

The Determinant of Regional Development Bank's Profitability in Indonesia

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ABSTRACT

Regional Development Bank (RDB) is a Regional Owned Enterprise where the majority of ownership is owned by the provincial government and district or city governments within the province which have an important role in regional development and improving the economy of regional communities. The aim of this research is to analyze the factors that affect RDB profitability in Indonesia. The profitability of RDB in this research consists of net interest margin (NIM) and return on assets (ROA). Meanwhile, bank specific variables include bank size (SIZE), fee-based income (FEE), market power (LG), capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency (BOPO), and loan to deposit ratio. (LDR). The data used consists of 24 regional development banks in Indonesia from 2018 to 2022. The results of panel data analysis with random effect model show that there are two bank-specific factors that have a significant affect NIM namely LDR and BOPO. This is in line with the factors that affect ROA, where LDR and BOPO have a significant affect ROA. LG, CAR, and NIM also contribute to the high ROA of RDB in Indonesia. These empirical results can provide an overview of the determinant factors that influence RDB profitability and how RDB management strategies are used to maintain profitability. Apart from that, the Financial Services Authority (OJK) is able to encourage the government to increase capital in RDB. As well as encouraging RDB to increase credit distribution thereby increasing interest charges.

Keywords: Regional Development Banks, Profitability, Net interest Margin.

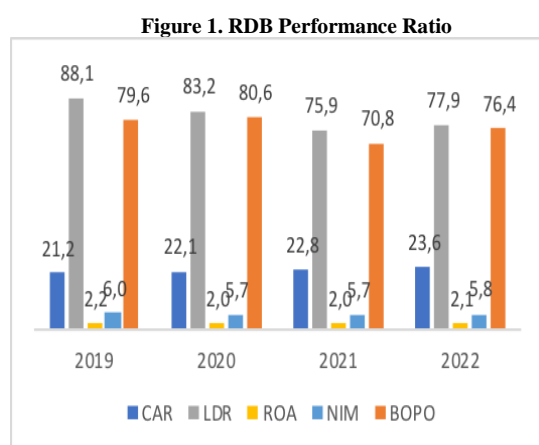
INTRODUCTION

The existence of the financial sector has an important role in triggering a country's economic growth. The presence of the financial sector as a provider of various financial instruments with optimal and low risk can facilitate investment in the economy. To support economic growth, the financial sector is expected to be able to mobilize capital by collecting funds from surplus units to be distributed to parties who need deficit unit funds. The better the condition of the financial sector, the greater the provision of funds to finance the economy. This is considered to be able to accelerate economic growth. This is in line with Yüksel et al. (2018) which states the important role of banking as a catalyst for economic growth. Indonesia's financial sector is currently dominated by the banking industry. This can be seen from the banking industry's greater asset control compared to other financial services institutions.

Regional Development Banks (RDB) are part of the national banking industry which act as drivers of accelerated regional development. RDB is a Regionally Owned Enterprise (BUMD) where the majority of ownership is owned by the provincial government and district or city governments within the province. RDB was founded in

1962 based on Law Number 13 of 1962 concerning Basic Provisions for Regional Development Banks. The formation of RDB is intended to provide funding for the implementation of regional development in the context of National Development. RDB's contribution to total assets compared to national commercial banks is relatively low, namely 8.44 percent (Financial Services Authority, 2022).

In carrying out their duties and functions, banks are required to obtain interest and security benefits for the loan facilities provided. Apart from that, the emergence of globalization with the increasingly widespread use of technology and information provides great opportunities for competition. In line with this, RDB is expected to be able to seize this opportunity to support economic acceleration by implementing economic and financial digitalization. This implementation can be one of the triggers for improving RDB performance. The performance of a bank can be measured using several financial ratios, such as NIM (*Net Interest Margin*), LDR (*Loan to Deposit Ratio*), CAR (*Capital Adequacy Ratio*), LONG (*Return On Asset*), and LAR (*Liquid Assets Ratio*). Furthermore, RDB's performance for the 2019 - 2022 period is as follows.



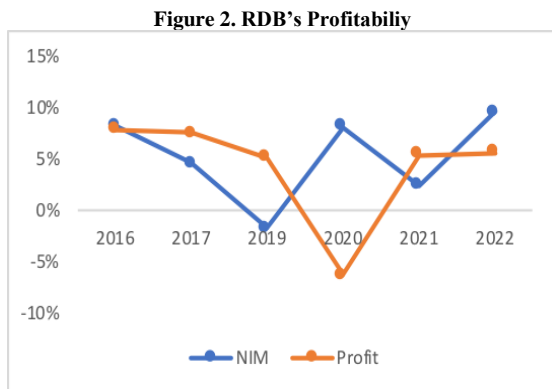
The figure 1 shows several ratios to measure the health level of a bank. In the banking industry, lending is still the main engine of bank revenue. Based on Figure 2 during the

period 2019 to 2022, the NIM ratio has decreased even though in 2021 it was stagnant and in 2022 it increased. This is in line with LDR, ROA and BOPO, which have decreased until 2021, but will increase in 2022. Meanwhile, CAR tends to be stable, continuing to increase every year. This shows that liquidity has an effect on financial performance. Suu et al. (2020) stated that operational costs and credit risk have a positive impact on NIM, while risk aversion, management caliber, trading income and deposit percentage have a positive impact on NIM.

According to Angori et al. (2019) increasing competition encourages banks to increase efficiency through reducing net interest margins. Large net interest margins make it difficult for banks to expand their function as financial intermediary institutions, because low deposit interest rates reduce the motivation to save and conversely, high loan interest rates create a heavy burden for companies in investing (Claessens et al., 2017). Information related to bank NIM ratios is also a signal in making investment decisions (Endri & Fathony, 2020). NIM or spreads that are too large can burden people's savings and investment potential in the economy. So banks are required to be able to support their operations at the lowest possible cost to increase economic growth. Apart from that, RDB failure will have a systemic impact on the regional economy (Yonnedi and Panjaitan, 2019).

Horobet et al. (2021), focuses on the determinants of bank profitability in selected countries in Central and Eastern Europe. Profitability indicators such as return on assets, return on equity, and net interest margin were used as proxies, and it was found that unemployment rate, inflation, budget balance, non-state loans, non-performing loan rate, concentration rate, and capitalization rate all negatively impact profitability banks in several Central and Eastern European countries. In line with this, profitability is a banking indicator in assessing performance. Interest margin is one of the indicators that can be used in

assessing the profitability of banks. Other indicators used to measure the profitability of banks are ROA and ROE (Murthy and Sree, 2003).



Source: OJK, 2022

Based on the picture above, RDB's profit achievement in the period 2016 to 2020 continues to decline. The most significant decline occurred in 2020, this cannot be separated from the presence of the Covid-19 pandemic that hit Indonesia. This is in line with the decline in net interest margin, but in 2020 and 2022 it will experience a quite significant increase. Apart from that, in 2021 RDB experienced an increase in profits, but this was inversely proportional to the achievement of net interest margin, this lasted from 2020 to 2022. NIM is an indicator that can be used to measure bank efficiency. High NIM is often associated with the presence of inefficiencies in the banking system because of the costs incurred, which banks transfer to customers by charging higher credit interest rates (Fry, 1995; Randall, 1998; and Barajas et al.,

1999). In contrast, according to Hadad et al. (2003) with a low NIM, the expected social costs borne by society for intermediation activities carried out by banks will also be low. Efficient intermediation costs are indicated by low bank interest rates and reflect the effectiveness of monetary policy, well-maintained financial stability and a competitive banking system. On the other hand, high intermediation costs will reduce incentives for economic actors. Based on this, this research specifically analyzes the behavior and determinant factors that influence the net interest margin and profitability of RDB in Indonesia.

MATERIALS & METHODS

This research is quantitative descriptive in nature using panel data from companies belonging to the type of Regional and Development Banks in Indonesia during 2018 - 2022. This research uses secondary data which is panel data from all Regional Development Banks (RDB), so that final data is obtained from 135 samples consisting of 27 companies and 5 observation periods, namely 2018 - 2022. Data processing and analysis in this research uses panel data analysis.

Identify Measurement Variables

The variables and measurements used in this research to determine the influence of the independent variable on the dependent variable, each measurement is as follows:

Table 1. Identification and Measurement of Variables

Type	Variable	Symbol	Variable Measurement
Dependent Variable	Profitability	NIM	$= \frac{\text{Net Interest Margin}}{\text{Total Earning Assets}}$
		ROA	$= \frac{\text{Return on Assets}}{\text{Total Assets}}$
Independent Variable	Bank Size	SIZE	$= \frac{\text{Total Assets}}{\text{Total Assets}}$
	Fee Based Income	FEE	$= \frac{\text{Fee Based Income}}{\text{Total Assets}}$
	Market Power	LG	$= \frac{\text{Total Revenue} - \text{Total Cost}}{\text{Total Revenue}}$
	Capital Adequacy Ratio	CAR	$= \frac{\text{Risk Weighted Assets}}{\text{Total Assets}} \times 100\%$
	Non-Performing Loan	NPL	$= \frac{\text{Non-Performing Loan}}{\text{Total Credit}}$
	Management Efficiency	BOPO	$= \frac{\text{Operations Expenses}}{\text{Operations Income}}$
	Loan to Deposits Ratio	LDR	$= \frac{\text{Fund Collected} - \text{Core Capital}}{\text{Total Assets}}$

Panel Data Regression

Estimation in selecting a regression model in panel data can be done using three approaches, namely:

1. Poolest Least Square (PLS). PLS is a panel data model that only combines time series and cross section data. In this model, time or individual dimensions are not considered, so it is assumed that the behavior of company data is the same over various time periods

2. Fixed Effect Model (FEM). The Fixed Effect Model is a panel data model where heterogeneity between individuals (individual-specific) has a close relationship with x. Fixed effect model analysis can be done in two ways, namely least square dummy variable (LSDV) and within transformation.

3. Random Effect Model (REM). The random effect model is a panel data model where individual heterogeneity factors are not related to the x variables in the model. The individual effect is a random factor which is assumed in the random effect model.

Testing the selection of the best model in a regression is carried out by carrying out two tests, namely the Chow Test and the Hausman Test. The Chow test is carried out to estimate the appropriate PLS or FEM model to use. The hypothesis used in the Chow test is:

H0: PLS Model

H1: FEM Model

If the probability chi-square value is less than alpha (0.05), then there is sufficient evidence to reject H0. This means that the selected model is the FEM model. Conversely, if the probability chi-square value is greater than alpha then the model chosen is PLS. The Hausman test is carried out to choose whether the FEM or REM model is appropriate to use. The hypothesis used in the Hausman test is:

H0: REM model

H1: FEM MODEL

If the probability value is less than alpha then there is sufficient evidence to reject H0. This means that the model chosen is

FEM. On the other hand, if the probability value is greater than alpha then the model chosen is REM.

Panel Data Regression Analysis

In the panel data regression test, it is necessary to test the model specifications to find out which model will be used. Referring to this research, the economic model of this research is as follows:

$$\begin{aligned} NIM_{it} = & \beta_0 + \beta_1 SIZE_{it} + \beta_2 FEE_{it} + \beta_3 LG_{it} \\ & + \beta_4 CAR_{it} + \beta_5 NPL_{it} + \beta_6 BOPO_{it} \\ & + \beta_7 LDR_{it} + e_{it} \end{aligned}$$

$$\begin{aligned} ROA_{it} = & \beta_0 + \beta_1 SIZE_{it} + \beta_2 FEE_{it} + \beta_3 LG_{it} \\ & + \beta_4 CAR_{it} + \beta_5 NPL_{it} + \beta_6 BOPO_{it} \\ & + \beta_7 LDR_{it} + \beta_9 NIM_{it} + e_{it} \end{aligned}$$

Testing the influence of the independent variables uses *t*-test statistic on the regression coefficient with the following hypothesis:

$$H_0 : \beta = 0$$

$$H_1 : \beta \neq 0$$

with the test criteria being reject H_0 If *p-value* less than alpha (confidence level) means that the regression coefficient is different from zero so it significantly influences the dependent variable. So, based on the regression model carried out in this research, there are several statistical hypotheses formulated for the first model, namely:

$$H_0 = \rho > 0.05$$

$$H_1 = \rho \text{ SIZE} < 0.05$$

$$H_2 = \rho \text{ FEE} < 0.05$$

$$H_3 = \rho \text{ LG} < 0.05$$

$$H_4 = \rho \text{ CAR} < 0.05$$

$$H_5 = \rho \text{ NPL} < 0.05$$

$$H_6 = \rho \text{ BOPO} < 0.05$$

$$H_7 = \rho \text{ LDR} < 0.05$$

Meanwhile, several statistical hypotheses were formulated for the second model, namely:

$$H_0 = \rho > 0.05$$

$$H_1 = \rho \text{ SIZE} < 0.05$$

$$H_2 = \rho \text{ FEE} < 0.05$$

$$H_3 = \rho \text{ LG} < 0.05$$

$$H_4 = \rho \text{ CAR} < 0.05$$

- H5 = ρ NPL < 0.05
- H6 = ρ BOPO < 0.05
- H7 = ρ LDR < 0.05
- H8 = ρ NIM < 0.05

In multiple regression analysis, there are several assumptions that must be met, including the normality test, multicollinearity test, heteroscedasticity test and autocorrelation test.

RESULT AND DISCUSSION

Regression Model with All Independent Variables for the NIM Model

Model formation was carried out for all independent and dependent variables, and continued with selecting the appropriate model to estimate NIM. In Table 2 are the results of the Chow test to compare the Poolest Least Square model with the Fixed Effect Model.

Table 2. Chow test result for NIM Model

Chow Test	
F-count	11.07
p-value	0.0000
Decision	H0 is rejected

Source: Stata output

The table above shows that H0 is rejected and it is concluded that The Fixed Effect Model is better than the Poolest Least Square model. Next, compare the fixed effect model with the random effect model using the Hausman test, with the results in Table 3.

Table 3. Hausman test result for NIM Model

Hausman Test	
Chi-square	17.18
p-value	0.1630
Decision	H0 is accepted

Source: Stata output

The decision H0 is accepted and it is concluded that the model random effect is better than the fixed effect model. The appropriate panel data regression model for estimating RDB NIM uses a random effect model with individual effects. In the random effects model, there is no need to test classical assumptions, because it is assumed that the Generalized Least Square (GLS)

estimation method can overcome heteroscedasticity and autocorrelation.

Regression Model with All Independent Variables for the ROA Model

A model was formed for all independent and dependent variables, and continued with selecting the appropriate model to estimate ROA. In Table 4 are the results of the Chow test to compare the Poolest Least Square model with the Fixed Effect Model.

Table 4. Chow test result for ROA Model

Chow Test	
F-count	33.33
p-value	0.0000
Decision	H0 is rejected

Source: Stata output

The table above shows that H0 is rejected and it is concluded that The Fixed Effect Model is better than the Poolest Least Square model. Next, compare the fixed effect model with the random effect model using the Hausman test, with the results in Table 5.

Table 5. Hausman test result for ROA Model

Hausman Test	
Chi-square	10.22
p-value	0.2497
Decision	H0 is accepted

Source: Stata output

The decision H0 is accepted and it is concluded that the model random effect is better than the fixed effect model. The appropriate panel data regression model for estimating RDB ROA uses a random effect model with individual effects. In the random effects model, there is no need to test classical assumptions, because it is assumed that the Generalized Least Square (GLS) estimation method can overcome heteroscedasticity and autocorrelation.

NIM Panel Data Regression Analysis

The results of data processing on factors that influence the net interest margin (NIM) at RDB in Indonesia are completely presented in the following table.

Table 6. Bank Factors of RDB's NIM

Variable	Coef.	p-value
SIZE	-0.0004	0,794
FEE	-0.0429	0,251
LG	-0.0024	0,101
CAR	0.0131	0,468
NPL	0.0108	0,793
BOPO	-0.0569	0,015
LDR	0.0147	0,000
R-squared	0,4380	
Data Observation	135	
Model	REM	

Source: Stata output

Based on these results, the coefficient of determination (R-squared) which explains all the variables used in this research is 43.80 percent. Based on these results, there are two variables that have a significant influence on net interest margin (NIM), namely BOPO and LDR. BOPO has a significant negative effect which reflects that the more efficient of RDB is in managing operational costs towards operational income, the more RDB NIM will increase. This is in line with research conducted by Hawtrey and Liang (2008).

Meanwhile, LDR has a significant positive effect on net interest margin. The increase in LDR reflects greater credit growth compared to savings funds. So this indicates that the increase in interest income is greater than interest costs, which will increase the net interest margin. This is consistent with research by Putra et al. (2020). Furthermore, several other variables have no influence on net interest margin.

ROA Panel Data Regression Analysis

The results of data processing on factors that influence profitability (ROA) at RDB in Indonesia are completely presented in the following table.

Table 7. Bank Factors of RDB's ROA

Variable	Coef.	p-value
SIZE	-0.0004	0,285
FEE	-0.0160	0,187
LG	0.0010	0,034
CAR	0.0151	0,007
NPL	-0.0053	0,658
BOPO	-0.6254	0,000
LDR	0.0075	0,000
NIM	0.1643	0,000
R-squared	0,9367	
Data Observation	135	
Model	REM	

Source: Stata output

Based on these results, the coefficient of determination (R-squared) which explains all the variables used in this research is 93.67 percent. Based on these results, there are five variables that have a significant influence on profitability (ROA), namely LG, CAR, BOPO, LDR, and NIM. Market concentration (LG) has a significant positive direction towards ROA, RDB market power describes the degree of bank competition in the industry. So the greater the strength of the RDB, the greater the ROA obtained will be. Furthermore, the CAR bank capital adequacy ratio at RDB has a significant positive effect on ROA. This shows that any increase in the capital adequacy ratio at RDB will have an impact on profitability. This is because with increasing capital adequacy owned by RDB, it will have the ability to carry out innovation and wider business expansion, especially in increasing the amount of credit disbursed so that it will increase bank profitability. This is consistent with research conducted by Putra et al. (2020). Apart from that, the CAR value regulations set by the government will influence banking behavior. Banks that have a CAR value below the standard limit will seek a larger spread (NIM) to meet this, while banks with a CAR value above the predetermined standard will seek a higher spread to maintain their margins. (Kannan et al., 2001).

Furthermore, BOPO has a significant negative effect, which reflects that the more efficient the RDB is in managing operational costs towards operational income, the more ROA the RDB will increase. Meanwhile, LDR has a significant positive effect on profitability. The increase in LDR reflects greater credit growth than the increase in deposit funds, so it will increase bank profitability. Apart from that, NIM positively significantly influences ROA. The net interest margin has a positive effect, reflecting that the higher the net interest margin, the higher the RDB's profitability. Meanwhile, other variables do not have a

significant influence on ROA at Indonesian RDB.

CONCLUSION

Based on empirical analysis, there are two bank-specific factors used in this research that have a significant influence on net interest margin. BOPO is a factor that has a significant negative influence on the net interest margin, while LDR is a factor that has a significant positive influence on the net interest margin. Furthermore, based on empirical analysis, there are five bank-specific factors used in this research that have a significant influence on ROA. LG, CAR, LDR, and NIM have a significant positive effect on ROA. Meanwhile, BOPO is a factor that has a significant negative influence on ROA. So that in order to maintain profitability that has been determined by owners or shareholders, banks increase liquidity ratios to banks that still have liquidity allowance (LDR) to maximize credit distribution expansion.

Apart from that, the efficiency of RDB management in carrying out bank operations can maximize profitability. So these empirical results can provide an overview of the determinant factors that influence RDB profitability and how RDB management strategies are used to maintain profitability. Furthermore, the capital ratio (CAR), which has a significant effect on profitability in Indonesian RDBs, indicates that one of the steps to strengthen the stability of the banking system, especially RDBs, is to ensure that RDBs have sufficient capital to absorb the potential risk of losses and support RDB business expansion. to accelerate regional economic growth.

Declaration by Authors

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