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Analyzing the Impact of Cost of Funds and Non-Performing Loans on Bank Profitability: A Case Study of Bank BJB in Indonesia

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ABSTRACT

The research was conducted to see how cost of funds (COC), and non-performing loans (NPL) on profitability is measured by return on assets (ROA). The research method used is descriptive and verification methods. Secondary data is sourced from Regional Development Banks of West Java and Banten Provinces in Indonesia quarterly financial reports for 2014 – 2022, while the data analysis technique uses multiple linear regression analysis. The results of the research are that COF and NPL has a negative and significant effect on ROA. Simultaneously, COF and NPL have a significant effect on ROA. The results of this research are useful for bank management in determining funding strategies with low cost of funds, and credit management strategies so that non-performing remains healthy.

Introduction

Third party funds are the main source of funds for banks in carrying out their credit operations. Therefore, if a bank is able to collect high levels of party funds, especially if it is supported by sufficient capital, then the bank will have great potential to expand its credit so that the bank's income increases, which will ultimately increase the bank's profitability. High profitability is the hope of all stakeholders. For third party funds collected, the bank must pay interest as a cost of funds. The greater the amount of funds collected, the greater the interest costs. The higher the interest rate paid, the greater the interest costs paid. Interest costs are a cost of funds (COF) for the bank (Kasmir, 2019). The size of the cost of funds paid by the bank will affect profitability. In distributing credit, apart from banks getting a large source of income, credit is also very risky for banks if there are problems in returning principal and interest. Credit risk can be seen from non-performing loans (NPL) achieved by banks. Like the cost of funds, non-performing loans will also affect the profitability achieved by banks. The higher the non-performing loans of a bank, the lower the profitability achieved by the bank. And vice versa.

This research was conducted at bank bjb the largest Indonesian Regional Development Bank (IRDB) which has a performance as of December 31 2021with total assets of IDR 149,420,474 million; Third-party funds (TPF) IDR 113,501,199 million; and Credit IDR 95,443,112 million, which mostly consists of consumption credit 71% of total credit, NPL 1.24%, and ROA 1.73%. (Financial Report, 2022). In the 2020-2021 period, TPF grew by 14% though below the growth of national banking (16.96%) and IRDB (15.42%). However, the growth in TPF was followed by an increase in COC 4.42% above the national banking average (1.88%) and IRDB (2.74%). Likewise, credit for 2020-2021 grew by 7.12% above national banking (2.49%) and IRDB (5.49%). The NPLs was1.24% below the National Banking average (3.0%), and (2.54%). While the ROA was 1.73% below the national banking (1.85%) and the IRDB (2.03%). (The Authority Financial Services, Indonesia Banking Statistics, Vol. 20 No. 7, June, 2022).

From the financial report 2014-2022 (see Table 1), a phenomenon is obtained, namely that when COC increases, ROA should decrease, but it increases, this happened in 2015. Then in 2020 and 2022, when COC decreases, ROA also decreases, it should increase, Likewise, when NPL decreases, ROA also decreases, this should increase in 2017, 2019 and 2020.

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Several previous studies obtained inconsistent results, such as Maryam (2016), the cost of funds affects profitability. Meanwhile, according to Islam and Rana (2017), the cost of funds contributes insignificantly to profitability. Likewise, according to Sofyan (2022), the cost of funds has no significant effect on ROA. Meanwhile, Hardimansyah (2016) and Ilyas (2015), the cost of funds reduces profitability. Then previous research on NPL, De Leon, (2020); Kadioglu, Telceken, & Ocal (2017); Ekinci & Poyraz (2019); Munangi & Bongani, 2020; Poude (2018) and Rwayitare (2016) found that the effect of NPL on ROA was negative. Meanwhile, Buchory (2016), Kutum (2017), Harahap & Hairunnisah (2017, and Boahene, Dasah, & Agyei (2012) found that the effect of NPL on ROA was positive and significant.

Based on the description above, the aim of this study is to see the influence of COC and NPL on ROA, both partially and simultaneously.

Literature Review

Banks are financial institutions that operate in the business of collecting funds, distributing funds, and payment traffic to the community to improve community welfare, improve people's standard of living, and increase the economic growth of a country. (Rose, 2013; Rivai, 2016; Kasmir, 2016; and Law No. 10/1998).

Kasmir (2016), stated that bank funding sources consist of (1) First Party Funds, namely sources of funds from owner capital; (2) Second Party Funds, namely loan funds originating from external parties; and (3). Funds collected from the community are in the form of third-party funds (TPF). Law Number 10 of 1998 concerning Banking explains that TPF is a public fund the forms of which are current accounts, deposits, certificates of deposit, and savings. TPF is the largest source of funds for banks, reaching 80%-90% of all funds (Dendawijaya (2013:49).

The bank will pay interest for each amount of funds collected. Therefore, the high or low amount of funds collected by the bank will have an impact on interest costs or cost of funds which will ultimately affect the bank's profitability. According to Buchory (2019) the cost of funds is the cost that banks must pay for funds collected from various sources before deducting mandatory liquidity (mandatory reserves). Meanwhile, according to Kasmir (2016), the cost of funds is the interest paid to obtain funds sourced from current accounts, savings and deposits. Likewise, according to Rusyamsi (2018), the cost of funds is the interest expenses paid by the bank for several funds collected (interest expenses) and calculated in per cent per year.

There are several methods for determining the cost of funds (COF), namely: (1) Historical Average Method, in this method the COF is obtained by multiplying the interest percentage by the amount of each fund; There are several methods for determining the cost of funds (COF), namely: (1) Historical Average Method, in this method the COF is obtained by multiplying the interest percentage by the amount of each fund; (2). Weighted Average Method, this method calculates the cost of funds by first calculating the role of each type of funding source and then determining the cost of loan funds (COLF), and this method can be used as a basis for calculating the base lending rate; (3) Marginal Method, in this method the COF is determined by adding additional costs to the bank's fund structure. In this research, the COF is calculated by the ratio of the interest expenses to the TPF. (Buchory, 2019). In this research, the COF is calculated by ratio of interest expenses to the TPF.

Most of the TPF collected by banks are channeled in the form of productive assets, especially credit, because from credit the bank will obtain the main source of income which can create profits for the bank which will ultimately have an impact on profitability. However, on the other hand, credit can also pose the greatest risk for banks in carrying out their operations. Credit risk is the risk of default by the counterparty and the potential loss that occurs from the default (Ghosh, 2012). The impact of credit risk will cause a loss of principal loan, decreased earnings, a decline in the market value of assets, and a burden of loan loss provisions, and ultimately will reduce bank profitability.The level of credit risk faced by a bank can be determined from the non-performing loans owned by the bank. (Buchory, 2016).

Profitability is the ability of a company (bank) to create profits, and this can be used as a measure of management's success in managing the company. For measurement of profitability level can use the profitability ratio which is related to sales results, assets, and investments. (Sartono, 2015; Kasmir, 2016; and Fahmi, 2014). In this research, the ratio of operating profit compared to total assets is used to measure profitability, so the use of ROA is considered more comprehensive in measuring profitability.

Relationship between COF and Profitability (ROA)
A bank will provide compensation for the TPF saved by depositors in the form of interest, which is calculated as the bank's cost of funds (COF). Therefore high or low COF will impact the high and low interest expense and bank profitability. This is in line with several previous studies, such as according to Maryam (2016) who found that COF has an effect on profitability. Likewise, according to Islam and Rana (2017), COF has a contribution to profitability, although it is not significant. Similar results were found by Sofyan (2022), the cost of funds has no significant effect on ROA. Meanwhile, the research findings of Hardimansyah (2016) and Ilyas (2015) confirm that COF has a negative effect on profitability. Based on the description above, the first hypothesis of this research is:
H-1: Cost of Funds has a negative effect on profitability

Relationship between NPL and Profitability (ROA)
When a bank disburses credit, the bank faces credit risk or default risk. Many researchers use (NPL) to determine the level of credit risk faced by banks. The high or low levels of NPL suffered by banks will influence the high and low levels of bank revenues and expenses. Therefore, NPL will affect banking profitability. (Buchory, 2016).

Previous research on the effect of NPLs on profitability in several countries found varying results. As research conducted by De Leon, (2020), Kadioglu, et.al (2017), Ekinci & Poyraz (2019), Munangi & Bongani (2020), and Poudel (2018) found that credit risk has a significant negative impact on the profitability of commercial banks. Meanwhile, according to research by Buchory (2016), Boahene, Dasah, & Agyei (2012), Badawi (2017), Kutum (2017), Harahap & Hairunnisah (2017), and Isanzu (2017) stated that NPL has a significant positive effect on ROA.

Based on the description above, the second hypothesis of this research is:
H-2: NPL has a negative effect on ROA, and finally, the third hypothesis of this research as follows:
H-3: Cost of Funds and Non-performing loans have effect on Profitability, simultaneously

Methodology

Descriptive methods and verification methods were used in this research. Descriptive methods are used to describe the condition of COF, NPL, and ROA. The verification method is used to test the hypothesis about the effect of COF and NPL on ROA. The type of data processed is secondary data sourced from the 2014 – 2022 Published Financial Report which is calculated quarterly. Meanwhile, the data analysis technique used is multiple regression analysis with the classical assumption test first carried out (Umar, 2014: 180), including the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. The t-test and F-test were carried out to test the significance level of the influence of COF and NPL on ROA

The following is the regression model equation for this research:
ROA = a + b1COF + b2NPL + e (1)
Where:
a = Constant, that is the value of ROA if COF and NPL = 0
b1, b2, b3 = Regression coefficient

Findings and Discussions

The Development of Cost of Funds and Non-Performing Loans, and Return on Assets
Based on secondary data obtained from financial reports published by bank bjb for the period 2014 – 2022, it is shown in Table 1 as follows:

Table 1: The Development of Cost of Funds, Non-Performing Loans, and Return on Assets

Variable	2014	2015	2016	2017	2018	2019	2020	2021	2022*
Cost of Funds (IDR, billion)	3.953	4.674	4.186	4.781	5.075	5.663	5.516	5.017	2.293
Non-Performing Loans (%)	4,15	2,91	1,69	1,51	1,65	1,58	1,40	1,24	1,10
Return on Assets (%)	1,92	2,04	2,22	2,01	1,71	1,68	1,66	1,73	1,88

(*) until June 2022
Source: Financial Statements of The bank bjb for the period 2014 - 2022, processed by the author.

From the data in Table 1 above, the cost of funds has increased from year to year, and non-performing loans fluctuate and tend to decrease, likewise, ROA fluctuates. For a more in-depth analysis, the author also uses quarterly financial report data for the period 2014 – 2022. The highest total cost of funds was achieved in the fourth quarter of 2019 at IDR 5.663 billion, the lowest occurred in 2014 the first quarter of IDR 902 billion and the average quarterly during the 2014-2022 period was IDR 2.934 billion. The ratio of interest costs to third-party funds achieved by bank bjb in 2021 was 4.42%, higher than that of national banking (1.8%) and IRDB (2.74%). This indicates that bank bjb fund structure is dominated by expensive funds. Non-performing loans (NPL) bank bjb for the period 2014 – 2022 fluctuated with a downward trend. The highest NPL was achieved in the first quarter of 2015 at 4.49%. The lowest NPL occurred in the second quarter of 2022 at 1.10% and the average NPL per quarter during the 2014-2022 period was 0.01%. NPL by bank bjb in 2021 is lower than the NPL of national banking (3%) and the NPL achieved by IRDB (2.54%). This means that the NPL achieved by bank bjb is very healthy. Return on Assets (ROA) for the period 2014 – 2022 fluctuated with a downward trend. The highest ROA was achieved in the first quarter of 2016 at 2.55%. The lowest ROA occurred in the third quarter of 2020 at 1.61% and the average ROA per quarter during the 2014-2020 period was 1.96%. ROA by bank bjb in 2021 is lower than the ROA of national banking (1,85%) and the ROA achieved by IRDB (2,03%). This means that the ROA achieved by bank bjb is still relatively low even though it is considered healthy, but in the future, it needs to be increased, among other things, by changing the fund structure and improving NPL.

To determine the effect of Cost of Funds and Non-performing Loans on Return On Assets (ROA) at The bank bjb for the period 2014 – 2022, data analysis will be carried out using multiple linear regression analysis, correlation coefficient analysis, analysis of the coefficient of determination (R^2), partial test (T-test) and simultaneous test (F-test), with the classical assumption test first consisting of normality test, multicollinearity test, heteroscedasticity test and autocorrelation test. Based on the results of statistical data processing using the SPSS Ver. 26.0 obtained the following data:

Table 2. The Result Summary of Statistical Data Processing, The Effect COF and NPLs on ROA

Description	Value	COF	NPLs
Regression Coefficients	.341 (Constant)	-.001	-.270
R (correlation coefficient)	0.743		
R-Square (determination coefficient)	0.553		
T – Test (Partial Test)	5.720 (Constant)	-2.313	-3.623
Sig.	.000	.028	.001
F – Test (Simultaneous Test)	47.194		
Sig.	.000		

Source: Output SPSS Ver. 26.0 (Data processed by the author, 2023.

Based on Table 2, multiple linear regression equations can be formulated as follows:

ROA = .341 – 0.001COC - 0.270NPLs + e (2)

From the above equation it can be explained as follows:

The constant has a positive value of 0.341, meaning that if the cost of funds (COF) and non-performing loans (NPLs) are all zero (0), then the return on assets (ROA) is equal to 0.341. The regression coefficient for COF is negative at -.001, this indicates that there is an opposite relationship between COF on ROA so every 1% increase in COF will be followed by a decrease in ROA of – .001. While the regression coefficient for NPLs is negative at -.270, this indicates that there is an opposite relationship between NPLs and ROA so that every 1% increase in NPLs will be followed by a decrease in ROA by -.270.

The correlation coefficient (R) of 0.743 indicates a "strong" relationship between COF, NPL and ROA. Meanwhile, the coefficient of determination of the R Square (R2) value is 0.553 or the equivalent of 55.3%, this shows that the effect of COF and NPL on ROA is 55.3%.

The t-count value of COF is obtained at –2.313 > t-table which is 2.045 and the significance value is 0.028 less than 0.05, then H-1 is accepted. Thus, statistically, it can be concluded that the COF variable has a negative and significant effect on ROA. The relationship between COF and ROA is opposite, meaning that if the COF increases, ROA decreases. The t-count value of NPLs is obtained at – 3.623 > t-table which is 2.045 and the significance value is .001 less than 0.05, then H-2 is accepted. Thus, statistically, it can be concluded that the NPLs have a negative and significant effect on ROA. The relationship between NPLs and ROA is opposite, meaning that if the NPLs increase, ROA decreases.

While the F-count has a value of 47.194 > F- table which is 2.701 with a significance value below 0.05 (0.000 < 0.05), meaning that H-3 is accepted. So, it can be concluded that COF and NPLs simultaneously significantly effect Return on Assets (ROA). The results of statistical tests as in Table 2 above, prove that COF and NPLs affect ROA either partially or simultaneously.

The Effect of Cost of Funds on Profitability

The cost of funds paid by bank bjb in 2021 was 4.42% above the average ratio of cost of funds to National Banking of 1.88 % and the average of RDB in Indonesia (IRDB) is 2.17% (The Authority Financial Services, Indonesia Banking Statistics, Vol. 20 No. 7, June, 2022). This shows that the structure of third-party funds of bank bjb is relatively more expensive. Therefore, it is necessary to make efforts to improve the fund structure by collecting larger low-cost funds.

The results of this study indicate that the COF variable has a negative and significant effect on ROA. The high cost of funds was caused the structure of TPF owned by bank bjb was still dominated by time deposits. The results of this study are in line with research conducted by Maryam (2016) which states that partially the COF influences profitability. Likewise, the results of Islam and Rana (2017) state that the COF contributes to profitability, but their impacts are not significant in the private commercial banks of Bangladesh. Meanwhile, the results of research by Hardimansyah (2016), and Ilyas (2015) stated that the cost of funds negative effect on profitability.

The Effect of Non-Performing Loans on Profitability

The level of NPLs of bank bjb in the period 2020 - 2021 was 1.24% below the National Banking average of 3.00% and the average the of RDB in Indonesia (IRDB) by 2.54%. NPLs of bank bjb is healthy. While the level of ROA bank bjb in 2021 was 1.73% below the National Banking average of 1.85%, and the IRDB average of 2.03%. (The Authority Financial Services, Indonesia Banking Statistics, Vol. 20 No. 7, June, 2022). Even though the ROA achieved by bank bjb is lower than the average national banking and IRDB, it is still healthy based on the Circular Letter of Bank Indonesia No. 13/24/DPNP dated October 25, 2011 regarding the Assessment of Commercial Bank Soundness Level, which states that a healthy bank's ROA is at least 1.5%. But the ROA of bank bjb is considered very healthy because it is above 1.50%.

In conducting the credit business, banks face credit risk also called default risk, arises from the uncertainty involved in repayment of the bank's dues by the counterparty on time. Non-performing loans can be used as a measure of the credit risk or credit quality of a bank. Therefore, the level of NPLs will affect the profitability of banks. (Buchory, 2016).

Some of the results of previous studies such as those conducted by De Leon, (2020) state that NPL has a negative effect on profitability as measured by Return on Equity (ROE) at a significance level of 5% in the case of ASEAN banks. Likewise, according to Kadioglu, Telceken, & Ocal (2017) and Ekinci & Poyraz (2019) found that there is a significant negative relationship between non-performing loans and bank profitability as measured by return on equity and return on assets in Turkey. Then the results of research by Munangi & Bongani, 2020 show that credit risk is negatively related to financial performance. Furthermore, (Poudel, 2018) finds that credit risk has a significant negative impact on the profitability of commercial banks in Nepal. And menurut Rwayitare (2016) the study revealed that increased exposure to credit risk reduces bank profitability in Rwanda.

The Effect of of Cost of Funds and Non-Performing Loans on Profitability

Based on the results of statistical tests, it was found that the cost of funds and non-performing loans simultaneously had a significant effect on bank profitability. Partially, these two variables have a negative and significant effect. This means that if there is an increase in the cost of funds and non-performing loans variables, it will cause bank profitability to decrease. Cost of funds is the largest bank operational cost. The large cost of funds is because the bank has a fund structure that is expensive. Therefore, banks should improve their fund structure to become low-cost funds. Meanwhile, the non-performing loans variable will influence the level of income obtained by the bank. High non-performing loans will cause a decrease in income and ultimately reduce bank profitability. Apart from that, the occurrence of non-performing loans will disrupt cash flow which will cause banks to face liquidity risks. Therefore bank management must properly manage these two variables.

Conclusions

Based on the research results, it shows that cost of funds (COF) and non-performing loans (NPL) have a negative effect on return on assets (ROA). Therefore, when a bank collects funds, the bank must consider the level of cost of funds, the bank must raise cheap funds so that the bank's profitability increases. Likewise, credit distribution must be managed well so that NPLs do not increase which will ultimately reduce profitability.

This research was only conducted at bank bjb the largest Indonesian Regional Development Bank (IRDB), therefore for future research it is necessary to add research samples, for example, Regional Development Banks All Over Indonesia or other banks. In addition, it adds research variables such as bank operational efficiency or macroeconomic variables like as economic growth.

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Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.
Conflicts of Interest: The author declares no conflict of interest.

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