DETERMINANT OF BANK BUKU 4 PERFORMANCE WITH CAPITAL ADEQUACY RATIO AS MEDIATOR VARIABLE: EVIDENCE FROM INDONESIA

Luh Putu Puji Trisnawati [A], Augustina Kurniasih [B]

ABSTRACT

Purpose: This study aims to determine the determinants of bank BUKU 4 performance.

Theoretical framework: Research was conducted on the performance of the BUKU 4 banks without taking into account emerging markets in order to reevaluate the effects of NPL, LDR, and bank SIZE on bank performance.

Design/methodology/approach: This study used secondary data, quarterly data of banking companies obtained from the website of the Financial Services Authority (OJK). Using E-views from 10 entities; three government banks (Bank Persero) and seven national private banks from 2020 to 2021. BUKU was born from Bank Indonesia Regulation on Business Activities and Office Network Based on Bank Core Capital.

Findings: Using the Sobel Test, it was found that CAR does not act as a mediator of the influence of NPL and SIZE on ROA, but CAR can mediate the effect of LDR on ROA.

Research, Practical & Social implications: The next researcher who wants to research the banking industry can develop further research by adding new variables such as Net Interest Margin (NIM) and BOPO. Factors outside the company can also be added, such as interest rates and inflation. Future research can also be done on other banks, such as BUKU 1 Bank, BUKU 2, or BUKU 3. Similar research can also be conducted on Islamic banking.

Originality/value: This literally one of the first research works in Indonesia to determine the determinant of bank BUKU 4 performance with CAR as mediator variable.

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DETERMINANTES DO DESEMPENHO DO BANK BUKU 4 COM O ÍNDICE DE ADEQUAÇÃO DE CAPITAL COMO VARIÁVEL MEDIADORA: EVIDÊNCIAS DA INDONÉSIA

RESUMO

Objetivo: Este estudo tem como objetivo determinar os determinantes do desempenho do banco BUKU 4.

Estrutura teórica: Foi realizada uma pesquisa sobre o desempenho dos bancos BUKU 4 sem levar em conta os mercados emergentes, a fim de reavaliar os efeitos de NPL, LDR e SIZE do banco sobre o desempenho do banco.

Projeto/metodologia/abordagem: Este estudo utilizou dados secundários, dados trimestrais de empresas bancárias obtidos no site da Financial Services Authority (OJK). Usando E-views de 10 entidades; três bancos governamentais (Bank Persero) e sete bancos privados nacionais de 2020 a 2021. O BUKU nasceu da regulamentação do Banco da Indonésia sobre atividades comerciais e rede de escritórios com base no capital principal do banco.

[A] *Master in Sains. Accounting Department, Pradita University, Scientia Business Park. Tangerang, Indonesia. E-mail: luh.putu@pradita.ac.id Orcid: https://orcid.org/0000-0002-1174-131X*

[B] *Doctor in Financial Management. Doctoral Program, Faculty of Economic and Business Mercubuana University. Jakarta, Indonesia. E-mail: augustina.kurniasih@mercubuana.ac.id Orcid: https://orcid.org/0000-0003-4948-2584*

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Conclusões: Usando o Teste de Sobel, constatou-se que o CAR não atua como mediador da influência do NPL e do SIZE no ROA, mas o CAR pode mediar o efeito do LDR no ROA.

Implicações para a pesquisa, práticas e sociais: O próximo pesquisador que quiser investigar o setor bancário poderá desenvolver uma pesquisa mais aprofundada acrescentando novas variáveis

como a margem líquida de juros (NIM) e o BOPO. Também podem ser acrescentados fatores externos à empresa, como taxas de juros e inflação. Pesquisas futuras também podem ser feitas em outros bancos, como o BUKU 1 Bank, o BUKU 2 ou o BUKU 3. Pesquisas semelhantes também podem ser realizadas em bancos islâmicos.

Originalidade/valor: Este é literalmente um dos primeiros trabalhos de pesquisa na Indonésia a determinar o determinante do desempenho do banco BUKU 4 com o CAR como variável mediadora.

Palavras-chave: Tamanho do Banco, Índice de Adequação de Capital, Índice de Empréstimos sobre Depósitos, Empréstimo não Produtivo, Retorno sobre o Ativo.

FACTORES DETERMINANTES DE LOS RESULTADOS DEL BANCO BUKU 4 CON EL COEFICIENTE DE ADECUACIÓN DEL CAPITAL COMO VARIABLE MEDIADORA: DATOS DE INDONESIA

RESUMEN

Objetivo: Este estudio pretende determinar los determinantes del rendimiento de los bancos BUKU 4.

Marco teórico: Se llevó a cabo una investigación sobre los resultados de los bancos BUKU 4 sin tener en cuenta los mercados emergentes, con el fin de reevaluar los efectos de la morosidad, el RLD y el TAMAÑO de los bancos en los resultados de éstos.

Diseño/metodología/enfoque: Este estudio utilizó datos secundarios, datos trimestrales de empresas bancarias obtenidos de la página web de la Autoridad de Servicios Financieros (OJK). Utilizando E-views de 10 entidades; tres bancos gubernamentales (Bank Persero) y siete bancos privados nacionales de 2020 a 2021. La BUKU nació de la regulación del Banco de Indonesia sobre actividades empresariales y red de oficinas basada en el capital básico del banco.

Conclusiones: Utilizando el Test de Sobel, se encontró que el CAR no actúa como mediador de la influencia de la NPL y el SIZE sobre el ROA, pero el CAR puede mediar el efecto del LDR sobre el ROA.

Implicaciones para la investigación, prácticas y sociales: El próximo investigador que quiera investigar el sector bancario podría desarrollar nuevas investigaciones añadiendo nuevas variables

como el margen de interés neto (NIM) y el BOPO. También pueden añadirse factores externos a la empresa como los tipos de interés y la inflación. También se pueden realizar investigaciones futuras sobre otros bancos como BUKU 1 Bank, BUKU 2 o BUKU 3. También se pueden realizar investigaciones similares sobre bancos islámicos.

Originalidad/valor: Este es, literalmente, uno de los primeros trabajos de investigación en Indonesia que determina el determinante del rendimiento del banco BUKU 4 con el CAR como variable mediadora.

Palabras clave: Tamaño del Banco, Ratio de Adecuación del Capital, Ratio Préstamo/Depósito, Préstamos no Productivos, Rentabilidad de los Activos.

INTRODUCTION

A Bank is a financial institution whose main task is collecting public funds. Apart from collecting funds from the public, banks also channel funds to the public and provide services in other banking sectors or act as intermediaries between parties who have excess or lack of funds (Sumartik, 2018).

Commercial Banks based on Business Activities (BUKU) in Indonesia are divided into four groups. The first group (BUKU 1) are banks with core capital criteria of less than or up to IDR 1 trillion, the second group (BUKU 2) are banks with core capital criteria of less than or up to IDR 5 trillion, the third group (BUKU 3) are banks with a minimum core capital of IDR

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5 trillion to IDR 30 trillion and group 4 (BUKU 4) are banks with a minimum core capital of IDR 30 trillion (Bank Indonesia Regulation Number 14 of 2012). BUKU was born from Bank Indonesia Regulation Number 14/26/PBI/2012 on December 27, 2012, and then updated through the Financial Services Authority Regulation Number 6/POJK.03/2016 concerning Business Activities and Office Networks Based on Bank Core Capital.

In essence, BUKU is a grouping system based on core capital that aims to increase national banking resilience and competitiveness. In this case, BUKU 4 Bank is the highest BUKU Bank category. BUKU 4 Bank is capable of conducting more comprehensive operations. Bank BUKU 4 is also able to make as much as 35% participation in financial institutions at home and abroad with international coverage;

Based on research conducted by Sari & Widaninggar (2018), banks in the BUKU 4 group have several advantages, including security, strength in dealing with operational problems, being healthier, and lower business risks. Apart from having a core capital of over 30 trillion, bank groups that are included in BUKU 4 can also carry out all business activities both domestically and internationally (international worldwide).

Amidst global and domestic economic conditions that are still under pressure as a result of the COVID-19 pandemic, banking resilience in general in 2020-2021 is still maintained, as reflected by the bank's reasonably solid capital with a CAR of 23.81% in 2020 and 25.67% in 2021 (OJK, 2021a). The financial ratio is an indicator in assessing the company's financial performance in the present and the past and can be a guide in determining future performance (Susilowati & Tiningrum, 2019). In the 2020-2021 period, the performance of BUKU 4 banks has decreased. This can be seen in the financial performance compared to the previous year (2018-2019), as presented in Figure 1.

Figure 1. Financial Performance of BUKU 4 Bank 2018-2021
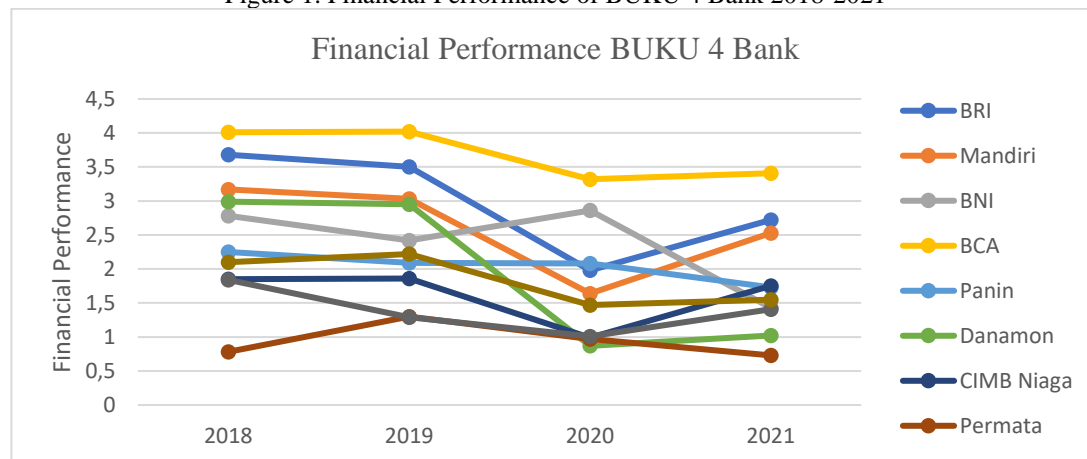
Source: (OJK, 2021b)-Data processed

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Figure 1 shows that the financial performance of Bank BUKU 4 in the 2020-2021 period has decreased compared to the 2018-2019 period. Bank BUKU 4 is the largest bank in Indonesia that seriously affects the national economy if its performance is problematic or vice versa. BUKU 4 banks can be the motor of economic growth if their performance is satisfactory.

Several factors have been found to affect banking performance. (Lee & Lee, 2019), and (Addou & Bensghir, 2021), NPL was discovered to have a negative impact on ROA in Indonesian national private banks and foreign banks. In contrast, (Sianturi & Rahadian, 2020) found in detail, NPL does not affect profitability (ROA) in the state-owned banks in the 2009-2018 period. LDR is used to measure a bank's ability to repay debts, repay depositors, and be able to fulfil credit requests submitted by users (Putri & Satrio, 2014). Meanwhile, (Yusuf & Ichsan, 2021) found that LDR did not have a significant positive effect on ROA in national private foreign exchange banks listed on the stock exchange in 2011-2020. Furthermore, research conducted by (Purwanto et al., 2020) shows that LDR has a significant adverse effect on the ROA in Commercial Banks Listed on BEI period 2012-2016. Damayanti (2022) found that Bank Size has a positive but insignificant effect on ROA. Research conducted by Sunaryo (2020), and Sukmadewi (2020), found that the CAR variable had a significant positive effect on ROA. Meanwhile, the Anggawulan & Suardikha (2021) study found that CAR did not affect ROA.

Capital Adequacy Ratio (CAR) is a benchmark assessment of capital ratios in each bank's health context. Capital adequacy is how a bank can finance its activities; in other words, CAR measures a bank's capital adequacy to support assets that contain or generate risk (Putri & Satrio, 2014). Therefore, the researcher is interested in conducting research on the role of CAR as a mediator in generating profit. This study aims to re-examine the effect of NPL, LDR and Bank size (CAR) mediation on bank performance. The study was conducted on banks included in the BUKU 4 group.

LITERATURE REVIEW

Signalling Theory

The signal theory developed by (Spence, 1973) is based on the theory of asymmetry, which states that parties related to public companies need balanced information about the opportunities and risks faced by firms. Company management usually has complete information regarding the company's prospects compared to shareholders or investors. In accordance with signalling theory and the efficient market hypothesis, the study found that

receivers do react to positive signals from a credible insider signaller to obviate information asymmetry (Yaşar et al., 2020).

Bank Performance

One of the things that can be used in measuring a bank's performance is to look at the bank's profitability through the bank's financial statements. One of the levels of profitability is reflected in return on assets (ROA) ratio. The return on assets is considered an essential indicator of the profitability of an entity relative to its total assets. ROA gives analysts an idea of how efficiently management spends its assets on harvesting revenue. This ratio is highly useful in measuring the efficiency and profit earning capacity of the company (Umasarulatha, 2020). ROA is used to measure the ability of bank management to obtain profitability and manage the level of overall business efficiency of the bank. It means that the higher number of Return On Asset (ROA) will increase the value of company Rachmawati & Saputra (2019).

$$\text{Return on Asset (ROA)} = \frac{\text{Net Profit}}{\text{Total Asset}} \text{ X } 100\%$$

Non Performing Loan

NPL is a ratio that shows the bank's ability to manage disbursed credit. Some of these distributions are smooth, doubtful, and stuck (Long et al., 2020). NPL aims to find out non-current financing against total financing. The lower the NPL, the more profitable the bank will be; on the contrary, the higher the NPL level, the bank will suffer losses caused by the return rate of bad debts (Roosdiana, 2022).

$$\text{Non Performing Loan} = \frac{\text{Total NPL}}{\text{Total Credit}} \text{ X } 100\%$$

Loan To Deposit Ratio

LDR is a traditional measurement of futures, current accounts, savings, etc., used in meeting clients' loan requests (Sasono, 2020). As one of the main activities of banks and bank income generators, this lending is so essential that when lending decreases, it can affect the bank's performance. Credit distribution is carried out using funds obtained from the public in the form of deposits. LDR is the ratio between all loans provided by banks and funds received by banks. This ratio is used to measure the level of liquidity. The higher the LDR, the higher the funds disbursed to third-party funds. The bank's income will increase with the extensive

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distribution of third-party funds (Dewi & Badjra, 2020). A high LDR indicates that the bank lends all its funds or is relatively illiquid. On the contrary, a low ratio indicates a liquid bank with an overcapacity of funds ready to lend. This ratio is also an indicator of the vulnerability and capability of the bank. Some banking practitioners agree that the safe limit of a bank's LDR is around 80%. However, the tolerance range ranges from 85% to 100% (Susilowati & Tiningrum, 2019).

$$\text{Loan To Deposit Ratio} = \frac{\text{Total amount of loan}}{\text{Total amount of deposit}} \text{ X } 100\%$$

Capital Adequacy Ratio

CAR is a ratio that shows the extent of a bank's capital capacity to absorb the risk of credit failure that may occur (Anggawulan & Suardikha, 2021). The higher the ratio, the healthier the bank and vice versa. CAR indicates a bank's ability to cover the decline in its assets due to bank losses caused by risky investments (Putri & Satrio, 2019). The higher the bank's risk, the greater the capital must be provided to anticipate such risks.

$$\text{CAR} = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Assets}} \text{ X } 100\%$$

Firm Size

Firm Size or company size is basically an important thing in a company. This is because the size of the company describes the size of a company can be indicated by total assets, the number of sales, the average level of sales and the average total assets. The size of a bank is usually measured by the total assets owned by the company (Astrini et al., 2018). A company can be indicated by total assets, the number of sales, the average level of sales and the average total assets. The size of a bank is usually measured by the total assets owned by the company (Astrini et al., 2018).

Firm Size = Ln Total Assets

Based on the relationship between variables described in the previous section, this research model is presented in Figure 2.

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Figure 2. Research Models
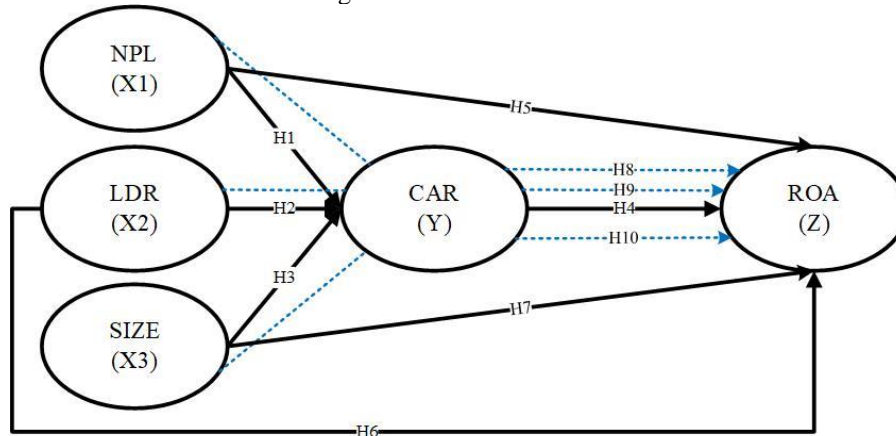
Source: Prepared by the authors (2023)

Based on the above model, the hypothesis of this study is as follows :

H1 : NPL negatively affects on CAR

H2 : LDR negatively affects on CAR

H3 : SIZE negatively affects on CAR

H4 : CAR insignificant on ROA

H5 : NPL insignificant on ROA

H6 : LDR insignificant on ROA

H7 : SIZE positively affects ROA

H8 : CAR insignificant mediates the effect of NPL on ROA

H9 : CAR insignificant mediates the effect of LDR on ROA

H10: CAR insignificant mediates the effect of SIZE on ROA

RESEARCH METHOD

This research is quantitative research with a path analysis approach. The research variables consist of bound, free, and mediator variables. The variables and their measurements are presented in Table 1 as follows:

Table 1. Variable & Measurement

Variable	Concept	Measurement
Dependent (Y)	Bank performance	ROA
Independent (X1)	Comparison of credit provided by banks with the rate of return	NPL
Independent (X2)	Bank Liquidity Level	LDR
Independent (X3)	Bank Size	SIZE
Mediator (Z)	Bank Capital Adequacy	CAR

Source: Prepared by the authors (2023)

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Research data is secondary data, quarterly data, cross-section and time-series. Data were obtained from the company's quarterly financial statements. The research period is 2020-2021. The financial statements of each bank were obtained from the Financial Services Authority (OJK) and the websites of banking companies which are samples of this study. The research sample is saturated. Namely, all banks included in the BUKU 4 category.

RESULT AND DISCUSSION

Sub Structure 1

Test the cost of the CEM and FEM estimation models

Table 2. Chow Test

Redundant Fixed Effect Test
Equation: Untitled
Cross-section fixed effect test

Efect test	Statistics	df	Problems.
F cross section	1,047376	(9,67)	0,4128
Chi-square cross section	10.530828	9	0,3092

Source: eviews 12 release (2023)

The Chow test is used to determine which panel data regression model to choose between the common effect and the fixed effect. Table 1 shows the chi-square significance value of 0.3092 > 0.05, meaning that the selected model is the general effects model.

Test the cost of the CEM and REM estimation models

Table 3. Lagrange multiplier test (LM)

The Lagrange Multiplier Test for Random Effects
Null hypothesis: No effect
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Hypothesis testing		
	Cross	Time	Both
Breusch-Pagan	0,051307 (0,8208)	2.722877 (0,0989)	2.774183 (0,0958)
Honda	-0,226510 (0,5896)	-1,650114 (0,9505)	-1,326974 (0,9077)
Raja-Wu	-0,226510 (0,5896)	-1,650114 (0,9505)	-1,387408 (0,9173)

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Honda standart	-0,043283	-1,497001	-4.679886
	(0,5173)	(0,9328)	(1,0000)
King-Wu standard	-0,043283	-1,497001	-4,729126
	(0,5173)	(0,9328)	(1,0000)
Gourieroux , et al.	--	--	0,000000
			(1,0000)

Source: eviews 12 release (2023)

The LM test is used to determine which panel data regression model to choose between the common effect and the random effect. Table 2 shows the Breusch-pagan significance value of 0.8208 > 0.05, meaning that the selected model is the general effects model.

Assumption test

The assumption test consists of multicollinearity and heteroscedasticity tests.

Table 4. Multicollinearity test

	LDR	NPL	UKURAN
LDR	1,000000	-0,256168	-0,293027
NPL	-0,256168	1,000000	-0,304380
SIZE	-0,293027	-0,304380	1,000000

Source: eviews 12 release (2023)

Table 4 shows that the relationship between variables has a value of <0.80 so that it can be resolved that there are no symptoms of multicollinearity in the model so that this assumption is true.

Table 5. Heteroscedasticity Test

LR Test Heteroscedasticity Cross-section Panel
Equation: UNTITLED
Description: CAR , NPL, SIZE ,LDR
Null hypothesis: The residue is homoscedastic

	Value	df	Possibility
Likelihood ratio	6.825668	10	0,7418

Source: eviews 12 release (2023)

Table 5 shows a significance value of 0.7418 > 0.05, which means that the residual value is homogeneous or there are no symptoms of heteroscedasticity.

Table 6. CEM Models

Dependent Variable: CAR
Method: Panel Least Squares
Date: 30/12/22 Time: 09:29
Example: 2020Q1 2021Q4

Period includes: 8
The cross section includes: 10
Total panel observations (balanced): 80

Variable	Coefficient	St. Error	t-Statistics	Problem
CAR	95.82789	11.04778	8.673947	0,0000
NPL	-3,994005	1.276781	-3.128183	0,0025
LDR	-0,070362	0,022297	-3.155689	0,0023
SIZE	-3,173485	0,482709	-6.574317	0,0000

MSE root	3.580216 R-squared	0,364781
Means var depends	23.33050 Adjusted R-squared	0,339707
SD depends on var	4.520422 SE from regression	3.673225
Criterion info Akaike	5.488724 Total population squared	1025.436
Schwartz criteria	5.607825 Probability logs	-215.5489
The Hannan-Quinn criterion	5.536475 F-statistics	14.54793
Durbin-Watson statistics	2.306395 Prob(F-statistics)	0,000000

Source: eviews 12 release (2023)

Determination coefficient test

Table 6 shows the adjusted r-squared value of 0.339, which means that the NPL, LDR and size variables simultaneously affect CAR by 33.9% and the rest are influenced by other variables not examined in this study

Simultaneous effect significance test

To determine the effect of independent simultaneous variables on the independent can use the f test statistic. The independent variables are said to simultaneously influence the dependent variable by looking at the probability value of the f statistic which is less than 0.05. Table 6 shows that the probability value of the f statistic is 0.000, which means less than 0.05 so that it can mean that NPL, LDR and SIZE simultaneously have a significant effect on CAR.

Same regression data panel and t test

In table 8, the buying and selling of sub-structural panel data regression 1 is obtained as follows

CAR = 95.828 - 3.994(NPL) + -0.070(LDR) + -3.173 (SIZE) + e

Tabel 7.T test

Variable	Coefficient	St. Error	t-Statistics	Problem.
CAR	95.82789	11.04778	8.673947	0,0000
NPL	-3,994005	1.276781	-3.128183	0,0025
LDR	-0,070362	0,022297	-3.155689	0,0023

SIZE	-3,173485	0,482709	-6.574317	0,0000

Source: eviews 12 release (2023)

Table 8 shows that the answers to hypotheses 1, 2 and 3 are as follows:

H1 = there is a negative and significant effect between NPL on CAR with a coefficient value of -3.994 and a significance value of 0.0025 <0.05.

H2 = there is a negative and significant effect between LDR on CAR with a coefficient value of -0.070 and a significance value of 0.0023 <0.05.

H3 = there is a negative and significant effect between SIZE on CAR with a coefficient value of -0.070 and a significance value of 0.000 <0.05.

Sub Structure 2

Test the cost of the CEM and FEM estimation models

Table 8. Chow Test

Redundant Fixed Effect Test
Equation: Untitled
Cross-section fixed effect test

Efect test	Statistics	df	Problems
F cross section	1.322842	(9,66)	0,2423
Chi-square cross section	13.267421	9	0,1509

Source: eviews 12 release (2023)

The Chow test is used to determine which panel data regression model to choose between the common effect and the fixed effect. Table 9 shows the chi-square significance value of 0.3092 > 0.05, meaning that the selected model is the general effects model.

Test the cost of the CEM and REM estimation models

Table 9. Lagrange multiplier test (LM)

The Lagrange Multiplier Test for Random Effects
Null hypothesis: No effect
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Uji Hipotesis		
	Persilangan	Waktu	Keduanya
Breusch-Pagan	0,140707 (0,7076)	0,063446 (0,8011)	0,204153 (0,6514)
Honda	0,375109 (0,3538)	-0,251886 (0,5994)	0,087132 (0,4653)

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Raja-Wu	0,375109 (0,3538)	-0,251886 (0,5994)	0,059197 (0,4764)
Honda standart	0,578837 (0,2813)	-0,037161 (0,5148)	-3.108639 (0,9991)
King-Wu standard	0,578837 (0,2813)	-0,037161 (0,5148)	-3.119067 (0,9991)
Gourieroux , et al.	--	--	0,140707 (0,5868)

Source: eviews 12 release (2023)

The LM test is used to determine which panel data regression model to choose between the common effect and the random effect. Table 9 shows the Breusch-pagan significance value of 0.7067 > 0.05, meaning that the selected model is the general effects model.

Assumption test

The assumption test consists of multicollinearity and heteroscedasticity tests.

Table 10. Multicollinearity Test

	LDR	NPL	SIZE	CAR
LDR	1,000000	-0,256168	-0,293027	-0,040966
NPL	-0,256168	1,000000	-0,304380	-0,031084
SIZE	-0,293027	-0,304380	1,000000	-0,495104
CAR	-0,040966	-0,031084	-0,495104	1,000000

Source: eviews 12 release (2023)

Table 11 shows that the relationship between variables that have a value of <0.80 so that it can be resolved that there are no symptoms of multicollinearity in the model so that this assumption is true.

Table 11. Heteroscedasticity Test
LR Test Heteroscedasticity Cross-section Panel
Equation: UNTITLED
Description: CAR, NPL, SIZE, LDR
Null hypothesis: The residue is homoscedastic

	Value	df	Possibility
Likelihood ratio	12.225 78	10	0,2702

Source: eviews 12 release (2023)

Table 11 shows a significance value of 0.2702 > 0.05, which means that the residual value is homogeneous or there are no symptoms of heteroscedasticity.

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Tabel 12. CEM Models

Dependent Variable: CAR
Method: Panel Least Squares
Date: 30/12/22 Time: 09:29
Example: 2020Q1 2021Q4
Period includes: 8
The cross section includes: 10
Total panel observations (balanced): 80

Variable	Coefficient	St. Error	t-Statistics	Problem.
C	-7.483812	2.665486	-2.807672	0,0064
NPL	-0,003016	0,232004	-0,013000	0,9897
LDR	-0,000131	0,004056	-0,032214	0,9744
SIZE	0,465333	0,103403	4.500168	0,0000
CAR	0,008572	0,019619	0,436945	0,6634

MSE root	0,608291	R-squared	0,340957
Means var depends	1,921500	Adjusted R-squared	0,305808
SD depends on var	0,754026	SE from regression	0,628241
Criterion info Akaike	1.968674	Total population squared	29.60147
Schwartz criteria	2.117551	Probability logs	-73.74698
The Hannan-Quinn criterion	2.028363	F-statistics	9.700330
Durbin-Watson statistics	1,973230	Prob(F-statistics)	0,000002

Source: eviews 12 release (2023)

Determination coefficient test

Table 13 shows the adjusted r-squared value of 0.305, which means that the NPL, LDR, size, CAR variables simultaneously affect ROA of 30.5% and the rest are influenced by other variables not examined in this study

Simultaneous effect significance test

To determine the effect of independent simultaneous variables on the independent can use the f test statistic. The independent variables are said to simultaneously influence the dependent variable by looking at the probability value of the f statistic which is less than 0.05. Table 13 shows that the probability value of the f statistic is 0.000, which means it is less than 0.05 so it can mean that NPL, LDR, SIZE, CAR simultaneously have a significant effect on ROA.

Same regression data panel and t test

Pada tabel 6 maka diperoleh jual beli regresi data panel sub- struktural 1 sebagai berikut:

ROA = -7,484 + -0,003(NPL) + -0,0001(LDR) + 0,465 (SIZE) + 0,085(CAR) + e

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Table 13. T test

Variable	Coefficient	St. Error	t-Statistics	Problem.
C	-7.483812	2.665486	-2.807672	0,0064
NPL	-0,003016	0,232004	-0,013000	0,9897
LDR	-0,000131	0,004056	-0,032214	0,9744
SIZE	0,465333	0,103403	4.500168	0,0000
CAR	0,008572	0,019619	0,436945	0,6634

Source: eviews 12 release (2023)

Table 14 shows that the answers to hypotheses 4, 5, 6 and 7 are as follows:

H4 = there is no significant effect between CAR on ROA because the significance value is 0.6634 > 0.05.

H5 = there is no significant effect between NPL and ROA because the significance value is 0.9897 > 0.05.

H6 = there is no significant effect between LDR and ROA because the significance value is 0.9744 > 0.05.

H7 = there is a positive and significant influence between the SIZE of the ROA with a coefficient value of 0.4653 and a significance value of 0.000 <0.05.

Mediation test

The mediation test can be carried out using the Sobel test by applying the following formulation:

$$t = \frac{ab}{sab}$$

Which value is obtained by the following formulation:

$$sab = \sqrt{b^2 + sa^2b^2 + a^2sb^2 + sa^2sb^2}$$

Description:

sab   : standard error magnitude of indirect effect
a   : independent variable path (X) with intervening variable (I)
b   : the path of the intervening variable (I) with the dependent variable (Y)
sa   : standard error coefficient a
sa   : standard error coefficient b

Based on this formulation, the answers to hypotheses 8, 9, and 10 are as follows:

H8 = There is no significant effect of NPL on ROA through CAR because this value < t table (0.417 < 1.991).

H9 = There is no significant effect of LDR on ROA through CAR because this value < t table (0.417 < 1.991).

H10 = There is no significant effect of SIZE on ROA through CAR because this value < t table (0.420 < 1.991).

CONCLUSION

The results showed that NPL, LDR and SIZE had a significant negative effect on CAR. SIZE has a significant positive impact on ROA. NPL through CAR has no significant effect on ROA. LDR through CAR is having a significant impact on ROA. SIZE through CAR has no significant effect on ROA. Thus CAR acts as a mediator on the influence of LDR on ROA. The findings of this study show that CAR has no significant impact on the bank performance (ROA).

If the bank wants to improve its performance, then what needs to be improved is the assets under management because it has been found that SIZE has a significant positive effect on ROA. Of course, management needs to manage well the assets owned so that the use of these assets will generate greater profits for the bank.

The CAR of a bank is one of the things that banks must fulfil. The minimum value of the regulator-defined CAR is 11%. Banking companies need to pay attention to NPLs, LDRs, and total bank assets (SIZE) because if these three variables increase, CAR will decrease. Investors who want to invest in BUKU 4 banking stocks and make banking performance (ROA) an important thing, investors and potential investors need to pay attention to the assets owned by a bank. The results of this study show that the larger the bank's assets, the higher its profitability will be. The results of this study show that the model built is relatively limited. Therefore, the next researcher who wants to research the banking industry can develop further research by adding new variables such as Net Interest Margin (NIM) and BOPO. Factors outside the company can also be added, such as the importance of the role of managing the quality of accounting information systems and the quality of accounting information because they are able to improve the performance of the bank organization they lead (I.N.Sunarta & P.D.Astuti, 2023). Future research can also be done on other banks, such as BUKU 1 Bank, BUKU 2, or BUKU 3. Similar research can also be conducted on Islamic banking.

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