

Effect of Capital Adequacy Ratio and Operational Efficiency Ratio on Return on Assets at PT Bank Negara Indonesia Tbk.

Amanda Adelina Putri*, Dadang Hermawan, Endang Hatma Juniwati,
Tjetjep Djuwarsa

Department of Accounting, Politeknik Negeri Bandung, Bandung, Indonesia

Research article

Received 30 June 2022; Accepted 30 March 2023

How to cite: Putri, A.A., Hermawan, D., Juniwati, E.H., & Djuwarsa, T. (2023). Effect of Capital Adequacy Ratio and Operational Efficiency Ratio on Return on Assets at PT Bank Negara Indonesia Tbk.. *Indonesian Journal of Economics and Management*, 3(2), 245-252.

*Corresponding author: amanda.adelina.kpn19@polban.ac.id

Abstract : This study examines the effect of Capital Adequacy Ratio (CAR) and Operational Efficiency Ratio (OER) on PT Bank Negara Indonesia (Persero) Tbk's Return on Assets (ROA). 2010-2020 This analysis utilizes data from PT. Bank Negara Indonesia (Persero) Tbk's 2010-2020 Financial Report. This study uses secondary data from financial statements and then uses multiple linear regression as a quantitative descriptive method IBM SPSS version 20 was used in this investigation. The regression model in this study successfully completed a test of classical assumptions, indicating that the data are normally distributed and devoid of multicollinearity, heteroscedasticity, and autocorrelation. CAR and OER were both found to have negative impacts on ROA by multiple regression analysis. Hence, Between 2010 and 2020, the ROA of PT Bank Negara Indonesia (Persero) Tbk will be impacted by CAR and OER.

Keywords : capital adequacy ratio, operational efficiency ratio; return on assets.

1. Introduction

Indonesia's financial system relies on banking. According to (UU No. 10 Tentang Perbankan, 1998), the bank collects deposits from the public and returns them in the form of credit or other forms. Banks operate as intermediaries between parties who have excess and lack funds. Those with extra funds can make current accounts, savings, and time deposits, while those who do not have funds can borrow from a bank. Financial intermediaries must take care of their finances. Targets, criteria, and results determine financial performance. Analysis and reporting of financial statements can measure performance (Febryani & Zulfadin, 2003). Financial performance measures the company's growth and expansion. Successful companies meet their performance goals (Hery, 2015). Financial reports are informative. Annual, semi-annual, quarterly, monthly, and daily financial reports. Investors, for example, evaluate financial reports to obtain valuable information about companies and decide whether to invest. Financial reports assess success. According to Munawir (2011), financial reports are used to communicate financial information or company activities.

Every private and state-owned (BUMN) bank must perform well. Parameters of profitability, efficiency, capital, asset quality, and liquidity are analyzed for banks (Siddiq, Setiawan, & Nurdin, 2020). Lasta (2014) Claiming the financial status and management of the bank can be checked using ratios. Bank owners, managers, customers, and Indonesia's central

bank benefit from financial stability. Profitability shows the health of the bank (Sadi'yah, Mai, & Pakpahan, 2021). The bank's profitability is evaluated when sales, assets, and share capital reach a certain level (Kumbirai & Webb, 2010). ROA and ROE assess profitability. ROE shows the bank's confidence in managing capital, while ROA shows asset efficiency. Kasmir (2011) say ROA measures the return on a company's total assets. ROA shows how management uses assets to generate income. ROA has the following functions: 1) ROA estimates company profits and efficiency, which means a more profitable and successful business has a higher return on assets. 2) ROA measures the use of capital, which means a company needs funds to operate. Therefore capital must be maximized so that the company can check capital gains.

Capital Ratio and Efficiency Ratio affect ROA, according to the function above. CAR measures the capital adequacy of a bank. A comparison of capital with risk-weighted assets is carried out using CAR to measure a bank's ability to see the danger of loss and fulfill the obligations of depositors and creditors. The bank's ability to handle risk increases in direct proportion to CAR. High CAR can increase bank profitability. Peraturan Bank No. 13/21/PBI/2001 stated that banking CAR must be at least 8%.

Comparing total operating expenses with total operating income is a method used by OER to evaluate a bank's efficiency (Hijriyani & Setiawan, 2017). According to (SE BI 13/24/DPNP, 2011), a healthy bank has a OER ratio of 83 and 85%. If OER falls, bank activity becomes efficient. If OER increases from the previous year, bank activity is not efficient (Rahmawati, Setyowati, & Hadiani, 2021).

Bank BNI is a state-owned bank and the oldest bank in Indonesia. Bank BNI was chosen because its ROA data is stable.

Table 1Ratio of CAR, OER and ROA PT. BNI 2010-2020

No.	Year	CAR	OER	ROA
1	2010	18.60%	76.00%	2.50%
2	2011	17.60%	72.60%	2.90%
3	2012	16.70%	71.00%	2.90%
4	2013	15.10%	67.10%	3.40%
5	2014	16.20%	68.00%	3.50%
6	2015	19.50%	75.50%	2.60%
7	2016	19.40%	73.60%	2.70%
8	2017	18.50%	71.00%	2.70%
9	2018	18.50%	70.20%	2.80%
10	2019	19.70%	73.20%	2.40%
11	2020	16.80%	93.30%	0.50%

Source: Data reprocessed from the Annual Report of Bank Negara Indonesia

Table 1 shows the CAR and OER of PT. BNI Tbk 2010-2020. Bank Indonesia assesses a healthy bank if the ROA value exceeds 1.5%. Only Bank BNI's 2020 ROA of 0.5% is not included in the healthy group. BNI's largest ROA was 3.5% in 2014.

Table 1 shows BNI's CAR. Bank for International Settlement (BIS) considers a bank healthy if its CAR is at least 8%. CAR BNI has a value above 8%. CAR fell from 18.60% to 15.10% between 2010 and 2013. This decrease should have led to lower ROA, but in 2010 it increased, remained stable in 2011 and 2012, and in 2013 CAR increased. In 2014 CAR increased by 16.20, while in 2015, it was 19.50%. CAR decreased from 2016 to 2018 to 18.50%; in 2019, it rose to 19.70%. After that, it decreased in 2020 to 16.80%. ROA increased from 2016 to 2018, then decreased to 0.5% in 2019 and 2020. This fact contradicts the notion that CAR

increases ROA.

Table 1 shows the operational efficiency of OER. The OER ratio for a healthy bank is 83%-85%. Bank BNI's largest OER was 93.30% in 2020, and the lowest was 67.10% in 2013. From 2013 to 2014, OER increased to 68%, followed by an increase in ROA to 3.5%; this is contrary to the theory that if OER increases, ROA will decrease, and vice versa.

Contrary to theory, CAR has a negative impact on ROA. Dzzarin Nuril Anwar (2018), Widyastuti and Aini (2021), and Syamsuddin (2013) found that CAR has a positive effect on ROA. Sri Adrianti Muin (2017) found the opposite which, stated that CAR has a negative effect on ROA which can be seen in the phenomenon at BNI bank that CAR is inversely proportional to ROA where the higher the ROA, the lower the CAR, and vice versa.

2. Literature Review

2.1. Review of Previous Research

The following are previous research on CAR, OER, and ROA:

- 1) Stefany Simbolon (2017) shows that ROA is not affected by CAR or LDR, but NPL significantly impacts it.
- 2) Arif Abdul Latif (2018) shows that ROA is significantly influenced by LDR and OER, indicating a negative relationship between these two factors.
- 3) Adhy Maulana (2018) pointed out that ROA is significantly influenced by OER, from LDR and OER also substantially impact ROA.

2.2. Capital Adequacy Ratio (CAR)

CAR is used in the process of risk denial of bank assets. If the CAR is high, the bank can better handle credit risk or risky productive assets. The bank can fund its activities, which bodes well for the profitability (ROA) of the institution under consideration. (Dendawijaya, 2003). CAR values above a certain threshold allow banks to provide working capital and increase profits with large margins (Nur Hidayati, 2015). Securing depositors by ensuring that banks have adequate capital and increasing public trust can increase bank profits. For banks, Return on Better (Febrianti & Ladinus, 2019) assets is one of the advantages of having a high capital ratio. The following is the CAR formula according to (Kasmir, 2014):

$$\text{Formula : CAR} = \frac{\text{Own Capital}}{\text{risk-weighted assets (RWA)}} \times 100\%$$

2.3. Operational Efficiency Ratio (OER)

OER measures how much total operating costs are compared to total operating income to assess bank efficiency. Based on (SE BI 13/24/DPNP, 2011), it is stated that banks that are considered healthy have a OER ratio of between 83 and 85 percent, while banks that are considered unhealthy have a OER ratio that is greater than 89 percent. Compared to the previous year, OER should show a decrease so that banks are considered efficient operations. On the other hand, if the OER is higher than the previous year, it indicates that the bank's operations are becoming an increased waste of resources. The bank's advantage is to have the lowest possible OER ratio because this reduces the possibility of the bank experiencing losses. As a result, OER has a negative impact on ROA. The following is the OER formula according to (Kasmir, 2014):

$$\text{Formula : OER} = \frac{\text{Operating Expenses}}{\text{Operating Income}} \times 100\%$$

2.4. Return on Assets (ROA)

Over a certain period, Bank Indonesia defines ROA as the ratio of profit before tax to the average total assets for a particular company. This ratio is essential because the efficiency level of a bank's business can be seen from the profits generated from using its assets. If a bank's ROA exceeds 1.5%, the Bank Stability Index (BI) will give the bank the highest score of 100, indicating that the bank is in a solid financial position. (Hasibuan, 2016) The greater the value of the bank's Return On Assets (ROA), the more money can be generated and get better in terms of optimally utilizing its resources. The following is the ROA formula according to (Kasmir, 2014):

$$\text{Formula : ROA} = \frac{\text{Profit after Tax}}{\text{Total Asset}} \times 100\%$$

3. Research methods

The data presented is in the form of quantitative data, and the data source obtained is secondary data in which the data was taken using the documentation method in the form of Bank BNI quarterly reports from 2010 to 2020, which can be accessed through the official website of Bank BNI, bni.co.id, and related to scientific theories and publications and the literature research approach used in this study.

There are two independent variables in this study, namely CAR and OER. The dependent variable of this research is ROA. The data were evaluated using multiple linear regression analysis and hypothesis testing after the classical assumptions that met the criteria had been tested. Assisted by IBM SPSS version 20 software, the results obtained will be evaluated so that conclusions can be drawn from the interpretation.

By using the ROA relationship model with CAR and OER, a linear equation can be made as follows (Sugiyono, 2016):

$$Y = a + b_1 x_1 + b_2 x_2 + e_i$$

Which : Y = ROA ; a = Constant ; b₁ - b₂ = Regression Efficiency ; x₁ = CAR ; x₂ = OER ; e_i = Residual Error

4. Results and Discussion

4.1. Multiple Linear Analysis Test

Table 2. Multiple Linear Analysis Test

Model	Unstandardized Coefficients	
	B	std . Error
(Constant)	10,234	.805
1 CAR	-.052	.017
OER	-.090	.010

Source: IBM SPSS 20 Output Results

From the test results above if the independent variable is associated with the dependent variable in the linear regression equation:

$$ROA = 10.234 - 0.052 \text{ CAR} - 0.09 \text{ OER}$$

This equation shows that the coefficient of:

1) Return On Assets (ROA)

The constant value is 10,234. This shows that the ROA value is 10.234 if all other independent variables remain unchanged.

- 2) Capital Adequacy Ratio (CAR)
-0.052 is the regression coefficient of the CAR variable. The CAR and ROA variables are negatively affected by this figure. The ROA variable decreases by 0.052 percent when the CAR variable increases by 1 percent, assuming all other factors are held constant.
- 3) Operating Expenses and Operating Income (OER)
The OER variable has a regression coefficient of -0.09. OER and ROA variables are negatively affected by this value. ROA decreases by 0.09 percentage points when the OER variable increases by 1%.

4.2. Classic assumption test

4.2.1. Normality Test

Table 3. Normality Test Kolmogorov Smirnov test

	Unstandardized residual
N	40
Kolmogorov-Smirnov Z	.744
Asymp . Sig . (2-tailed)	.637

Source: IBM SPSS 20 Output Results

The test results show that the table has a significance of more than 0.05. this shows that the data is normally distributed.

4.2.2. Multicollinearity Test

Table 4. Multicollinearity Test

	Model	Collinearity Statistics	
		tolerance	VIF
1	(Constant)		
	CAR	.993	1.007
	OER	.993	1.007

Source: IBM SPSS 20 Output Results

The results of the multicollinearity test on the independent variables CAR and OER are shown in the table above with a tolerance value of 0.993 and VIF 1.007 with a result of less than 10.0. This shows that multicollinearity does not appear in this study, making it possible to use it in future studies.

4.2.3. Autocorrelation Test

Table 5. Autocorrelation Test Durbin-Watson

Model	Durbin-Watson
1	.470

Source: IBM SPSS 20 Output Results

From the test results above it can be seen that the Durbin-Watson value is 0.470, while the upper limit (du) is 1,600, dl is 1,391, and the 4-du value is 2,400, and 4-dl is 2,609. Durbin-Watson has a positive autocorrelation with an interval of $0 < Dw (0.470) < dl (1.391)$.

4.2.4. Heteroscedasticity Test

Table 6. Glejser's test

	Model	Sig .
1	(Constant)	.897
	CAR	.816
	OER	.727

Source: IBM SPSS 20 Output Results

From the test results above, it can be seen that there is no heteroscedasticity in the data because the CAR variable has a significance value of 0.816 and the OER variable has a significance value of 0.727 $\text{sig} > 0.05$.

4.3. Hypothesis testing

4.3.1. T test

Table 7. T test

	Model	t	Sig .
1	(Constant)	12,714	.000
	CAR	- 3,112	.004
	OER	-8,947	.000

Source: IBM SPSS 20 Output Results

From the results of the t test above it can be obtained as follows:

- 1) T-count of -3.112 and a significance score of 0.004 implies that CAR has a negative and substantial effect on ROA, which indicates that H0 is accepted and H1 is rejected. Thus CAR has a strong negative impact on ROA,
- 2) T-count of -8.947 and a significance value of 0.000 indicates that OER has a negative effect on ROA, which means H0 is accepted and H1 is rejected.

4.3.2. F Test (Simultaneous)

Table 8. T test

	Model	df	F	Sig .
1	Regression	2	42,802	.000 ^b
	residual	37		
	Total	39		

Source: IBM SPSS 20 Output Results

The results of the F test show a significant f-count value of 42.802, which means the significance of the independent variable is smaller than the test level of $0.000 < 0.05$, and the f-count value is $42.802 > 3.252$ indicating that CAR and OER have a large effect on ROA simultaneously.

5. Conclusion

From the results of data analysis, hypothesis testing, and the discussion that has been described, the following conclusions can be drawn:

- 1) For Bank BNI's ROA for 2010-2020, CAR has a negative impact on ROA, indicating that ROA decreases the higher the CAR level. Contrary to popular belief, ROA does not increase in proportion to CAR. Because the bank's capital adequacy is more flexible to fund risky assets and company development, it rejects the idea. The difference between the findings and the hypothesis can be caused by the high CAR used to cover risky assets or the hazard which can limit a bank's ability to grow. High CAR delays company expansion, hurting bank profits.
- 2) Test results reveal that OER has a negative effect on ROA. The higher the OER, the lower the ROA. The results of this study support the idea and theory that a high OER will reduce the efficiency of bank management, namely reducing ROA. The greater the operational expenses that are not proportional to the increase in operating profit, the higher the operating expenses in managing the bank's operating profit. These costs include interest, foreign currency, labor, depreciation, and other fees. A low OER ratio reduces operational risk from high operational profit.
- 3) CAR and OER simultaneously affect Bank BNI's ROA for the 2010-2020 period at a sig 0.00 level, so the hypothesis is accepted.

References

- Bank Indonesia. Peraturan Bank Indonesia tentang Kewajiban Penyediaan Modal Minimum Bank Umum, Pub. L. No. 3/21/PBI/2001 (2001).
- Bank Indonesia. Surat Edaran Bank Indonesia Penilaian Kesehatan Bank Indonesia, Pub. L. No. 13/24/DPNP (2011).
- Dendawijaya, L. (2003). *Manajemen Perbankan*. Ghalia Indonesia.
- Febrianti, S., & Ladinus, L. (2019). Analisis Rasio Keuangan Dalam Memprediksi Tingkat Profitabilitas Bank Umum Konvensional (Studi Pada Bank Umum Yang Listing Di Bei Periode 2012-2016). *Seminar Nasional Pakar*, 2, 2.29.1-2.29.6.
- Febryani, A., & Zulfadin, D. R. (2003). *Analisis Kinerja Bank Devisa Dan Bank Non Devisa Di Indonesia (Anita Febryani Dan Rahadian Zulfadin) Analisis Kinerja Bank Devisa Dan Bank Non Devisa Di Indonesia*.
- Hasibuan, M. (2016). *Manajemen Sumber Daya Manusia*. Bumi Aksara.
- Hery. (2015). *Analisis Laporan Keuangan Pendekatan Rasio Keuangan*. CAPS (Center For Academic Publishing Service).
- Hijriyani, N. Z., & Setiawan, S. (2017). Analisis Profitabilitas Perbankan Syariah di Indonesia sebagai Dampak Dari Efisiensi Operasional. *Jurnal Kajian Akuntansi*, 1(2).
- Kasmir. (2011). *Bank dan Lembaga Keuangan Lainnya* (Edisi). Raja Grafindo Persada.
- Kasmir. (2014). *Analisis Laporan Keuangan*. Raja Grafindo Persada.
- Kumbirai, M., & Webb, R. (2010). A financial ratio analysis of commercial bank performance in South Africa. *African Review of Economics and Finance*, 2, 30–53.
- Lasta, H. A. (2014). Analisis Tingkat Kesehatan Bank Dengan Menggunakan Pendekatan Rgec (Risk Profile, Good Corporate Governance, Earnings, Capital) (Studi Pada Pt Bank Rakyat Indonesia,Tbk Periode 2011-2013) . *Jurnal Administrasi Bisnis*, 13(2).
- Munawir, S. (2011). *Analisis Laporan Keuangan* (4th ed.). Salemba Empat.
- Nur Hidayati, L. (2015). Pengaruh Kecukupan Modal (CAR), Pengelolaan Kredit (NPL), dan Likuiditas Bank (LDR) Terhadap Probabilitas Kebangkrutan Bank (Studi pada Bank Umum Swasta Devisa yang tercatat di BEI tahun 2009 – 2013).
- Presiden Republik Indonesia. Undang-Undang No. 10 Tetang Perbankan, Pub. L. No. 10 (1998).
- Rahmawati, D. I., Setyowati, D. H., & Hadiani, F. (2021). Pengaruh LDR dan BOPO terhadap

- ROA pada Bank Umum Swasta Nasional Devisa di Bursa Efek Indonesia. *Indonesian Journal of Economics and Management*, 2(1), 216-223.
- Sadi'yah, Y. S. H., Mai, M. U., & Pakpahan, R. (2021). Pengaruh LDR, BOPO, dan NPL terhadap ROA pada BUSN Devisa Terdaftar di BEI Periode 2014-2018. *Indonesian Journal of Economics and Management*, 1(2), 295-305.
- Siddiq, R. M., Setiawan, S., & Nurdin, A. A. (2020). Pengaruh Likuiditas, Solvabilitas, dan Profitabilitas terhadap Earning Per Share pada Bank Umum yang Terdaftar di Bursa Efek Indonesia. *Indonesian Journal of Economics and Management*, 1(1), 72-82.