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The Effect of Loan to Deposit Ratio and Net Interest Margin on Return on Assets

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ABSTRACT
This study aims to determine the effects of Loan to Deposit Ratio (LDR), and Net Interest Margin (NIM) either partially or simultaneously on Return on Asset (ROA) of banking companies listed in Indonesia Stock Exchange (IDX). Sampling in this study using purposive sampling method. The sample used is 23 companies from 46 companies listed on the IDX that publish annual report complete from 2018-2022. Data analysis technique uses panel data regression analysis. The results of the study found that partially LDR does have a negative and significant effect on ROA of banking companies in IDX 2018-2022, while the NIM does have a positive and significant effect on ROA of banking companies in IDX 2018-2022. The results of the study found that simultaneous LDR and NIM does have an effect on ROA.

Keywords: loan to deposit ratio; net interest margin; return on assets

INTRODUCTION

Banks are one of the primary foundations in the economic structure of a country. Besides serving as institutions necessary to facilitate trust and economic activities, banks also act as intermediaries that assist in the payment process and play a crucial role as implements of government monetary policy. With these functions, the health of banks, both individually and in the overall context of the banking system, becomes an absolute prerequisite for the economic health of a country. Financial reports in banks provide crucial information regarding the performance and financial stability of the bank, covering assets, liabilities, capital, income, and expenditures. Various parties such as investors, regulators, customers, and other stakeholders utilize these financial reports to understand the bank's financial condition, evaluate risks, and make decisions regarding investments or credit provision. Financial reports in banks aim to provide information about the financial condition, performance, and changes in the finances of a company that are beneficial to various users in the process of making economic decisions (Bhaktiar, 2021).

According to the provisions of Law No. 10 of 1998 concerning banking in Indonesia, a bank is a business entity that collects funds from the public through deposits and channels them back to the public in the form of loans or other services to enhance the welfare of the community. As a service-oriented business, banking activities encompass three main aspects, namely fund gathering, fund distribution, and the provision of various other banking services. The activities of gathering and distributing funds are core activities involving the collection and distribution of funds, while supplementary activities are services that support the smooth operation of these core activities. (Pinasti and Mustikawati 2018).

As a financial institution, a bank must ensure that its performance is optimal. One of the most important aspects is to maintain financial stability to ensure sustainability and inspire confidence. One key measure used to evaluate the financial performance of banks in Indonesia is profitability, particularly through Return on Asset (ROA), which reflects the level of profitability and operational

efficiency in banking. Profitability refers to the ability of an entity, whether it be a company, individual, or organization, to generate profit considering the invested capital (Sari, Yuniarti, and Rachman 2022). The higher the ROA, the better the financial performance of the bank. Return on Asset is a way to compare pre-tax profit with the total assets held by the bank using a comparative method. This approach will provide information about the level of efficiency in managing assets by banking institutions that interact with each other. Bank Indonesia, which also acts as a central bank, prefers to emphasize the profitability of a bank, which can be measured using the ROA method (Gustiana, Soleh, and Ferina 2021).

Several ratios that can affect profitability performance (ROA) include the Loan to Deposit Ratio (LDR). Loan To Deposit Ratio is a calculation method used to compare the amount of loans given with third-party funds. Third-party funds include savings deposits, current account deposits, and term deposits obtained from customers (Sahroni and Pramesti 2021). Another ratio that can affect profitability performance (ROA) is the Net Interest Margin (NIM). Net Interest Margin is a ratio used to measure the bank's management ability to manage its productive assets to generate net interest income (Sugiantari and Dana 2019).

Banks are expected to have strong capabilities in maintaining and improving institutional health as intermediaries between various parties. This will enable banks to gain and retain customer trust, which is a cornerstone for the bank's sustainability. In accordance with Bank Indonesia Regulation No. 13/1/PBI/2011 regarding the Assessment of General Bank Health, banks must consistently improve and maintain their conditions. The evaluation of a bank's financial capability is conducted through the examination of financial statements as fundamental indicators, which are integral parts of research on bank stability. In order to achieve maximum profitability, the banking sector utilizes financial capacity as a performance benchmark, with the hope of creating annual profit increases for the bank.

The phenomenon sourced from Kontan.co.id written by Sitanggang (2019), the phenomenon commonly observed in ROA is the declining ability of banks to generate profits, particularly among Commercial Banks in the Business Activities Group (BUKU) I, II, and III. The ROA position for BUKU IV remains stable at 3.1% as of September 2019. Factors contributing to profit decline include decreased credit demand and regulatory burdens on banking, eroding profit-generating capacity. For example, PT Bank Tabungan Negara Tbk (BTN) experienced a significant decrease in ROA from 0.90% to 0.44% as of September 2019. This decline is associated with decreased pre-tax profit performance, as well as significant provisions for impairment losses (CKPN). Nevertheless, some banks, such as BTN and PT Bank Woori Saudara Tbk (BWS), are still striving to maintain and improve ROA by reducing interest expenses and seeking non-interest income. Despite the decline in ROA, some banks have still managed to increase net profit, indicating challenges within the banking industry.

The next phenomenon sourced from CNBC Indonesia written by Rahadian (2022), Foreign investors are showing significant interest in domestic banks, as seen from the frequent net buy activities targeted at bank stocks. This is understandable considering the annual growth of Indonesia's banking credit, which reached 5.2% throughout 2021, a better performance compared to the credit contraction in 2020. The fundamentals of domestic banks also draw attention, such as the surging net interest income and net interest margin (NIM) of BBNI, BBRI, and BMR, which outperform other ASEAN banks. Indonesia's major banks are able to outperform competitors from Southeast Asia in terms of net interest income and net profit growth. For example, BBNI recorded a 288.36% growth in net profit to Rp 10.68 trillion in 2021. In the same year, Bank Rakyat Indonesia (BRI) recorded the highest net profit of Rp 32.21 trillion. Indonesia's major banks also have good profitability ratios, including Return on Asset (ROA) and Return on Equity (ROE). The highest ROA growth is seen in Bank Mandiri (BMRI) and BNI, each increasing by 89 bps annually. The ROA of the top 4 banks in Indonesia ranges from 1.43% to 3.41%. BBNI has the largest ROE growth, rising by 756 bps annually, with the ROE of the top 4 banks in Indonesia ranging from 10.42% to 18.25%. These figures far exceed the average of banks in Southeast Asia.

Table 1. Average Financial Ratios of ROA, LDR, and NIM in Banking Companies Listed on the Indonesia Stock Exchange (IDX) for the period of 2018-2022 (in percentage)

Variable	2018	2019	2020	2021	2022
ROA	1,3 %	1,2 %	0,9 %	1,1 %	2,4 %
LDR	129,1 %	86,4 %	72,5 %	64,0 %	78,7 %
NIM	7,8 %	7,3 %	7,4 %	9,1 %	4,8 %

The table 1, changes are evident in the Return on Asset (ROA) Ratio from one year to the next, with the average ROA experiencing a decline from year to year. The movement of the Loan to Deposit Ratio (LDR) ratio shows fluctuations, while the Net Interest Margin (NIM) ratio also experiences fluctuations from year to year. Several studies conducted by researchers tend to focus on profitability (ROA) in the context of banking institutions, Loan to Deposit Ratio (LDR), and Net Interest Margin (NIM), resulting in diverse research outputs. According to Rembet dan Baramuli (2020) indicating that LDR does not have a significant effect on ROA. In contrast to the research findings from (Irfan, Suwendra, and Sujana 2019), indicating that LDR affects ROA. According to Listiawati, Sukmana, and Amelia (2021) indicating that NIM has a significant effect, contrary to the research findings (Rembet and Baramuli 2020) indicating that NIM does not have a significant effect on ROA. According to Debora (2020) LDR does not significantly affect ROA, while NIM significantly influences ROA.

Based on the phenomena and research gap mentioned above, it can be concluded that the variables Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) on Return on Asset (ROA) remain interesting for further investigation. Therefore, with the aforementioned phenomena and research gap, researchers are prompted to conduct research on: **"**the effect of loan to deposit ratio (LDR) and net interest margin (NIM) on return on assets (ROA) in banking companies listed on the indonesia stock exchange (IDX) for the 2018 – 2022 period**".** Based on the background description of the research above, the author presents several problem identifications as follows :

1. What is the extent of the influence of LDR on ROA in Banking Companies listed on the IDX.
2. What is the extent of the influence of NIM on ROA in Banking Companies listed on the IDX.
3. What is the extent of the influence of LDR and NIM on ROA in Banking Companies listed on IDX.

LITERATURE REVIEW

Loan To Deposit Ratio (LDR)

Loan to Deposit Ratio (LDR) is the comparison between the amount of credit to be disbursed with third-party funds, including funds received through loans, excluding subordinated loans. This ratio reflects the bank's ability to repay funds withdrawn by depositors using disbursed credits as a source of bank liquidity (Christianty and Wenno 2022). The Loan to Deposit Ratio (LDR) indicates the bank's ability to provide credit to customers. The formula to calculate the Loan to Deposit Ratio (LDR) is as follows:

$$\text{LDR} = \frac{\text{Jumlah Kredit Pihak Ketiga}}{\text{Total Dana Pihak Ketiga}} \text{ X } 100\%$$

Net Interest Margin (NIM)

Net Interest Margin (NIM) is the comparison between net interest income and the average productive assets. The higher the NIM ratio, the better the bank's performance in generating interest income (Debora 2020). The formula for Net Interest Margin (NIM) according to Bank Indonesia Circular Letter No. 13/24/DPNP (BI 2011) dated October 25, 2011, is as follows:

$$\text{NIM} = \frac{\text{Pendapatan Bunga Bersih}}{\text{Rata} - \text{rata Aktifa Produktif}} \text{X } 100\%$$

Return on Asset (ROA)

Return on Asset (ROA) is a ratio that depicts the yield or return on total assets utilized by a company. ROA also provides a better indication of a company's profitability as it reflects how effectively management utilizes assets to generate income (Setyarini 2020). The formula to calculate Return On Asset (ROA) is as follows:

$$ROA = \frac{\text{Earning After Tax (EAT)}}{\text{Total Asset}} \text{ X } 100\%$$

The Effect of Loan to Deposit Ratio (LDR) on Return On Asset (ROA)

Previous research conducted by Debora (2020) concludes that the Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) have a significant simultaneous effect on Return on Asset (ROA). The research conducted by Irfan et al. (2019) indicates that LDR has a positive effect on ROA in Foreign Exchange Private National Commercial Banks listed on the Indonesia Stock Exchange during the period 2015-2017, with a t-test value of 1.704 and a p-value of 0.004, which is smaller than $\alpha = 0.05$.

This means that the LDR ratio can be used as an indicator to evaluate a bank's ability to meet its financial obligations and to assess whether the bank can fulfill the credit demand requested. The LDR ratio can also evaluate the extent of credit provision to customers, allowing banks to assess whether loans can align with the bank's obligation to promptly meet depositor demands. These research findings are consistent with studies conducted by Setyarini (2020), (Hidayat, Lubis, and Salim 2022) in their research, which involved Loan to Deposit Ratio (LDR) as the independent variable, they found that LDR had a positive impact on ROA in their test results.

The Effect of Net Interest Margin (NIM) on Return on Asset (ROA)

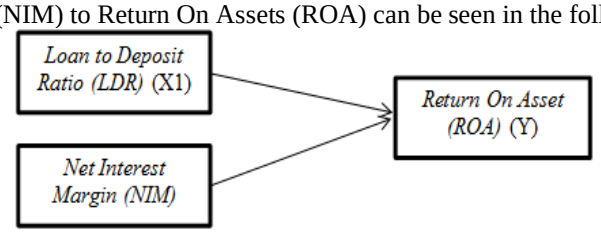
Previous research conducted by Andiansyah (2020) that Net Interest Margin (NIM) has a positive and significant effect. This implies that banks with high NIM levels tend to have high ROA levels as well. These research findings are consistent with those conducted by Debora (2020), (Indrawan and Kaniawati Dewi 2020) in their research, they involved Net Interest Margin (NIM) as an independent variable, and in their test results, NIM had a positive effect on ROA.

The Effect of Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM on Return On Asset (ROA)

Previous research conducted by Ramadanti and Setyowati (2022) The results indicate that both LDR and NIM have a positive influence on ROA based on the t-test results. The calculation of R-squared shows that the independent variables account for 95.54% of the variance in the dependent variable, while the remaining 4.46% is effected by other variables not included in the study. These research findings are consistent with those conducted by Veronika et al., (2022); Asatria (2019); Sanjoyo (2020) In their research, they involved Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) as independent variables, and their test results showed that both LDR and NIM have a positive effect on ROA.

Framework of Thought and Paradigm

Based on previous theories and research, the relationship between Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) to Return On Assets (ROA) can be seen in the following figure:



Hypothesis

$H0_1$: Loan to Deposit Ratio (LDR) has no effect on Return on Asset (ROA).
$H1_1$: Loan to Deposit Ratio (LDR) affect Return On Asset (ROA).
$H0_2$: Net Interest Margin (NIM) has no effect on Return On Asset (ROA).
$H1_2$: Net Interest Margin (NIM) affect Return On Asset (ROA).
$H0_3$: Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) has no effect on Return On Asset (ROA).
$H1_3$: Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) affect Return On Asset (ROA).

RESEARCH METHODS

Research Design

Research design is the creation of a plan to achieve a research objective. There are two crucial aspects to consider in research design. Firstly, to clearly establish what is being sought. Secondly, to determine the best method to accomplish it (Soedibjo 2013). This research utilizes descriptive and associative methods. The descriptive method is employed to understand the value of single or multiple variables without making comparisons or correlations with other variables. Meanwhile, the associative method is used to explore the relationship between two or more variables (Soedibjo 2013).

Unit of Analysis

"The Unit of Analysis refers to the unit used to describe or depict the characteristics of a larger set of objects" (Soedibjo 2013). The unit of analysis in this research is documents in the form of Financial Statements, namely the Annual Financial Reports of banking companies listed on the Indonesia Stock Exchange (IDX) for the period 2018 – 2022.

Data and Data Sources

The data used in this study is secondary data. Secondary data refers to data that have been collected by individuals or institutions other than the researcher conducting the study at different times. This data can originate from within or outside the organization, and is typically obtained through the internet or publications (Soedibjo 2013). The data used in this study consists of annual financial reports of banking companies listed on the Indonesia Stock Exchange (IDX) for the period from 2018 to 2022. These financial reports can be obtained and accessed through www.idx.co.id.

Population and Sample

The population is the generalization area consisting of objects or subjects with specific qualities and characteristics set by the researcher for analysis to draw conclusions (Sugiyono 2017). Meanwhile, the sample represents a subset of the quantity and characteristics possessed by the population. The population in this study consists of banking companies listed on the Indonesia Stock Exchange (IDX) and can be obtained and accessed through www.idx.co.id.

The sampling method applied in this study is purposive sampling. Purposive sampling is a sampling technique where samples are selected based on specific considerations according to desired criteria, to determine the number of samples to be examined (Sugiyono 2017). Out of the total of 46 banking companies listed on the Indonesia Stock Exchange from 2018 to 2022, a total of 23 banking companies were selected as samples because they met the established criteria.

Operationalisasion Variables

Operational variables depict indicators of a variable significantly gathered by researchers, thereby aligning the variable with the implemented measurement method.

1. Independent Variable
   The independent variable, or the predictor variable, is a variable that influences or causes changes or the emergence of the dependent variable or the outcome variable (Sugiyono 2017). In this study, the independent variables are Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM).
2. Dependent Variable

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The dependent variable is a variable that is influenced or affected by the independent or explanatory variable. (Sugiyono 2017). In this study, the dependent variable is Return on Asset (ROA).

Data analysis is an important stage in completing a research project (Soedibjo 2013). This research analyzes how Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) influence Return on Asset (ROA) in banking companies listed on the Indonesia Stock Exchange for the period 2018 - 2022. In this study, the data analyzed using descriptive and associative methods. In the associative method, panel data regression analysis is employed, with the software application used being STATA.

Descriptive Analysis

Descriptive analysis is a research aimed at evaluating the values of one or more variables without making comparisons or correlations with other variables (Soedibjo 2013). In this study, to provide an overview of the analysis of each variable, the author used descriptive analysis using tables, graphs, and figures. Descriptive analysis was used to explain how Loan to Deposit Ratio (LDR) in banking companies listed on the Indonesia Stock Exchange (IDX) during the period 2018-2022, Net Interest Margin (NIM) in banking companies listed on the Indonesia Stock Exchange (IDX) during the period 2018-2022, and Return On Asset (ROA) in banking companies listed on the Indonesia Stock Exchange (IDX) during the period 2018-2022.

Associative analysis refers to the functional relationship between two or more variables (Soedibjo 2013). The analysis method applied in this study is quantitative analysis, which involves the use of panel data regression analysis using STATA software. Associative analysis is used to evaluate the influence of Loan to Deposit Ratio (LDR) and Net Interest Margin (NIM) on Return on Asset (ROA) in banking companies listed on the Indonesia Stock Exchange (IDX) during the period 2018–2022.

Panel data technique combines both cross-sectional and time series data (Ghozali 2017). As a result, there will be more observations compared to using cross-sectional or time series data alone. There are three methods used in estimating regression models with panel data, namely the Common Effect Model (CEM), Fixed Effect (FE), and Random Effect (RE) (Gujarati 2013).

There are three methods that can be used to select the most appropriate model for managing panel data (Basuki and Prawoto 2017), and it is as follows:

1. Chow Test
   This test is conducted to determine the most appropriate model, either common effect or fixed effect, to use in estimating panel data.
2. Hausman Test
   This test is conducted to determine the most appropriate model, either fixed effect or random effect, to use in estimating panel data.
3. Lagrange Multiplier Test
   This test is conducted to determine the most appropriate model, either random effect or common effect, to use in estimating panel data.

The coefficient of determination (R2) is the ability to measure a model in interpreting the dependent variable. The value of the coefficient of determination is between 0 and 1. If the R2 value is small, it means that the ability of the independent variable to explain the variation of the dependent variable is limited. The coefficient of determination has a fundamental weakness, namely its susceptibility to the number of independent variables included in the model (Ghozali 2017).

RESEARCH RESULTS AND DISCUSSION

Table 2. Descriptive Analysis Test Results

```
. summarize ROA LDR NIM

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
         ROA |        115    .0064739    .0260157    -.1475       .0422
         LDR |        115    .8611757    .2587801     .1235      2.2401
         NIM |        115    .0447478    .0233052    -.0352       .1383
```

Based on the above Table 1, it is known that the number of observations in this study is 155. The maximum or highest Return On Asset (ROA) value is (0.0422), while the minimum ROA value is (-0.1475) with a mean value of (Mean) of (0.0064739). The maximum or highest Loan to Deposit Ratio (LDR) is (2.2401), while the minimum LDR is (0.1235) with a mean value of (Mean) of (0.8611757). Then the maximum or highest Net Interest Margin (NIM) value is (0.1383), while the minimum NIM value is (-0.0352) with a mean value of (Mean) of (0.0447478).

Results of Associative Analysis

1. Chow Test Results

Table 3. Chow Test Results

```
      Source |       SS       df       MS              Number of obs =       115
-------------+------------------------------           F(24, 90)     =      5.65
       Model |  .046383833     24  .00193266            Prob > F      =    0.0000
    Residual |  .030773189     90  .000341924           R-squared     =    0.6012
-------------+------------------------------           Adj R-squared =    0.4948
       Total |  .077157022    114  .000676816           Root MSE      =    .01849

      F( 22,    90) =    3.69
           Prob > F =    0.0000
```

Based on the data processing above, it is shown that the prob > F value is 0.0000. This result indicates that the hypothesis prob > F < 0.05, hence H1 is accepted and H0 is rejected. Based on the Chow test results above, the best panel data model is the Fixed Effect Model (FEM). If the selected Chow Test is FEM.

2. Hausman Test Results

Table 4. Hausman Test Results

```
    chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
            =   5.46
Prob > chi2 = 0.0654
```

Based on the analysis of the Hausman test conducted, the result obtained is that Prob > chi2 = 0.0654. With the hypothesis Prob.chi2 > 0.05, H0 is accepted, and H1 is rejected. From the results of the Hausman test, it can be concluded that the best panel data model is REM. The test results determining the best panel data regression model indicate that REM is the best model in this study.

3. Lagrange Multiplier Test Results

The Lagrange Multiplier test is used to test REM and CEM, but based on the Chow test results, the selected model is Fixed Effect Model (FEM), while based on the Hausman test results, the selected model is Random Effect Model (REM). Therefore, the Breusch and Pagan Lagrange Multiplier test is not conducted, and the next selected model is Random Effect Model (REM).

Statistical Hypothesis Testing Results

- *Panel Data Regression Analysis*

Table 5. Random Effect Model (REM) Test Results (Selected Model)

```
. xtreg ROA LDR NIM, re sa

Random-effects GLS regression                   Number of obs     =       115
Group variable: Perusahaan                      Number of groups  =        23

R-squared:                                      Obs per group:
     Within  = 0.1486                                         min =         5
     Between = 0.3018                                         avg =       5.0
     Overall = 0.2249                                         max =         5

                                                Wald chi2(2)      =     24.82
corr(u_i, X) = 0 (assumed)                      Prob > chi2       =    0.0000

------------------------------------------------------------------------------
         ROA | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
         LDR |  -.0460813   .009732    -4.74   0.000    -.0651556   -.027007
         NIM |    .319445   .1137088    2.81   0.005     .0965799    .5423101
       _cons |   .0318635   .0091305    3.49   0.000      .013968    .049759
-------------+----------------------------------------------------------------
     sigma_u |  .01335275
     sigma_e |   .0184912
         rho |  .34273176   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

$Y_{it} = \alpha + \beta 1X_{it} + \beta 2X_{it} + \beta 3X_{it} + \beta nX_{it} + \ldots + Є_{it}$ Therefore, the results of the panel data regression test using REM are as follows:

$$Y = 0{,}0318635 - 0{,}0460813X_1 + 0{,}319445X_2 + e$$

- *t-Test Results*

Table 6. t-Test Results

ROA	Coefficient	Std. err.	t	P>|t|
LDR	-.0462798	.0089467	-5.17	0.000
NIM	.4697972	.0993433	4.73	0.000
_cons	.0253065	.0075888	3.33	0.001

The partial effects of the independent variables on the dependent variable are as follows:

a. From the t-test results for the variable LDR (X1), it was found that the calculated t-value is -5.17, which is less than the tabulated t-value of 1.98. The significance value is also 0.000, smaller than the predetermined significance level of 0.05. Therefore, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted. This indicates that the LDR variable has an influence on ROA in banking companies listed on the Indonesia Stock Exchange.

b. b. From the t-test results for the variable NIM (X2), it was found that the calculated t-value is 4.73, which is greater than the tabulated t-value of 1.98. The significance value is also 0.000, smaller than the predetermined significance level of 0.05. Therefore, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted. Thus, it can be concluded that the NIM variable has an influence on ROA in banking companies listed on the Indonesia Stock Exchange.

- *f-Test Results*

Based on table 5, it is known that the Prob > chi2 value is 0.0000, which is lower than 5%. Thus, it can be concluded that at the 95% confidence level (α=5%), the alternative hypothesis (H1) is accepted, or in other words, the independent variables simultaneously affect the dependent variable.

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Table 7. Coefficient of Determination Results for LDR on ROA

Number of obs	=	115
F(1, 113)	=	11.19
Prob > F	=	0.0011
R-squared	=	0.0901
Adj R-squared	=	0.0820
Root MSE	=	.02493

The Coefficient of Determination or R square, reaching 0.0820, equivalent to 8.2%. This indicates that the independent variable LDR has the capacity to explain about 8.2% of the variation in the ROA variable in banking companies listed on the Indonesia Stock Exchange. Meanwhile, approximately 91.8% (100 - the value of Adj R Square) is explained by other factors not included in this research model.

Table 8. Coefficient of Determination Results for NIM on ROA

Number of obs	=	115
F(1, 113)	=	7.25
Prob > F	=	0.0082
R-squared	=	0.0603
Adj R-squared	=	0.0520
Root MSE	=	.02533

The Coefficient of Determination or R square, reaching 0.0520, which is equivalent to 5.2%. This indicates that the independent variable NIM has the capacity to explain about 5.2% of the variation in the ROA variable in banking companies listed on the Indonesia Stock Exchange. The rest, about 94.8% (100 - the value of Adj R Square), is explained by other factors not included in this research model.

Table 9. Coefficient of Determination Results for LDR and NIM on ROA

Number of obs	=	115
F(2, 112)	=	17.83
Prob > F	=	0.0000
R-squared	=	0.2415
Adj R-squared	=	0.2280
Root MSE	=	.02286

The Coefficient of Determination or R square reached 0.2280, which is equivalent to 22.8%. This indicates that the independent variables LDR and NIM have the capacity to explain approximately 22.8% of the variation in the ROA variable in banking companies listed on the Indonesia Stock Exchange. The remainder, about 77.2% (100 - the value of Adj R Square), is explained by other factors not included in this research model.

Based on the results of the panel data regression using the Random Effect Model (REM) method as shown in Table 5, it is known that the coefficient for the Loan to Deposit Ratio (LDR) variable is -0.0460813. This indicates that every 1% increase in the Loan to Deposit Ratio (LDR) variable will result in a decrease of 4.6% in Return on Asset (ROA). This indicates that variable X1 has a negative effect on variable Y. Furthermore, based on the value of Prob>|z|X1 at 0.000, which is smaller than 0.05, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted, indicating that variable X1 has a significant negative effect on variable Y. The Coefficient of Determination, or R square, reaches 0.0820 or equivalent to 8.2%. This indicates that the independent variable LDR has the capacity to explain approximately 8.2% of the variation in the ROA variable in banking companies listed on the Indonesia Stock Exchange. The results of this study indicate that the Loan to Deposit Ratio (LDR) has a negative impact on Return on Asset (ROA).

This means that any increase in the Loan to Deposit Ratio will lead to a decrease in Return on Asset, indicating that the higher the Loan to Deposit Ratio (LDR), the bank's financial condition tends to deteriorate. An increase in the Loan to Deposit Ratio (LDR) suggests that the bank may be facing difficulties in fulfilling obligations to depositors for the credits extended. Furthermore, an increase in the Loan to Deposit Ratio (LDR) also indicates a high level of lending, but not balanced with

adequate returns (non-performing loans), which ultimately leads to the bank experiencing losses or decreased profitability (Khoirunnisa, Rodhiyah, and Saryadi 2016).

Based on the regression results of the Random Effect Model (REM) panel data method, as seen in Table 5, it is known that the coefficient value for the Net Interest Margin (NIM) variable is 0.319445, indicating that every 1% increase in the Net Interest Margin (NIM) variable will be followed by a 31.9% increase in the Return on Asset (ROA). This indicates that X2 has a positive effect on the variable Y. Furthermore, based on the value of Prob>|z|X2, which is 0.005, smaller than 0.05, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted. This means that the variable X2 has a positive and significant effect on the variable Y. The Coefficient of Determination or R square value reaches 0.0520 or equivalent to 5.2%. This indicates that the independent variable NIM has the ability to explain about 5.2% of the variation in the ROA variable in banking companies listed on the Indonesia Stock Exchange. The result of this study is that there is a positive and significant effect of Net Interest Margin (NIM) on Return on Asset (ROA).

The research indicates that the higher the Net Interest Margin (NIM) value, reflecting the bank management's ability to manage income-generating assets to generate net interest income, the Return on Asset (ROA) in conventional banks will also increase. The role of Net Interest Margin (NIM) in evaluating a bank's ability to face interest rate risk is crucial. When interest rates change, it will also affect the bank's interest income and interest expenses. With a high NIM, income from loans will increase, while the level of non-performing loans will decrease, indicating effective management of third-party fundsThe positive influence of Net Interest Margin (NIM) on Return on Asset (ROA) is attributed to NIM's role as an indicator of profitability and a financial ratio that measures the bank management's ability to leverage assets to generate net interest income. A high NIM ratio indicates a high level of interest income from productive assets and demonstrates the bank's effectiveness in managing assets, especially in lending activities. Therefore, this study emphasizes the importance of efficient NIM management for banking institutions to achieve better profitability and to be prepared for interest rate changes (Septiyani, Maryono, and Santosa 2022).

DISCUSSION

Based on the results of the research and discussions presented in the previous section, the following conclusions can be drawn:

1. The Loan to Deposit Ratio (LDR) (X1) significantly has a negative impact on Return on Asset (ROA) (Y) by 8.2%. This indicates that the independent variable LDR has the capacity to explain about 8.2% of the variation in ROA in banking companies listed on the Indonesia Stock Exchange.
2. Net Interest Margin (NIM) (X2) significantly contributes a positive impact on Return on Asset (ROA) (Y) by 5.2%. This indicates that the independent variable NIM has the capacity to explain approximately 5.2% of the variation in ROA in banking companies listed on the Indonesia Stock Exchange.
3. Both Loan to Deposit Ratio (LDR) (X1) and Net Interest Margin (NIM) (X2) simultaneously impact Return On Asset (ROA) (Y) by 22.8%. This indicates that the independent variables LDR and NIM have the capacity to explain approximately 22.8% of the variation in ROA in banking companies listed on the Indonesia Stock Exchange. Meanwhile, the remaining 77.8% is explained by other factors not included in this research model.

Based on the results of the research and discussions presented in the previous sections, the following suggestions can be provided:

1. It is hoped that future researchers can add other variables that may influence Return On Assets (ROA) as independent variables.
2. Banking companies aiming to improve their performance should pay attention to liquidity levels, net interest income, and profits as indicators of effectiveness in generating profits and reducing the amount of non-performing loans, thereby enhancing their performance quality.

3. Companies need to focus their efforts on increasing profit value or earnings to optimize fund utilization and reduce operational costs, thereby creating efficiency and effectiveness in fund utilization.

It is recommended that the study consider extending and increasing the number of sampling periods, thus enlarging the sample size and yielding more accurate research results..

CONCLUSION

The results of this research found that: 1). The financial knowledge variable has a significant positive influence on the financial management behavior of economics students at Muhammadiyah University of Ponorogo. Therefore, increasing financial knowledge has a positive impact on behavior in financial management. 2). The financial attitude variable is positive and significant on the financial management behavior of economics students at Muhammadiyah University of Ponorogo. Therefore, improving financial attitudes has a positive impact on financial management behavior. 3). The financial skill variable has a significant positive influence on the financial management behavior of economics students at Muhammadiyah University of Ponorogo. Therefore, improving financial skills has a positive impact on financial management behavior.

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