 0.0002 and a long-term coefficient value of 0.368133 with a significant value of 0.0000. This shows that the NIM variable has a positive and significant effect on ROA. The results of this study are in line with research conducted by (Hutagalung et al., 2013), (Pinasti & Mustikawati, 2018), and (Badawi, 2017) which state that the greater the NIM, the higher the profitability. The greater the NIM ratio indicates an increase in interest income on productive assets managed by the bank so that the possibility of a bank in a troubled condition is smaller so that it can contribute profits to the bank. So it can be concluded that the greater the NIM, the greater the bank's profitability, which also means that the bank's financial performance is increasing.

Table 6 shows that the effect of CAR on ROA in the short term has a coefficient value of 0.036360 with a significant value of 0.2555 and a long-term coefficient value of 0.040330 with a significant value of 0.0678. This shows that the CAR variable has no effect on ROA. The results of this study are not in line with research conducted by (Mustafa, 2020), (Sarra et al., 2022), and (Linda et al., 2021) which state that the CAR variable has a positive and significant effect on ROA. The CAR is not significant because the higher the CAR ratio does not always indicate the efficiency of good bank fund management. CAR that is too high indicates that the bank does not circulate funds from other parties (Sari & Fajar, 2018). A high CAR ratio indicates that the distribution of bank funds is less productive, this reduces the opportunity for banks to obtain higher profitability. So, even though a bank has high capital and a high CAR, if it is not matched by good fund distribution, the CAR will not have much effect on profitability.

Conclusion

The increase in non-performing loans can have an impact on the loss of opportunities to earn profits from loans provided. An increase in non-performing loans such as uncollectible loans also resulted in losses which in turn have a negative effect on bank profitability.

In the short term, Good Corporate Governance (GCG) has no significant effect on bank performance (ROA) because there is a need for consistency in GCG implementation to form a reliable system of internal control and risk management. Implementing GCG requires time, planning, and information about the characteristics, culture, and relationships between company organs. The higher the GCG self-assessment rating does not guarantee that the company has maximized its implementation of GCG principles.

The CAR is not significant because the higher the CAR ratio does not always indicate the efficiency of good bank fund management. A high CAR ratio indicates that the distribution of bank funds is less productive, this reduces the opportunity for banks to obtain higher profitability. Even though a bank has high capital and a high CAR, if it is not balanced with good fund distribution, the CAR will not have much effect on profitability.

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