

Exploring Financial Approaches to Evaluate Commercial Bank Profitability: An Empirical Analysis on Capital Adequacy Ratio, Loan Deposit Ratio and Non-Performing Loans

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Abstract

Banking is a high-risk industry since it is responsible for managing public assets and investing them in securities or loans. As a result, assessing commercial bank performance is critical for understanding their health and efficiency. A financial approach is used to assess credit risk, liquidity, and bank adequacy in accordance to the requirements of Financial Service Authority (OJK). This research aims to determine the impact of the Capital Adequacy Ratio (CAR), Loan Deposit Ratio (LDR), and Non-Performing Loans (NPL) on bank's performance in 2017-2019. Using the purposive sampling technique, the final sample consists of 114 observations-sample. A multiple linear regression analysis was adopted on balanced panel data using the secondary data from commercial banking sector in Indonesia Stock Exchange. Chow test and Hausman test were used to finalize the findings which is to ensure that the right model to be used for the analysis. The findings demonstrate that CAR, LDR, and NPL simultaneously impact significantly the performance. However, partially only CAR and NPL show impact on the performance whilst LDR does not. The study provides implications for bank managers in managing capital and loan portfolios. It also contributes to the existing literature on bank performance.

Keywords: capital adequacy ratio, loan deposit ratio, non-performing loans, return on assets

INTRODUCTION

Banking sector is an economic segment that deals with managing people's financial assets and using those assets as leverage to raise more government-controlled capital (Josepin, 2022). This is due to the fact that bank serves as the financial intermediary that facilitates the payment traffic and channels parties having excess funds with those lacking them. Bank is a business that raises people's standard of living by collecting money from the public in the form

of savings and distributing it to the public in the form of credit or others (Sukma, 2013). Banking sector is considered as a risky business as it deals with managing public funds and investing them in variety of investments including lending money, buying securities, and offering other investment instruments. Bank makes more money if credit risk is at a lower level and loses money when credit risk is at a higher level due to high rate of return of bad loans (Suwandi, 2017). Existence of this sector plays a significance role and brings impacts on public's life activities. However, the high complexity level had threatened Indonesian banks as the industry is heavily influenced by financial environment and financial system stability (Rajan & Zingales, 1995). Depreciation of rupiah and an increase in the interest rate, which prompted a rise in NPLs, were two contributing macro factors to banking issues (Alper & Adem, 2011).

The Indonesia Stock Exchange (IDX, 2022) lists a variety of commercial bank, including Government-Owned Commercial Banks (Persero) and National Private Commercial Banks (BUSN). In early 2021, the total of 45 banks were listed on the Indonesia Stock Exchange. Being a listed and public company, a bank must be equitable, open, and accountable according to the regulations of the Financial Services Authority (OJK) in relation to the banking performance. Therefore, an assessment on bank's adequacy, liquidity, and credit risk must be executed to understand bank's condition. A number of financial ratios, such as the CAR (capital adequacy ratio), LDR (loan to deposit ratio), and NPL (nonperforming loan), which describe the quality of bank assets, can be used to assess the performance of a bank (Taswan, 2010; Prasanjaya & Yogi, 2013; Sanjoyo, 2020).

The bank's CAR demonstrates capacity for keeping adequate capital and capacity of the management to recognize, quantify, track, and manage risks that may have an impact on its ability to generate profits and maintain the level of capital investment (Kuncoro &

Suhardjono, 2002). Previous research conducted by Sanjoyo (2020) on state-owned bank showed that capital adequacy is proved to have a significant effect on profitability. A high CAR implies better risk management in relation to earning assets. It can also be a safeguard depositors, boosts bank confidence, and eventually improves bank profitability (Febrianti & Ladinus, 2019). LDR is a measure of bank's liquidity and capacity to perform its intermediary role in directing external funds to credit. According to the regulations of the Bank Indonesia (Bank Indonesia, 2013), the maximum LDR is 110%. The bank's liquidity will be lower when this ratio is higher, that increases the likelihood for the bank to be in distress. Previous studies (Septiani & Lestari, 2016; Ni Komang & Ida, 2020) support this. NPLs is the ratio of NPLs (those that meet the criteria of substandard, dubious, and loss) to all loans made by the bank. The bank's credit risk decreases as the ratio of NPLs decreases. When extending credit, banks are required to evaluate the debtor's capacity to pay back the debts. As a result, bank is required to keep tracking on how the credit is being used as well as on the debtor's compliance with its commitments. If NPLs exceed the standards set by Bank Indonesia, profits will decrease because the higher the NPL, the worse the credit quality is. This causes the number of NPLs is to increase and bank suffers losses in its operational activities (Manuaba & Adi, 2012). Additionally, profitability is one of the elements taken into account for determining a bank health (Hendro & Tjandra, 2014). Return on assets is a metric that may be applied to banking to determine profitability. It is primarily concerned with the company's overall ability to generate profits (Dendawijaya, 2005).

This research's objective is to determine the impact of the CAR, LDR, and NPLs on bank's profitability during 2017-2019. performance of the commercial banks is important in understanding bank health and efficiency since they handle public funds and allocating them

in investment instruments like securities or loans and thus it is one sector that is the most risky industry.

Previous studies had been to comprehend the relationship between CAR (Dewi & Achmad, 2020; Suyani, Grahita, & Junianto, 2019), LDR (Saputra, Diah, & Rene, 2020; Safitri, Gunawan, & Saiful, 2022), NPL (Safitri, Gunawan, & Saiful, 2022; Saputra, Diah, & Rene, 2020) and profitability in either partial or simultaneous influence across different types of banks or different periods of time. However, their findings were inconsistent. Therefore, by providing empirical evidence on CAR and NPL of the listed commercial banks in Indonesia, this research addresses the gaps of prior research and contributes to the current literature and future research in the similar area. Since commercial banks in Indonesia are one of the economy pillars, this study aims to determine the effect of the three variables on banking profitability in Indonesia.

Based on the phenomenon and the research gaps, the research questions are to know if CAR, LDR, and NPL have partially and simultaneously significant influence to bank's profitability.

LITERATURE REVIEW

Bank performance is description of the bank accomplishment generated from its operational activities that relate to finance, marketing, technology, human resource, fund collection and distribution (Abdullah, 2022). A bank with good performance is considered as a healthy bank. Bank trustworthiness level can be measured using the RGEC (Risk Profiling, Good Corporate Governance and Earning Capital) method. Accordingly, this study focuses on credit risk, liquidity risk, and capital capability.

Capital Adequacy Ratio

CAR demonstrates ability of a bank to keep adequate capital and capacity of the management to recognize, quantify, track, and manage risks that potentially affect profit generation and the amount of capital owned (Kuncoro & Suhardjono, 2002). CAR defines how much of the total assets including risks - such as claims against other banks, securities, credit, equity, and capital – that are financed by external capital (Dendawijaya, 2005; Hariemufti, Farida, & Dewa, 2016). Bank performs better when the public funding procedure and process function well, credit and trustworthiness increase. The minimum CAR required by the Bank of Indonesia (BI) (Bank Indonesia, 2013) is 8%. If the capital owned the bank is low, it is unable to sustain any operational losses. This can thus deteriorate the operational performance which in turn can erode public trust and ultimately reduce profitability (Fanny, Indahwati, Viendy, & Wenny, 2020).

Loan Deposit Ratio

Lack of liquidity is one reason for bank failure. High LDR indicates great profitability since credits associated with the bank can be executed effectively (Prasanjaya & Yogi, 2013). Bank with large total assets has more opportunity to extend the amount of fund to the borrowers and thus can obtain higher profits (Alper & Adem, 2011). LDR also indicates the extent to which the bank can recoup depositors' withdrawals by relying on the credit extended as a source of liquidity (Dendawijaya, 2005). Lower liquidity capacity of a bank directs to a greater ratio resulted from the increasing amount of money required for loans. This ratio also serves as a measure of a bank's strength and capacity. Majority banking professionals concur that a bank's LDR should not exceed 80%. The tolerance cap, however, is between 85% and 100%. LDR exceeds 110% shows that the bank has low liquidity (Suwandi, 2017).

Non-Performing Loan

The main activity in conventional banking industry is to provide loans to market and therefore non-performing loans (NPL) become a considerable problem for banks (Setiawan, n.a). NPL or bad credit exists when a consumer fail to comply fully or partially to the bank (Kuncoro & Suhardjono, 2002). NPL refers to credit which deviates from a predetermined installment schedule of arrears. NPL is related to the amount of credit risk faced by a bank (John, 2018). It is a ratio used to assess a bank management's capacity to deal with non-performing loans. The default on a loan is one of the risks associated with business or banking activities (Dendawijaya, 2005). A high NPL will enlarge the cost of backup assets and productive and other costs. Therefore it will interfere the performance of bank (Sukma, 2013). In order to reduce credit risk, the bank examines and binds collateral. according to some professionals, the safe peak limit for a bank's NPL is 5%.

Profitability

Previous studies have conducted research on the profitability using Return on Assets (ROA) in North America, Europe and Australia (Bourke, n.a) and South-eastern European Banking Industry (Athanasoglou, Brissimiss, & Delis, 2005). ROA is profit before tax divided by average of total assets. It measures capacity of a bank management to increase overall profit from the bank's assets. High ROA indicates better performance of the bank (Suardita & Putri, 2015). Higher profitability increases public trust in the banking industry and it will lead to higher number of customers (Prasanjaya & Yogi, 2013; Capriani & Dana, 2016). Higher return of a bank, the better the performance (Dendawijaya, 2005).

Previous Research

Inconsistent result on the influence of CAR on profitability exists. The research of Dewi and Achmad (2020) on State Owned Bank listed in Indonesia Stock Exchange concluded

that CAR partially influenced profitability in significant manner. While the research conducted by Suyani, Grahita, & Junianto (2019) on Bank BPR in Indonesia found that CAR partially did not have significant impact on profitability measured with ROA.

Similarly, the study conducted by Saputra, Diah, and Rene (2020) in investigating the influence of LDR and NPL on ROA resulted in LDR partially did not have significant impact to ROA while NPL partially influenced ROA but in negative direction. However, LDR and NPL simultaneously influenced ROA in significant manner. In contrast, Safitri, Gunawan, and Saiful (2022) in their study on BPD listed in Bank Indonesia during 2013-2018 about the influence of LDR, CAR, and NPL on ROA resulted in partially LDR and NPL did not have significant influence on ROA. The research conducted by Rahman and Isyuardhana (Dewi & Achmad, 2020) in banking industry during 2013 and 2017 proved that CAR, LDR and NPL simultaneously influence ROA significantly in the case of commercial banks listed in Indonesia Stock Exchange.

METHODS

Population and Sample

There were 42 banking companies based on the data derived from www.idx.co.id. Applying purposive sampling, those did not post their financial report during 2017-2019 and were being suspended by Indonesia Stock Exchange were eliminated. This resulted in four banks were dropped and concluded the total sample of 38 banks (see table 1). The total sample data of this study within the period of 2017-2019 is 114.

Table 1. The Sample Companies

No	Code	Company	No	Code	Company
1	AGRO	Bank Rakyat Indonesia Agroniaga Tbk.	20	BKSW	Bank QNB Indonesia Tbk.
2	ARTO	Bank Jago Tbk.	21	BMAS	Bank Maspion Indonesia Tbk.
3	BABP	Bank MNC Internasional Tbk.	22	BMRI	Bank Mandiri (Persero) Tbk.

No	Code	Company	No	Code	Company
4	BACA	Bank Capital Indonesia Tbk.	23	BNBA	Bank Bumi Arta Tbk.
5	BBCA	Bank Central Asia Tbk.	24	BNGA	Bank CIMB Niaga Tbk.
6	BBHI	Bank Harda Internasional Tbk.	25	BNII	Bank Maybank Indonesia Tbk.
7	BBKP	Bank Bukopin Tbk.	26	BNLI	Bank Permata Tbk.
8	BBMD	Bank Mestika Dharma Tbk.	27	BSIM	Bank Sinarmas Tbk.
9	BBNI	Bank Negara Indonesia (Persero) Tbk.	28	BTPN	Bank BTPN Tbk.
10	BBRI	Bank Rakyat Indonesia (Persero) Tbk.	29	BVIC	Bank Victoria International Tbk.
11	BBTN	Bank Tabungan Negara (Persero) Tbk.	30	DNAR	Bank Oke Indonesia Tbk.
12	BBYB	Bank Neo Commerce Tbk.	31	INPC	Bank Artha Graha Internasional Tbk.
13	BCIC	Bank JTrust Indonesia Tbk.	32	MAYA	Bank Mayapada Internasional Tbk.
14	BDMN	Bank Danamon Indonesia Tbk.	33	MCOR	Bank China Construction Bank Indonesia
15	BEKS	Bank Pembangunan Daerah Banten Tbk	34	MEGA	Bank Mega Tbk.
16	BGTG	Bank Ganesha Tbk.	35	NISP	Bank OCBC NISP Tbk.
17	BINA	Bank Ina Perdana Tbk.	36	NOBU	Bank Nationalnobu Tbk.
18	BJBR	Bank Pembangunan Daerah Jawa Barat Tbk.	37	PNBN	Bank Pan Indonesia Tbk
19	BJTM	Bank Pembangunan Daerah Jawa Tengah	38	SDRA	Bank Woori Saudara Indonesia 1960 Tbk.

Research Framework and Hypotheses Development

Referring to the literature review and previous researches, this study used CAR, LDR and NPL as the independent variable and ROA as the dependent variable. The proposed conceptual framework is as presented in figure 1.

According to the theoretical framework and the existing research gaps above, the hypotheses are proposed as follow:

H1: Capital Adequacy Ratio partially has a significant influence on Return on Asset

H2: Loan Deposit Ratio partially has a significant influence to Return on Asset

H3: Non-Performing Loan partially has a significant influence to Return on Asset

H4: Capital Adequacy Ratio, Loan Deposit Ratio and Non-Performing Loan have significant influence to Return on Asset simultaneously

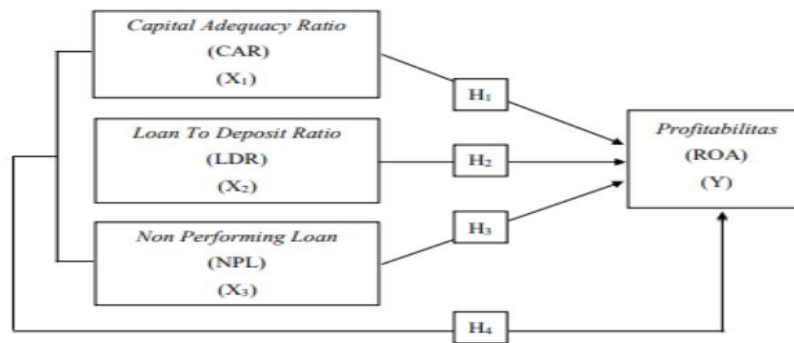


Figure 1. Conceptual Framework of the Study

Research Model

This research is associative one as it seeks to ascertain the association between two or more variables (Sugiyono, 2017). The statistical tests involve descriptive statistics, a panel data regression model selection test, a classical assumption test, and multiple linear regression of panel data analysis applying the E-Views 9.0.

Multiple linear regression aims to calculate the magnitude of the effect of two or more independent variables to the dependent variable and predict the dependent variable based on the independent variables. This study involves three independent variables denoted by CAR, LDR, and NPL and the dependent variable denoted by ROA.

RESULTS AND DISCUSSION

Results

Descriptive Statistics

Descriptive statistics was to analyze the data by describing the collected data with no intention to create conclusions that applies to generalizations (Sugiyono, 2017). Based on table 2, the average ROA was 0.91%. This shows that ROA of the commercial banks is quite good because it is beyond the limit of minimum ROA set by Bank of Indonesia of 0.5%. It can be stated that condition of the banking industry is fairly good. The higher the percentage value of

ROA, the higher the level of profit made by the banks and the better the banks' performance. Meanwhile, the standard deviation of 0.23% is still less than the average value of 0.91% indicating that deviation of the ROA data is relatively good and variations in ROA of the commercial banks exits.

The mean value of CAR is 23.26% with standard deviation of 14.60%. Thus, it can be said that the deviation of the CAR data is relatively good and variations in the data is apparent. The minimum value and maximum value of CAR are 9.01% and 147.44% consecutively.

Additionally, the mean value of LDR is 87.78%, a rise in this ratio will impact the liquidity of the banks as it will have insufficient reserve funds to fulfill the demand for public funds in the future. However, LDR has a standard deviation of 17.39%, which is lower than the average value of 87.78%. This indicates that there is good variability in the data and the deviation of data on the LDR is relatively good.

Table 2. Descriptive Statistics

	ROA	CAR	LDR	NPL
Mean	0.009092	0.232586	0.877842	0.034504
Median	0.011950	0.202450	0.880900	0.028000
Maximum	0.040000	1.474400	1.631000	0.157500
Minimum	-0.158900	0.090100	0.475400	0.000500
Std. Dev.	0.002398	0.146013	0.173978	0.022094
Skewness	-3.575801	5.902600	0.831406	2.130755
Kurtosis	23.66866	47.94994	6.613403	10.59725
Jarque-Bera	2272.110	10259.33	75.15270	360.4237
Probability	0.000000	0.000000	0.000000	0.000000
Sum	1.036500	26.51480	100.0740	3.933400
Sum Sq. Dev.	0.065028	2.409146	3.420321	0.055162
Observations	114	114	114	114

Lastly the mean value of NPL is 3.4% with the minimum value of 0.05% and maximum value of 15.75%. When the NPL ratio is high, the bank's risk exposure increases. Although the standard deviation of 2.20% is lower than the mean value of 3.45%, it can still be considered reasonable as there are significant variations in the non-performing loans data.

Estimation of Panel Data Regression Model

Regression models with panel data can be estimated through three approaches: common effect model, fixed effect model, and random effects model. The best estimation model is selected based on Chow Test and Hausman Test.

The Chow test was used to evaluate fixed effect or standard effect of the models used for estimating the panel data. Table 3 displays the value of the probability cross-section F amounted 0.0000 and the probability value cross-section F $0.0000 < 0.05$. This rejects H0 and opts for the fixed effect over the common effect.

Table 3. Chow Test

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	5.455018	(37,73)	0.0000
Cross-section Chi-square	151.131382	37	0.0000

In order to choose fixed effect model (FEM) or random effect model, Hausman test (REM) was conducted. Hausman test is a statistical test to choose whether the fixed effect or random effect model is the most appropriate. Table 4 displays the probability random cross-section value of 0.0022 and thus H0 is rejected and the fixed effect is preferred above the random effect since the random cross-section is $0.0022 < 0.05$. Therefore Lagrange multiplier

test is not necessary because the selected result is a fixed effect, and the fixed effect model is the best option.

Table 4. Hausman Test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.595543	3	0.0022

Classical Assumption Test

The autocorrelation test was used to evaluate if residual errors in period t and errors in period t-1 are correlated (previous) (Ghozali, 2017). Using a Durbin-Watson, positive autocorrelation problem in the model was found. To overcome the problem of autocorrelation, the Cochrane-Orcutt was applied (Ghozali, 2017). Based on table 5, the final result of Durbin-Watson stat is 1.760 while the dU and 4-du are 1.6410 and 2.359 consecutively indicating that there is no autocorrelation.

Table 5. Autocorrelation Test

Dependent Variable: ROA				
Method: ARMA Maximum Likelihood (OPG - BHHH)				
Date: 02/18/21 Time: 09:26				
Sample: 1 114				
Included observations: 114				
Convergence achieved after 35 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.030183	0.014518	2.079008	0.0400
CAR	-0.074790	0.004488	-16.66636	0.0000
LDR	0.010307	0.014485	0.711537	0.4783
NPL	-0.368865	0.106116	-3.476071	0.0007

AR(1)	0.469760	0.057295	8.198987	0.0000
SIGMASQ	0.000262	2.45E-05	10.69440	0.0000
R-squared	0.541112	Mean dependent var		0.009092
Adjusted R-squared	0.519867	S.D. dependent var		0.023989
S.E. of regression	0.016622	Akaike info criterion		-5.302759
Sum squared resid	0.029841	Schwarz criterion		-5.158748
Log likelihood	308.2573	Hannan-Quinn criter.		-5.244313
F-statistic	25.47027	Durbin-Watson stat		1.760176
Prob(F-statistic)	0.000000			
Inverted AR Roots	.47			

The multicollinearity test aims to test whether there is a high or perfect correlation between independent variables in the regression model. The result displays no multicollinearity problem as the correlation value of each independent variable is less than 0.85 (table 6).

Table 6. Multicollinearity Test

	CAR	LDR	NPL
CAR	1	-0.03012102348205915	-0.1919556544121705
LDR	-0.03012102348205915	1	-0.08918514862911348
NPL	-0.1919556544121705	-0.08918514862911348	1

This study used a white test to identify heteroscedasticity problems. The result presented in table 7 shows value of the probability Chi-square is $0.1737 > 0.05$. Thus, there is no heteroscedasticity problem.

Table 7. Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	1.675237	Prob. F(3,94)	0.1776
Obs*R-squared	4.973654	Prob. Chi-Square(3)	0.1737
Scaled explained SS	7.123389	Prob. Chi-Square(3)	0.0681

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/17/21 Time: 22:33

Sample: 1 114

Included observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.372372	0.390339	3.515843	0.0007
CAR^2	-0.169194	2.125735	-0.079593	0.9367
LDR^2	-0.821081	0.377672	-2.174055	0.0322
NPL^2	26.01801	96.81862	0.268729	0.7887
R-squared	0.050752	Mean dependent var		0.725980
Adjusted R-squared	0.020456	S.D. dependent var		1.287569
S.E. of regression	1.274332	Akaike info criterion		3.362681
Sum squared resid	152.6486	Schwarz criterion		3.468190
Log likelihood	-160.7714	Hannan-Quinn criter.		3.405357
F-statistic	1.675237	Durbin-Watson stat		1.316428
Prob(F-statistic)	0.177615			

Multiple Linear Regression Test

Referring to table 8, the result of regression for the final model is $ROA_{it} = 0.030183 - 0.074790 CAR_{it} + 0.010307 LDR_{it} - 0.368865 NPL_{it} + e_{it}$.

Coefficient of Determinant

Table 8 displays the adjusted R square value is 0.519867 or 51.98%. This indicates that changes in the CAR, LDR, and NPL have an impact on 51.98% variation (increase/decrease) in ROA. While the remaining 48.02% can be explained by other factors outside this research model.

F test

Table 8 displays the prob. F-Statistics $0.000 < 0.05$. Thus, the hypothesis 4 stating that CAR, LDR and NPL simultaneously have significant impact on ROA is accepted.

Table 8: Multiple Linear Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.030183	0.014518	2.079008	0.0400
CAR	-0.074790	0.004488	-16.66636	0.0000
LDR	0.010307	0.014485	0.711537	0.4783
NPL	-0.368865	0.106116	-3.476071	0.0007
AR(1)	0.469760	0.057295	8.198987	0.0000
SIGMASQ	0.000262	2.45E-05	10.69440	0.0000
R-squared	0.541112	Mean dependent var		0.009092
Adjusted R-squared	0.519867	S.D. dependent var		0.023989
S.E. of regression	0.016622	Akaike info criterion		-5.302759
Sum squared resid	0.029841	Schwarz criterion		-5.158748
Log likelihood	308.2573	Hannan-Quinn criter.		-5.244313
F-statistic	25.47027	Durbin-Watson stat		1.760176
Prob(F-statistic)	0.000000			
Inverted AR Roots	.47			

t-test

The t-test demonstrates the extent to which one independent variable which assumes the other independent variables are constant affects the dependent variable. Referring to table 8, CAR and NPL show an influence ROA partially in significant manner. The coefficient of CAR is -0.074790 and the coefficient value of NPL is -0.368865. As a result H1 and H3 are accepted as ROA is greatly impacted by the CAR and NPL. On the other hand, the probability

value of LDR shows $0.4783 > 0.05$. The result indicates LDR does not significantly impact ROA. Thus, H2 is rejected.

Discussion

The F test result indicates that the combination of CAR, LDR, and NPL simultaneously has a sizable impact on ROA. The strong correlation of CAR, NPL, and LDR to ROA is the attachment to these independent variables in the statement of the financial position and the impact of the banks' activities in managing funds/costs (CAR, NPL and LDR) in the financial statements using those ratios to earn income through banking assets (ROA). Good liquidity management, credit risk, and capital adequacy lead to stronger market/customer's trust to banking services. Therefore, the banks can have confidence to offer their services and manage their assets to generate more profit. This leads to accept H4.

The hypothesis 1 stating that CAR has significant impact on ROA is accepted. The coefficient of CAR amounted -0.074790 shows a negative relationship with ROA. This result supports the research of Dewi and Achmad (2020). The result also indicates that the hypothesis 3 is accepted as LDR shows no significant impact on ROA and hypothesis 2 is rejected. Thus, the ROA is not affected by LDR. This is due to an imbalance between the number of incoming funds and the amount of credit distributed to the market. When a third-party funds are not distributed, the bank will face higher possibility of losses or decreased profitability as the interest income from lending to debtors is insufficient to cover the interest costs payable to the depositors. Despite raising a significant funds from third parties, if it is not offset by heavy lending, the bank's profit will also be hampered. This can happen because the allocation of funds raised by the bank has not been fully optimized to generate profit for the bank which results in deposition of funds. This is aligned with the previous research conducted by Saputra, Diah, and Rene (2020).

This study also found that NPL shows a significant impact on ROA and the hypothesis 3 is accepted. The high non-performing loans is the emergence of bank losses which result in disruption of the bank's business activities. The increasing NPL indicates an increasing level of credit risk, and as a result, banks must provide a considerable large receivables write-off reserve. As the consequence, the ability of banks to provide credit will be very limited and will result in losses if the credit is not collected. This situation results in decreasing bank's profit turnover which will drain the bank's basic business resources if not immediately anticipated by the step of suppressing the NPL rate. The result is supported by the previous study conducted by Saputra, Diah, and Rene (2020).

CONCLUSIONS AND IMPLICATIONS

Conclusions

This study aims to investigate the determinants of bank's profitability using capital adequacy, liquidity risk and credit risk. The results show that H1 and H3 indicating CAR and NPL partially impact ROA are strongly supported. Meanwhile, H2 stating that LDR partially impacts on ROA is rejected. H4 referring to the influence of CAR, LDR, and NPL simultaneously impact ROA is also supported.

Managerial implications for the banking companies are that they must maintain their CAR and NPL at the minimal level since these factors have a major impact on ROA. Potential investors should also consider the degree of ROA before deciding to invest in the banks under the research. They however should also consider other elements from both internal and external to the organization. The study also provides implications for the bank managers in terms of capital and loan portfolios management and contributes to the existing literature on bank performance.

Recommendations

Even though the research had been designed and developed carefully, several limitations still available in this study which include limited sample to only 38 banking companies in Indonesia and relatively short observations period. There are still possibility number of other variables that have not been used in this study that may affects profitability of banking companies.

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