



Determinants of bank profitability: Empirical evidence from Republic of Indonesia state-owned banks

Determinantes de la rentabilidad bancaria: evidencia empírica de los bancos estatales de la República de Indonesia

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Abstract

The study involved Bank BUMN (State-Owned Enterprises). Analysis was done using data panel regression analysis with Random Effect Model. Our findings confirmed the following. Mode 1 on partial tests showed that CAR had a significant negative effect on ROA, NPL had a significant negative effect on ROA, FOREX had a significant negative effect on ROA, BIR had a significant positive effect on ROA, and SIZE had a significant positive effect on ROA. Simultaneous tests resulted in a significant effect with a coefficient of determination of 88.71%. Model 2 on partial tests showed that CAR had a significant positive effect on ROE, NPL had a significant negative effect on ROE, FOREX had a significant negative effect on ROE, BIR had a significant positive effect on ROE, and SIZE had an insignificant positive effect on ROE. Simultaneous tests resulted in a significant effect with a coefficient of determination of 76.04%.

JEL Code: G21, G32, E5

Keywords: profitability; capital adequacy ratio; non-performing loans; foreign exchange rates; company size

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Resumen

Este estudio involucró a BUMN Bank (agencia de UNISA propiedad del estado). El análisis se realizó utilizando el análisis de regresión del panel de datos con un modelo de efecto aleatorio. Nuestros hallazgos confirman lo siguiente. El modo 1 En las pruebas parciales muestra que el CAR tiene un efecto negativo significativo en el ROA, NPL tiene un efecto negativo significativo en el ROA, el forex tiene un efecto negativo significativo en el ROA, la cerveza tiene un efecto positivo significativo en el ROA y el tamaño tiene un efecto positivo significativo En Roa. La prueba simultánea produce un efecto significativo con el coeficiente de determinar el 88.71%. El modelo 2 en el TET parcial muestra que el automóvil tiene un efecto positivo significativo en el ROE, NPL tiene un efecto negativo significativo en el ROE, el forex tiene un efecto negativo significativo en el ROE, la cerveza tiene un efecto positivo significativo en el ROE y el tamaño tiene un efecto positivo de que no es significativo en ROE. La prueba simultánea produce un efecto significativo con el coeficiente de determinar el 76.04%.

Código JEL: G21, G32, E5

Palabras clave: rentabilidad; coeficiente de solvencia; no realiza préstamos; tipos de cambio; tamaño de la empresa

Introduction

Banking is an important sector in the economy of a country, including Indonesia. Its role as a financial intermediary is needed to encourage economic growth that banks are also known as agents of development (Bayar, 2019). Law of the Republic of Indonesia Number 10 of 1998 defines banks as a business entity that collects funds from the public in savings and distributes them back as credit or other forms to improve the public's standard of living (Luqman Hakim & Martono, 2019).

The Financial Services Authority noted that the profitability of Indonesian banks in February 2022 shrank compared to the previous month (Jun & Yeo, 2021). This is reflected in the net interest margin (NIM) ratio which fell 13 basis points, or from 4.60 percent in January 2022 to 4.47 percent as of February (Supriyono & Herdhayinta, 2019). The return on assets (ROA) fell to 2.32 percent. Banking performance as of February 2022 shows increased efficiency. This is reflected in operational costs to operating income (BOPO), which fell from 82.04 percent in January 2022 to 80.57 percent (Hasan et al., 2020). Meanwhile, banking liquidity in February was still loose. Even though it fell, the ratio of liquid assets to non-core deposits (AL/NCD) was still far above the regulator's lower limit, which was 147.33 percent. This can also be seen from the liquidity coverage ratio (LCR), which is at 257.32 percent. based on the condition of banks in Indonesia which are unstable in terms of their profitability, it is suspected that they are influenced by various factors (Amidjaya & Widagdo, 2020). In this study explores these factors.

According to ownership, banks in Indonesia are classified into four types: state-owned banks, national private banks, foreign private banks, and joint venture banks (Haryanto et al., 2019). One type of

bank with a strategic value for the government of Indonesia is the state-owned bank (State-Owned Enterprises – BUMN), a type of bank whose shares are owned mainly by the government of Indonesia; this type of bank consists of Bank Mandiri (BMRI), Bank Rakyat Indonesia (BBRI), Bank Negara Indonesia (BBNI), and Bank Tabungan Negara (BBTN). During the second quarter of 2021, the state-owned banks contributed 7.07% to annual national economic growth (Haryanto et al., 2019; Marlina et al., 2021; Yusuf & Ichsana, 2021).

Profitability is an important performance measure for banks (Amidjaya & Widagdo, 2020). The ability to generate profit as targeted is crucial since it deals with paying dividends to shareholders, which means the government of Indonesia for state-owned banks (Winasis, Djumarno, et al., 2020). One measure of profitability is Return on Assets (ROA), showing the ability of a bank to generate earnings from its business as a representation of management capability in managing its assets. Another measure is Return on Equity (ROE), showing the net return on capital invested by shareholders (Barrdear & Kumhof, 2022; Nastiti & Kasri, 2019).

In the last few years, there has been a trend of declining profitability of Indonesia’s state-owned banks, as presented in Figure 1 and 2 on the ROA and ROE value of the state-owned banks.

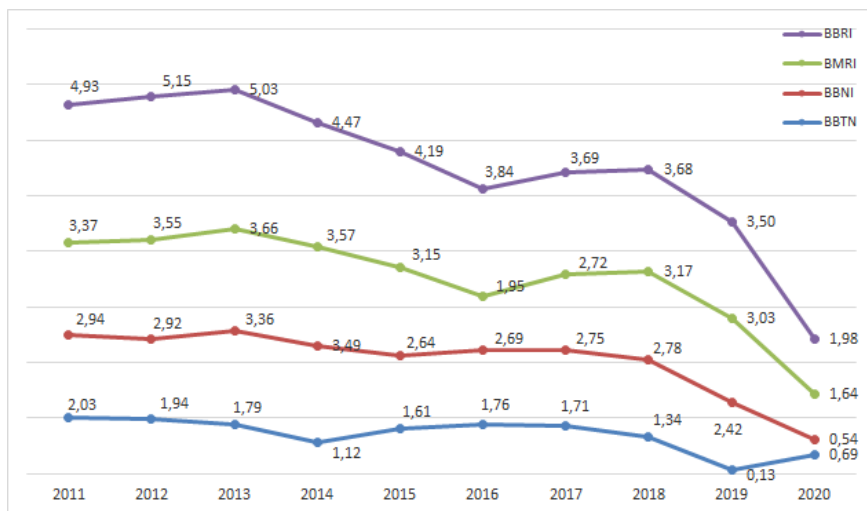


Figure 1. ROA of Indonesia’s State-Owned Banks 2011-2020

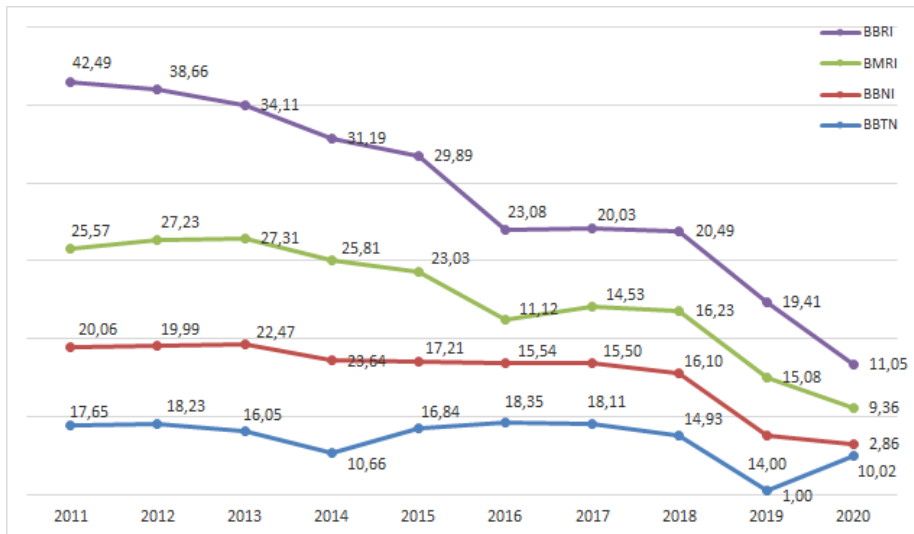


Figure 2. ROE of Indonesia’s State-Owned Banks 2011-2020

Year 2020 recorded the lowest profitability—the Covid-19 pandemic has caused much loss for banking performance, including the state-owned banks. Overall, there has been a decline in the profitability of state-owned banks since 2011.

Many factors affect bank profitability on micro and macro levels. Capital Adequacy Ratio (CAR), representing a bank’s available capital, is a micro factor that has a significant impact on profitability; Mohsin et al. (2020) conclude that CAR has a significant positive effect on profitability. Another micro factor affecting profitability is Non-Performing Loans (NPL), representing a bank loan subject to late repayment; Kjosevski et al. (2019) confirm the significant negative effect NPL has on profitability. Company or bank size is also an important determinant of profitability. Silalahi et al. (2021) reveal that banks with considerable assets have higher efficiency than those with small assets, thus making the first more profitable; Nugroho et al. (2020) confirming that bank size positively affects profitability (Muda et al., 2023; Manurung et al., 2022).

Banks cannot be separated from the macro factors affecting their operations. Foreign exchange rates also affect the public’s decision to place funds in banks, which finally affects credit disbursement—as such, this factor is considered a determinant of profitability (Amidjaya & Widagdo, 2020; Barrdear & Kumhof, 2022). In addition, the interest rate a bank offers is also a factor attractive to the public to put their money in the bank—the interest rate of Bank Indonesia influences the interest rate. Assfaw (2019) prove that Bank Indonesia Interest Rate had a significant positive effect on profitability.

The main contribution is to corroborate the positive relationship of the microeconomic variables CAR (capital adequacy ratio), NPL (delinquency) and SIZE (size of the company) and of the macroeconomic variables FOREX (exchange rate) and BIR (interest rate) with the profitability of the banks measured through ROA and ROE, this relationship is verified through a data panel model (Winasis et al., 2021). It is worth mentioning that other authors in previous works had already established these relationships and that the article only focuses on demonstrating them in the case of state-owned banks in Indonesia (Marlina et al., 2021; Yusuf & Ichsan, 2021).

Literature review

Bank profitability

Profitability represents the bank's ability to generate profit. Measuring profitability can be done by using a ratio. This present study used two most commonly used proxies, Return On Equity (ROE) and Return On Assets (ROA), to measure profitability (Jun & Yeo, 2021). ROA shows the ability of a bank to generate earnings from its business as a representation of management capability in managing its assets (Ahmed et al., 2022). ROE is the ratio between net profit and capital, measuring the performance of bank management in managing the capital to generate net profit after tax (Khan et al., 2020). ROA is the ratio between net profit and total assets, representing the performance of bank management in managing its assets (Gunawan et al., 2023; Hidayah et al., 2023). The main difference between these two ratios is in measuring the net ratio (Martins et al., 2019). ROA measures with assets, including the public savings (Le & Ngo, 2020). Thus, ROA also considers risks from leverage, making it the primary ratio for measuring bank profitability (Batten & Vo, 2019). The ratio between net profit and total assets is seen as the measure of management efficiency (Supriyono & Herdhayinta, 2019).

Capital adequacy ratio and profitability

Capital Adequacy Ratio (CAR) is the ratio related to bank capital, used to measure capital adequacy to support risk-weighted assets. It also represents a ratio used to measure the bank's capital strength with a function to bear risks the bank may face (Hasan et al., 2020). Bank management must be able to manage CAR following the existing regulation because adequate capital will help banks expand their business safely to achieve their profitability target (Batten & Vo, 2019; Bolarinwa et al., 2019). CAR is measured by comparing equity to total assets (Hasan et al., 2020; Supriyono & Herdhayinta, 2019). High CAR value

represents the capability of a bank to pay for its operation and contributes to profitability (Bolarinwa et al., 2019). Ali and Puah (2019) confirm the positive effect of CAR on profitability. Horobet et al. (2021); Jadah et al. (2020); and Saif-Alyousfi (2022) also reveal that CAR had a significant positive effect on profitability.

Non-performings loan and profitability

A Non-Performing Loan (NPL) refers to a bank loan subject to late repayment, or there are indications that the borrower is unlikely to repay the loan in full (Elekdag et al., 2020). NPL will negatively affect banks because NPL can reduce capital. If banks continue to have high NPL, the banks may not be able to disburse credit in the next period—this will reduce the source of income of the banks, thus affecting profitability in the long run (Skvarciany et al., 2019). Rizvi et al. (2020) show that NPL had a significant negative effect on profitability measured using ROA and ROE for banks in Indonesia. Winasis, Riyanto, et al. (2020) reveals that NPL has a significant negative effect on ROA.

Foreign exchange rates and profitability

Foreign Exchange Rate (FOREX) is the foreign exchange rate throughout the year, considered a determinant of bank profitability (Indriasari et al., 2019). High foreign exchange rates will drive people to buy foreign currencies to get profits rather than place their money in banks. Almaqtari et al. (2018) confirm that FOREX had a significant negative effect on ROA and ROE in banks in India. However, Rahman et al. (2022) confirm the positive relationship between FOREX and profitability.

Bank indonesia interest rate and profitability

Bank Indonesia Interest Rate (BIR) determines the interest rates banks offer to the public. Interest rates are the factor attracting people to place their funds in banks (Nugroho et al., 2020). Higher BIR means higher interest rates, leading to more money placed in banks. Thus, banks have a better ability to disburse credit and loans, and with more loans provided, banks will be able to generate more profit (Jadah et al., 2020; Rizvi et al., 2020). Indriasari et al., (2019) shows that BIR had a significant positive effect on the profitability of Indonesia's state-owned banks. Rahman et al. (2022) proves that BIR had a significant positive effect on ROA. However, Nugroho et al. (2020) reveal a contrasting finding, confirming that BIR negatively affects ROA and ROE.

Bank size and profitability

Bank size (SIZE) uses total assets as the proxy, as done by Yusuf and Ichsan (2021). Previous studies confirm that SIZE affects profitability significantly (either positive or negative). Amidjaya and Widagdo (2020); and Marlina et al. (2021) confirm the positive effect of SIZE on profitability. However, Nastiti and Kasri (2019); Skvarciany et al. (2019) confirm the negative effect of SIZE on profitability. Indriasari et al. (2019); and Rizvi et al. (2020) also confirm that profitability (ROA) is not determined by assets as SIZE representation for banks in Nepal.

Based on the explanation above, the hypotheses on the effect of independent variables of CAR, NPL, FOREX, BIR, and SIZE on ROA and ROE are presented as follows:

Table 1
Variable Descriptions

Symbols	Variables	Proxy	Expected relationships
Dependent Variables			
ROA	Return on Assets	Net Profit/Assets	
ROE	Return on Equity	Net profit/Common Stock Equity	
Independent Variables			
CAR	Capital Adequacy Ratio	Capital/Risk-Weighted Assets	+
NPL	Non-Performing Loans	Non-Performing Loans/Total Loans	-
FOREX	Foreign Exchange Rates	Foreign Exchange Rates	-
BIR	Bank Indonesia Interest Rates	Bank Indonesia Interest Rates	+
SIZE	Bank Size	Logarithm of Total Assets	+

Methodology

Population, sample, and data

The problem that can be understood is that during the current pandemic conditions, state-owned banks in Indonesia have had quite a hard time. Taking this into account, the authorities are also still imposing stimulus for banks in the context of determining credit restructuring related to the quality and treatment of reserves that lead to their profitability. That is the main topic for using four state-owned banks in Indonesia (Manurung et al., 2022; Saputra, 2023; Saputra et al., 2021). This study examined factors affecting the performance of Indonesia's state-owned banks. The factors included CAR, NPL, FOREX,

BIR, and SIZE. The dependent variables were bank performance measured using ROE and ROA (Barrdear & Kumhof, 2022; Mohsin et al., 2020).

The population as the saturated samples in this study were four state-owned banks: Bank Negara Indonesia (BNNI), Bank Rakyat Indonesia (BBRI), Bank Tabungan Negara (BBTN), and Bank Mandiri (BMRI). We used secondary data on the financial reports of the banks accessed on www.idx.co.id and the website of Bank Indonesia on website www.bi.go.id from 2011 to 2020 (Amidjaya & Widagdo, 2020), as presented in Table 2.

Table 2
 Data Sources

Symbols	Variables	Unit	Data Sources
ROA	Return on Assets	Percentage	Financial reports
ROE	Return on Equity	Percentage	Financial reports
CAR	Capital Adequacy Ratio	Percentage	Financial reports
NPL	Non-Performing Loan	Percentage	Financial reports
FOREX	Foreign Exchange Rates	IDR/USD	Bank Indonesia
BIR	Bank Indonesia Interest Rates	Percentage	Bank Indonesia
SIZE	Bank Size	Percentage	Financial reports

Data analysis

The data were estimated using data panel regression analysis using two models. As the proxy for profitability, the first model used ROA, and the second model used ROE. The models can be written in the following equations:

Model 1

$$ROA_{it} = \alpha_0 + \alpha_1 CAR_{it} + \alpha_2 NPL_{it} + \alpha_3 FOREX_{it} + \alpha_4 BIR_{it} + \alpha_5 SIZE_{it} + \varepsilon_{it}$$

Model 2

$$ROE_{it} = \alpha_0 + \alpha_1 CAR_{it} + \alpha_2 NPL_{it} + \alpha_3 FOREX_{it} + \alpha_4 BIR_{it} + \alpha_5 SIZE_{it} + \varepsilon_{it}$$

In which:

ROA = Return on Assets

ROE = Return on Equity

CAR = Capital Adequacy Ratio

NPL = Non-Performing Loans

Forex = Foreign Exchange Rates

BIR = Bank Indonesia Interest Rates

Size = Bank Size

Selecting the data panel regression analysis

Panel data helps to gain different intercepts and slope coefficients for each company and each period. Three models exist in data panel analysis: common effect, fixed effect, and random effect; testing was done to determine the best model. Chow test determines the most appropriate common effect or fixed effect model used in estimating data panel. Next, to find out whether the random effect model is better than the common effect method, the Lagrange Multiplier (LM) test is used. Hausman test is used as a statistical test to choose whether the fixed effect or random effect model is the most appropriate to use.

Results

Descriptive statistics

Descriptive statistics were carried out to calculate and analyze the mean, median, maximum, minimum, and standard deviation for each variable used in the study, as shown in Table 3.

Table 3
Descriptive Statistics

	ROA	ROE	CAR	NPL	FOREX	BIR	SIZE
Mean	2.773000	19.37200	18.40700	2.731500	12663.30	5.825000	33.92885
Median	2.850000	18.17000	18.41000	2.640000	13492.00	5.875000	34.07814
Maximum	5.150000	42.49000	22.96000	4.780000	14481.00	7.750000	34.95208
Minimum	0.130000	1.000000	14.64000	1.550000	9068.000	3.750000	32.12102
Std. Dev.	1.207148	8.498782	2.427119	0.869641	1804.149	1.358968	0.759259

ROA, representing the ratio of net profit to assets, had a mean of 2.77% and a median of 2.85%. BBRI achieved the highest maximum of 5.15% in 2012, and BBTN had a minimum of 0.13% in 2019.

ROE, representing the ratio of net profit to common stock equity, had a mean of 19.37% and a median of 18.17%. BBRI had a maximum of 42.49% in 2011, and BBTN had a minimum of 1% in 2019.

CAR, representing the ratio of capital to risk-weighted assets, had a mean of 18.40% and a median of 18.41%. BBRI had a maximum of 22.96% in 2017, and BBTN had a minimum of 14.64% in 2014.

NPL, representing the ratio of non-performing loans to total loans, had a mean of 2.73% and a median of 18.41%. BBRI had a maximum of 4.78% in 2012, and BBTN had a minimum of 0.13% in 2019.

FOREX had a mean of 12,663.30 and a median of 13,492. A maximum of 14,481 happened in 2018, and a minimum of 9,068 happened in 2019.

BIR had a mean of 5.83% and a median of 5.88%. A maximum of 7.75% happened in 2014, and a minimum of 3.75 happened in 2020.

SIZE had a mean of 33.93 and a median of 34.08. BBRI had a maximum of 34.95 in 2020, and BBTN had a minimum of 32.12 in 2011.

Standard deviation measures the spread of data. It shows how close the data value of a sample is to the mean.

Model selection

Model selection was made using the Chow Test, Lagrange Multiplier (LM) Test, dan Hausman Test to choose the most appropriate model. The results are presented in Table 4.

Table 4
 Testing the Data Panel Regression Model

No.	Method	Test	Results	
			Model 1	Model 2
1	Chow Test	CEM vs FEM	Fixed Effect	Fixed Effect
2	LM Test	CEM vs REM	Random Effect	Random Effect
3	Hausman Test	FEM vs REM	Random Effect	Random Effect

Model 1 used ROA as the performance measure. The Chow Test results showed that the selected model was the Fixed Effect Model (FEM) because the chi-square was smaller than 0.05. The LM Test resulted in the Random Effect Model (REM) as the selected model because the chi-square of 6.157 was bigger than the chi-square table of 4.321; in other words, the probability value from the LM Test Breusch-Pagan was smaller than the alpha value of 0.05. The Hausman Test also resulted in REM as the selected model because the random cross-section was bigger than the alpha value of 0.05. To sum up, REM would be more suitable than other models to be used in estimation for Model 1.

Model 2 used ROE as the performance measure. The Chow Test results showed that the selected model was the Fixed Effect Model (FEM) because the chi-square was smaller than 0.05. The LM Test resulted in the Random Effect Model (REM) as the selected model because the chi-square of 7.876 was

bigger than the chi-square table of 4.321; in other words, the probability value from the LM test Breusch-Pagan was smaller than the alpha value of 0.05. The Hausman Test also resulted in REM as the selected model because the random cross-section was bigger than the alpha value of 0.05. To sum up, REM would be more suitable than other models to be used in estimation for Model 2.

Data panel regression analysis

Data panel regression analysis is used to measure the effect of independent variables on dependent variables. The results of the analysis are presented in Table 5.

Tabel 5
Regression Statistics

Determinant Variables	ROA		ROE	
Constant	-13.89026		28.12647	
CAR	0.183206		0.761129	
	0.0000	**	0.0202	*
NPL	-0.693673		-5.463462	
	0.0000	**	0.0000	**
FOREX	-0.000387		-0.002568	
	0.0000	**	0.0000	**
BIR	0.323128		1.822339	
	0.0000	**	0.0000	**
SIZE	0.536432		0.414407	
	0.0000	**	0.7715	
F test	0.0000	**	0.0000	**
Adjusted R ²	0.887089		0.760357	

Note: ** Significant at 1%, * significant at 5%

Based on the data analysis, as presented in Table 5, the obtained regression models are as follows:

Model 1

$$\text{ROA} = -13.89026 + 0.183206\text{CAR} - 0.693673\text{NPL} - 0.000387\text{FOREX} + 0.323128\text{BIR} + 0.536432\text{SIZE}$$

Model 2

$$\text{ROE} = 28.12647 + 0.761129\text{CAR} - 5.463462\text{NPL} - 0.002568\text{FOREX} + 1.822339\text{BIR} + 0.414407\text{SIZE}$$

Our findings confirmed that CAR had a significant positive effect on ROA at the significance level or alpha of 1% and on ROE at the significance level or alpha of 5%. These findings confirm that an increase in CAR will also increase profitability. These findings support Assfaw (2019); Kjosevski et al.

(2019); Mohsin et al. (2020); and Silalahi et al., (2021), showing that CAR has a significant positive effect on profitability. Thus, our findings supported the proposed hypothesis.

NPL had a significant negative effect on ROA and ROE at the significance level or alpha of 1%. These findings confirm that an increase in NPL, which means more loans are subject to late payment or no payment, will decrease profitability. These findings support Marlina et al. (2021); Yusuf & Ichsan (2021), showing that NPL has a significant negative effect on profitability measured using ROA and ROE for banks in Indonesia. Thus, our findings supported the proposed hypothesis.

FOREX had a significant negative effect on ROA and ROE at the significance level or alpha of 1%. The decline in the rupiah's value against foreign currencies would encourage the public to put their money in the banks (Haryanto et al., 2019). With these public funds, the banks will be able to disburse more loans and credit to increase profitability (Amidjaya & Widagdo, 2020). These findings support Nugroho et al. (2020), showing that exchange rates have a significant negative effect on profitability measured using ROA and ROE for banks in Indonesia (Anasthasya et al., 2022). Thus, our findings supported the proposed hypothesis.

BIR had a significant positive effect on ROA and ROE at the significance level or alpha of 1%. These findings confirm that BIR could encourage the public to place their money in banks, making credit and loans available. With these public funds, the banks will be able to disburse more loans and credit to increase profitability (Ali & Puah, 2019; Elekdag et al., 2020; Yusuf & Ichsan, 2021). These findings support Jadah et al. (2020); Saif-Alyousfi (2022); and Skvarciany et al. (2019). Thus, our findings supported the proposed hypothesis.

SIZE had a significant positive effect on ROA at the significance level or alpha of 1%, but SIZE did not affect ROE. Since banks act as a financial intermediary between surplus units and deficit units, public funds become important in providing credit and loans that affect profitability (Bolarinwa et al., 2019). This makes bank size, represented by the assets, affect ROA significantly. This finding confirms Skvarciany et al. (2019) on banks in Europe that size has a significant and positive effect on profitability. Thus, our findings supported the proposed hypotheses for data panel regression analysis on Model 1 but did not support the proposed hypotheses for Model 2.

Simultaneous tests of all dependent variables on profitability showed a significant effect at the significance level or alpha of 1%. The adjusted R-square could explain the effect of CAR, NPL, FOREX, BIR, and SIZE by 88.71% on ROA and 76.04% on ROE, while the rest was influenced by other factors not included in the model (Batten & Vo, 2019; Le & Ngo, 2020).

To sum up, the influence of the independent variables on the dependent variables and the results of hypothesis testing on the data panel regression analysis on the two models can be seen in Table 6 below.

Table 6
 Results of Data Panel Regression Analysis

Independent Variables	Model 1		Model 2	
	ROA	Hypothesis	ROE	Hypothesis
CAR	+ / Significant	Accepted	+ / Significant	Accepted
NPL	- / Significant	Accepted	- / Significant	Accepted
FOREX	- / Significant	Accepted	- / Significant	Accepted
BIR	+ / Significant	Accepted	+ / Significant	Accepted
SIZE	+ / Significant	Accepted	+ / Insignificant	Rejected

Conclusions

Our findings show that partially and simultaneously, CAR, NPL, FOREX, BIR, and SIZE significantly affect profitability measured by ROA on Model 1 with a coefficient of determination of 88.71%. For Model 2, only CAR, NPL, FOREX, and BIR partially affect profitability measured by ROE, while SIZE did not affect profitability, with a coefficient of determination of 76.04%.

Indonesia's state-owned banks have advantages over other banks because they get a higher level of trust from the public. Therefore, banks should always maintain a high level of CAR and a low NPL to increase profitability with good risk management. Good performance will certainly maintain public trust in state-owned banks (Khan et al., 2020). The findings showing that SIZE has a significant effect on ROA reflect that the return obtained by the bank is indeed influenced by liabilities in the form of public funds. Hence, if liability is only measured by equity, the effect on returns is not significant. In addition, for investors, external factors, including FOREX and BIR, must also be considered in determining investment because these two factors are proven to affect profitability, which will ultimately determine the return the investors receive (Jun & Yeo, 2021).

Further studies are suggested to add other internal and external factors that affect profitability, including the sum of public funds, organizational governance, operating costs to operating income, development of information and technology, and the like (Antow et al., 2023; Sundari et al., 2023). External factors to be studied further include economic growth, the money supply, and the regulations set by Bank Indonesia, the Deposit Insurance Institution, or the Financial Services Authority. Future researchers may also be interested in studying the topic by categorizing banks, such as regional development banks, joint-venture banks, foreign private banks, or even conventional and sharia banks (Batten & Vo, 2019; Bolarinwa et al., 2019).

The research implications are aimed at banks and authorities in supporting data and facts which will later show bank support in the national economic recovery which continues to improve. The results

of this study provide theoretical support for micro and macroeconomics by demonstrating the growth of banks in terms of their profitability (Ali & Puah, 2019). There are several suggestions which can be considered for Indonesian banking as well as for further researchers. For banks and SOEs to consider micro and macroeconomic factors in making policies so that banking profitability is maintained and stable (Saif-Alyousfi, 2022). Meanwhile, for future researchers to consider other variables such as culture, digitalization systems, and world economic conditions to be developed in further research.

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