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# The Influence Of LDR, ROE, NIM, And BOPO On Changes In Banking Company Profits (Empirical Study On Banking Sector Companies Listed On The Indonesia Stock Exchange (IDX) 2018-2022)

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**ABSTRACT**

The objective of this study is to ascertain and evaluate the impact of the Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM) and Operating Expenses on Operating Income (BOPO) on changes in profits of banking sector companies listed on the Indonesia Stock Exchange (IDX) over the period 2018-2022. This research employs a quantitative approach utilizing secondary data from annual financial reports and audited financial reports of conventional banks sourced from the official website of the Indonesia Stock Exchange (www.idx.co.id). A purposive sampling technique was utilized to select a sample of 135 observations over a five-year research period. The data analysis employed a multiple linear regression analysis technique. The findings of this study indicate that the combined influence of liquidity ratio (LDR), return on equity (ROE), net interest margin (NIM), and cost-to-income ratio (BOPO) has a statistically significant effect on changes in profit. However, while liquidity ratio and return on equity have a significant effect on profit changes, net interest margin and cost-to-income ratio do not.



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## INTRODUCTION

The company is an organization that has certain objectives in conducting its business. The purpose of establishing a company is to make profit or gain by increasing sales, maximizing stock value, and being able to improve the welfare of shareholders. Therefore, it is hoped that the company can compete and survive for a long time. The number of companies that have gone public in the capital market is increasing year by year, companies that go public can be classified into several groups based on the industry of their business, one of which is the banking subsector companies (Widati & Yuliandri, 2020)

The role of banking in driving the domestic / national economy is very large. Because banking plays a role in all economic activities, including the main driving sector of Indonesia's Gross Domestic Product (GDP). This was conveyed by the research director of the Center of Reform on Economics (CORE) Indonesia Piter Abdullah. Speaking from (Hutauruk, 2020), Piter Abdullah explained that the main drivers of the national economy are consumption, investment, and export and import activities. Consumption and investment contribute 80% to the economy. The banking sector plays a role in all economic activities, so it has an important role in economic movement.

According to (Sari, P. A., & Hidayat, 2022), the analysis of financial statements must be done carefully using the right analysis methods and techniques so that the expected results are correct. The most commonly used analytical technique is financial ratio analysis. Financial ratio analysis is the process of comparing the numbers in the financial statements to determine the financial position of a company and to evaluate the performance of management in a given period.

One of these performance measures is profit. Profit is a measure of a company's performance. A company can be said to be performing well if it does not experience losses and experiences a long increase in each period (Natalia, 2017). A graph of decreasing profit indicates a decrease in company performance. Therefore, it is very important for companies to continue to maintain company performance by increasing profits. It is necessary to predict the changes in profits, since the profits earned by the company in the next year are uncertain.

In 2019, quoted from CNBC Indonesia (2019), bank liquidity also experienced tightening caused by the increase in the benchmark interest rate by Bank Indonesia (BI) which inevitably led to intense competition between banks and the government in absorbing public funds. As a result, banks are clamoring to offer low interest rates to "attract" public interest. This has an impact on the depletion of Net Interest Margin (NIM). NIM has a significant impact on bank profitability. The greater the NIM, the greater the bank's profitability. With a larger NIM, bank operations can be declared good and can generate large profits as well. Meanwhile, as of April 2019, the NIM level of conventional commercial banks was at 4.8%, lower than the previous year of 5.07% (Astutik, 2020)

Quoted from Kontan (2020), during the Covid-19 pandemic, bank lending was low due to low credit demand. Coupled with the uncertainty of economic recovery, which has an impact on the decline in banking NIM. As in PT Bank Rakyat Indonesia Tbk (BBRI) which recorded NIM at the level of 5.75%. This value decreased when compared to BBRI's NIM in the previous period, which amounted to 6.81%

The results of previous research on the effect of Return on Equity (ROE) on earnings growth conducted by (Dewi et al., 2022) which shows that the Return on Equity Ratio has a positive and significant effect on earnings growth. Meanwhile, research by Handayani et al. (2021) shows that the Return on Equity Ratio does not have a significant effect on earnings growth. Research on the effect of Net Interest Margin (NIM) on earnings growth includes Nurwita's research (2018) which shows that NIM has a positive and significant effect on earnings growth. Meanwhile, the results of research by (Syafaat, 2021a)show the opposite, namely NIM has no significant effect on profit growth.

Previous research on the effect of Operating Expenses on Operating Income (BOPO) on profit growth includes research by (Fanzhah, R. F. F., Prasetyanto, P. K., & Islami, 2021) which shows that BOPO has a significant effect on profit growth. Conversely, the results of research by Nurwita (2018) show that BOPO has no significant effect on profit growth. Based on these studies, different research results were found. Due to the inconsistency of the results of previous studies, further research needs to be carried out to obtain more accurate research results. This study was conducted with the aim of re-examining several of these financial ratios including LDR, ROE, NIM, and BOPO to changes in profit.

The difference between previous research and this research is that the phenomenon used is related to the effect of financial ratios (LDR, ROE, NIM, and BOPO) which is a factor in changes in profits in banking sector companies, as well as the tendency of banking competition which is getting bigger from year to year. Another difference is that it lies in the research object chosen by the researcher, namely Conventional Banks listed on the IDX during the 2018-2022 period. To analyze whether unstable profit changes in these companies are influenced by financial ratios. Researchers use the variables LDR, ROE, NIM, and BOPO as independent variables, and changes in profit as the dependent variable.

## METHODS

The research methodology employed is quantitative, a method which utilises numerical data and statistical analysis in its investigations. In quantitative research, a population and sample are examined, and predetermined hypotheses are tested (Sugiyono, 2021). The objective of this study is to examine the impact of the Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses on Operating Income (BOPO) on changes in profits in the banking subsector listed on the Indonesia Stock Exchange (IDX) from 2018 through 2022.

The research object used in this study is the Annual Report and Financial Statements (audited) of banking subsector companies listed on the Indonesia Stock Exchange (IDX) with a 5-year observation period, 2018-2022. Independent variables or independent variables, are variables that influence or cause the dependent variable to arise / change (Sugiyono, 2019: 69). In this study, the independent variables are Loan to Deposit Ratio (LDR) (X1), Return on Equity (ROE) (X2), Net Interest Margin (NIM) (X3), and Operating Expenses Operating Income (BOPO) (X4).

### Loan to Deposit Ratio (LDR) (X1)

According to (Khalik, 2018), the Loan to Deposit Ratio is a component of the liquidity ratio that reflects the extent to which the bank has the ability to return funds requested by its customers using loans provided as a source of liquidity. In this study, the LDR variable is measured using a ratio scale and percentage with the following formula, referring to research by Nurwita (2018)

$$LDR = \frac{Total\ loans\ disbursed}{Total\ funds\ raised}\ x\ 100\%$$

### Return on Equity (ROE) (X2)

According to (Damayanti, P. R., Sjahruddin, H., & Sohilauw, 2020), Return on Equity is a component of the profitability ratio used to assess the extent of bank management's ability to manage invested capital to generate net income. In this study, the ROE variable is measured using a ratio scale and percentage with the following formula, referring to Dangnga & Haeruddin (2018: 63):

$$\boldsymbol{ROE} = \frac{\boldsymbol{Net\ Profit\ After\ Tax}}{\boldsymbol{Own\ Capital}}\ \boldsymbol{x}\ \mathbf{100\%}$$

**Net Interest Margin (NIM) (X3)**

According to (Pinasti & Mustikawati, 2018), Net Interest Margin reflects exposure to market risk arising from fluctuations in market variables, which can potentially harm banks. NIM is one way to measure market risk, especially related to interest rates. It is calculated as the difference between funding costs. In this study, the NIM variable is measured using a ratio scale and percentage with the following formula, referring to research by Nurwita (2018):

$$\boldsymbol{NIM} = \frac{\boldsymbol{Net\ Interest\ Income}}{\boldsymbol{Average\ Total\ Earning\ Assets}}\ \boldsymbol{x}\ \mathbf{100\%}$$

**Operating Expenses Operating Income (BOPO) (X4)**

BOPO is the ratio between total operating expenses and total operating income. In this study, the BOPO variable is measured using a ratio scale and percentage with the following formula, referring to research by Nurwita (2018):

$$\boldsymbol{BOPO} = \frac{\boldsymbol{Operating\ Expenses}}{\boldsymbol{Operating\ Income}}\ \boldsymbol{x}\ \mathbf{100\%}$$

The dependent variable used in this study is Change in Profit (Y). According to Carissa (2021), profit change is a percentage change in the company's profit in a certain period compared to the previous period. In this study, the Earnings Change variable is measured using a ratio scale and percentage with the following formula, referring to research by Carissa (2021):

$$\boldsymbol{Profit\ Change} = \frac{[(\boldsymbol{Net\ Profit_t} - \boldsymbol{Net\ Profit_{t-1}})]}{\boldsymbol{Net\ Profit_{t-1}}}\ \boldsymbol{X}\ \mathbf{100\%}$$

The population of this study encompasses all banking subsector companies listed on the Indonesia Stock Exchange (IDX) between 2018 and 2022, amounting to 47 companies in total. The population of interest in this study is comprised of banking sector companies that are listed on the Indonesia Stock Exchange (IDX).

The sampling technique employed in this study is purposive sampling. Purposive sampling is a technique used in sampling by determining certain criteria based on the population (Ardiyanto, T., 2017). The criteria or considerations employed in this study are as follows:

1. Banking companies listed on the Indonesia Stock Exchange during the period from 2018 to 2022.
2. Banking companies that present financial reports for the years 2018-2022.
3. Banking companies that are conventional banks or not Sharia banks.

4. Banking companies that have generated consecutive positive profits during the period from 2018 to 2022.

In this study, data collection used documentation. Documentation is a method used to obtain data and information in the form of books, documents, archives, written numbers and images in the form of reports or information that can support research (Sugiyono, 2021). Documentation in this study, to determine the Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses for Operating Income (BOPO) as well as changes in profits contained in the annual report and audited financial statements of banking sector companies listed on the Indonesia Stock Exchange (IDX) during the period 2018-2022.

Data analysis is an activity carried out after all data has been collected and then grouped by variable, tabulate data based on variables, present data for each variable, then carry out calculations to answer problem formulations, and to test hypotheses that have been proposed (Sugiyono, 2019: 147). The data analysis techniques used in this study are descriptive statistical analysis, classical assumption test (normality test, heteroscedasticity test, multicollinearity test, and autocorrelation test), multiple linear regression analysis, and hypothesis testing (t test), using the help of IBM SPSS version 26 software.

## RESULTS AND DISCUSSION

This study was prepared with the aim of knowing and testing the effect of Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), Operating Expenses on Operating Income (BOPO) on Profit Change. This research was conducted at conventional bank companies listed on the Indonesia Stock Exchange during the 2018-2022 research year.

This study uses secondary data in the form of annual reports and audited financial reports of research sample companies for the 2018-2022 period taken from the official website of the Indonesia Stock Exchange. The population in this study were all banking subsector companies listed on the Indonesia Stock Exchange (IDX) in 2018-2022, namely 47 companies. In addition, the sampling technique used in this study is purposive sampling by determining certain criteria based on the population. From this sampling technique, the amount of data in the study was 27 companies. This data analysis consists of descriptive analysis, classical assumption test, and multiple linear regression test. The three analyses will be described in the following sub-sections:

### Descriptive Data Analysis

Descriptive analysis is an overview or description of variable data seen from the average value (mean), standard deviation, maximum and minimum. Descriptive statistical analysis in this study shows a data description of the Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), Operating Expenses Operating Income (BOPO) and Profit Change variables. The results of descriptive statistical testing can be seen in the following table.

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**Table 1**. Descriptive Statistical Analysis Results

| Descriptive Statistics | | | | | |
|---|---|---|---|---|---|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| LDR | 135 | .12350 | 1.63000 | .8403758 | .24083054 |
| ROE | 135 | .00140 | .23490 | .0883978 | .06423968 |
| NIM | 135 | -.02330 | .11300 | .0478378 | .01651283 |
| BOPO | 135 | .46500 | 1.19430 | .8209341 | .13287439 |
| Perubahan Laba | 135 | -1.08000 | 16.55000 | .3850370 | 1.67673941 |
| LN (Perubahan Laba) | 95 | -4.61 | 2.81 | -1.4054 | 1.46233 |

1. Loan to Deposit Ratio (LDR)
   The results of descriptive statistics for the Loan to Deposit Ratio (LDR) variable of banking companies listed on the IDX in 2018-2022 obtained an average value of 0.8403758 with a standard deviation value of 0.24083054 which ranged from 0.1235 to 1.630.
2. Return on Equity (ROE)
   The results of descriptive statistics for the Return on Equity (ROE) variable of banking companies listed on the IDX in 2018-2022 obtained an average value of 0.088378 with a standard deviation value of 0.06423968 which ranged from 0.0014 to 0.2349.
3. Net Interest Margin (NIM)
   The results of descriptive statistics for the Net Interest Margin (NIM) variable of banking companies listed on the IDX in 2018-2022 obtained an average value of 0.0478378 with a standard deviation value of 0.01651283 which ranged from -0.0233 to 0.1130.
4. Operating Expenses Operating Income (BOPO)
   The results of descriptive statistics for the Operating Expenses of Operating Income (BOPO) variable of banking companies listed on the IDX in 2018-2022 obtained an average value of 0.8209341 with a standard deviation value of 0.13287439 which ranged from 0.465 to 1.1943.
5. Earnings Change
   The results of descriptive statistics for the variable Profit Change of banking companies listed on the IDX in 2018-2022 obtained an average value of 0.350370 with a standard deviation value of 1.67673941 which ranged from -1.08 to 16.50. With the LN_Y (LN Change in Profit) value having an average value of -1.4054 with a standard deviation value of 1.146233 which ranges from -4.61 to 2.81.

The normality test aims to test whether in the regression model, the dependent variable and the independent variable both have a normal distribution or not. A good regression model has a normally distributed residual value. In this study, the normality test used was the Kolmogorov-Smirnov test. The results of the normality test can be found as follows:

**Table 2.** Kolmogorov Smirnov Test

| One-Sample Kolmogorov-Smirnov Test | | |
|---|---|---|
| | | Unstandardized Residual |
| N | | 95 |
| Normal Parameters[a,b] | Mean | .0000000 |

| | | |
|---|---|---|
| | Std. Deviation | 1.17249083 |
| Most Extreme Differences | Absolute | .064 |
| | Positive | .047 |
| | Negative | -.064 |
| Test Statistic | | .064 |
| Asymp. Sig. (2-tailed) | | .200[c,d] |

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Based on table 4.3, it can be seen that the results of the normality test above which uses the Kolmogorov Smirnov test, can be seen that the significance value is 0.200. Because the significance value is greater than 0.05, it can be said that the residual data in the regression model is normally distributed.

The multicollinearity test aims to test whether there is a correlation between independent variables in the regression model. A good regression model should not have a correlation between the independent variables. To determine the presence or absence of multicollinearity is by looking at the tolerance value and VIF (Variance Inflation Factor). The results of multicollinearity testing can be seen in the following table:

**Table 3.** Multicollinearity Test

**Coefficients[a]**

| Model | | Collinearity Statistics | |
|---|---|---|---|
| | | Tolerance | VIF |
| 1 | (Constant) | | |
| | LDR | .932 | 1.072 |
| | ROE | .598 | 1.671 |
| | NIM | .737 | 1.356 |
| | BOPO | .564 | 1.774 |

a. Dependent Variable: LN (Perubahan Laba)

The table above shows the results of multicollinearity testing, where the Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses Operating Income (BOPO) variables have a tolerance value of more than 0.1 and a VIF value smaller than 10. So it can be said that the regression model in this study does not have multicollinearity symptoms.

The autocorrelation test is used to test the linear regression model whether there is a correlation error between confounding errors in the current period (t) and confounding errors in the previous period (t-1). The autocorrelation test can be done using the Durbin Watson test, with the following results:

**Tabel 4.** Autocorrelation Test Results Using the Durbin Watson Test

| Model | Durbin-Watson |
|---|---|
| 1 | 1.846 |

a. Predictors: (Constant), BOPO, LDR, NIM, ROE

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b. Dependent Variable: LN (Perubahan Laba)

The table above shows the results of the autocorrelation test obtained a Durbin-Watson value of 1.846. It is known that the du value at n = 135 and k = 4 is 1.7802, then the 4-du value is 2.2198. Because the Durbin-Watson value is in the range of du and 4-du (du < d < 4 - du), it can be concluded that there is no autocorrelation in the regression model in this study.

The heteroscedacity test aims to test whether in regression there is an inequality of variance from the residuals of one observation to another. If the variance from the residuals of one observation to another is constant, it is called homoskedasitas and if it is different it is called heteroskedasitas. A good regression model is one that is homoskedasitas or does not occur heteroskedasitas. How to test the presence or absence of heteroscedasticity, namely by using the Glejser test.

**Tabel 5**. Heteroscedasticity Results Using the Glejser Test

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | Unstandardized Coefficients | | Standardized Coefficients | | |
| Model | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -.466 | .852 | | -.548 | .585 |
| | LDR | .203 | .315 | .069 | .643 | .522 |
| | ROE | 1.307 | 1.559 | .112 | .838 | .404 |
| | NIM | 8.133 | 5.975 | .163 | 1.361 | .177 |
| | BOPO | .832 | .778 | .147 | 1.070 | .287 |

a. Dependent Variable: ABS_RES

The table above shows the results of the glejser test where it is known that the Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses Operating Income (BOPO) variables have a significance value greater than 0.05. This means that the regression model in this study does not have heteroscedasticity problems.

Regression analysis in this study aims to examine the effect of Loan to Deposit Ratio (LDR), Return on Equity (ROE) (ROE), Net Interest Margin (NIM), Operating Expenses on Operating Income (BOPO) on Profit Change. The results of the regression analysis are as follows:

**Tabel 6**. Regression Analysis Results

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | Unstandardized Coefficients | | Standardized Coefficients | | |
| Model | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 2.339 | 1.390 | | 1.683 | .096 |
| | LDR | -1.829 | .515 | -.311 | -3.553 | .001 |
| | ROE | -12.031 | 2.545 | -.516 | -4.727 | .000 |
| | NIM | -1.671 | 9.751 | -.017 | -.171 | .864 |
| | BOPO | -1.039 | 1.270 | -.092 | -.818 | .415 |

a. Dependent Variable: LN (Perubahan Laba)

From the regression analysis results in Table 6, the following equation can be obtained:

$$LN\_Y = 2,339 - 1,829X1 - 12,031X2 - 1,671X3 - 1,039X4 + \varepsilon$$

The regression equation obtained shows:

1. The constant value of 2.339 indicates that if the independent variables Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses Operating Income (BOPO) are 0 (zero), then the variable Profit Change is worth 2.339.
2. The regression coefficient value of the Loan to Deposit Ratio (LDR) variable is -1.829, which indicates that if the Loan to Deposit Ratio (LDR) increases by one unit, the Earnings Change will also decrease by 1.829.
3. The regression coefficient value of the Return on Equity (ROE) variable is -12.031, which indicates that if Return on Equity (ROE) increases by one unit, then Profit Change will decrease by 12.031.
4. The regression coefficient value of the Net Interest Margin (NIM) variable is -1.671, which indicates that if the Net Interest Margin (NIM) increases by one unit, the Profit Change will decrease by 1.671%.
5. The regression coefficient value of the Operating Expenses of Operating Income (BOPO) variable is obtained at -1.039, which indicates that if the Operating Expenses of Operating Income (BOPO) increases by one unit, the Profit Change will decrease by 1.039.

The F statistical test basically aims to test whether the regression model used is fit or not. The results of the F test can be found as follows:

**Tabel 7**. F Test Results

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 71.785 | 4 | 17.946 | 12.499 | .000[b] |
| | Residual | 129.225 | 90 | 1.436 | | |
| | Total | 201.010 | 94 | | | |

a. Dependent Variable: LN (Perubahan Laba)
b. Predictors: (Constant), BOPO, LDR, NIM, ROE

The table above shows that from the F-test results, the F-count value is 12.499 and the significance value is 0.000. Because the significance is less than 0.05 < α (0.05), it can be said that the regression model in this study is included in the fit category. Or in other words, the independent variables Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses Operating Income (BOPO) simultaneously (together) affect Profit Changes.

The coefficient of determination (R2) aims to measure how far the model's ability to explain variations in the dependent variable. The coefficient of determination is between zero and one. A small R2 value means that the ability of the independent variables to explain the variation in the dependent variable is very limited. The results of the coefficient of determination test can be found as follows:

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**Tabel 8**. Test Results of the Coefficient of Determination (R2)

**Model Summary**[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .598[a] | .357 | .329 | 1.19826 |

a. Predictors: (Constant), BOPO, LDR, NIM, ROE
b. Dependent Variable: LN (Perubahan Laba)

Based on the results of the detemination coefficient test for the regression model presented in Table 4.9, the R Square value is 0.357. This shows that the Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses on Operating Income (BOPO) variables are able to explain the variation in the Profit Change variable by 35.7%, while the remaining 64.3% is influenced by other variables not examined in this study.

The T statistical test is generally used to determine the effect of each independent variable Loan to Deposit Ratio (LDR), Return on Equity (ROE), Net Interest Margin (NIM), and Operating Expenses on Operating Income (BOPO) on the dependent variable Profit Change. The T-test results can be found as follows:

**Tabel 9**. T Test Result

**Coefficients**[a]

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 2.339 | 1.390 | | 1.683 | .096 |
| | LDR | -1.829 | .515 | -.311 | -3.553 | .001 |
| | ROE | -12.031 | 2.545 | -.516 | -4.727 | .000 |
| | NIM | -1.671 | 9.751 | -.017 | -.171 | .864 |
| | BOPO | -1.039 | 1.270 | -.092 | -.818 | .415 |

a. Dependent Variable: LN (Perubahan Laba)

a. Hypothesis Testing 1 (H1)
Based on the results of the T test to determine the effect of Loan to Deposit Ratio (LDR) on Profit Changes presented in table 4.10, the calculated T value is -3.553 and the significance value is 0.001. Because the significance value of 0.001 < α (0.05), it can be concluded that there is an effect of Loan to Deposit Ratio on Profit Changes of banking companies listed on the IDX in 2018-2022, so hypothesis 1 (H1) is accepted.

b. Hypothesis Testing 2 (H2)
Based on the results of the T test to determine the effect of Return on Equity (ROE) on Earnings Changes presented in table 4.10, the calculated T value is -4,727 and the significance value is 0.000. Because the significance value of 0.000 < α (0.05), it can be concluded that there is an effect of Return on Equity on the Earnings Change of banking companies listed on the IDX in 2018-2022, so hypothesis 2 (H2) is accepted.

c. Hypothesis Testing 3 (H3)

Based on the results of the T test to determine the effect of Net Interest Margin (NIM) on Profit Change presented in table 4.10, the calculated T value is -0.171 and the significance value is 0.864. Because the significance value of 0.864> α (0.05), it can be concluded that there is no effect of Net Interest Margin on the Profit Change of banking companies listed on the IDX in 2018-2022, so hypothesis 3 (H3) is rejected.

d. Hypothesis Testing 4 (H4)

Based on the results of the T test to determine the effect of Operating Expenses on Operating Income (BOPO) on Profit Changes presented in table 4.10, the calculated T value is -0.818 and the significance value is 0.415. Because the significance value of 0.415> α (0.05), it can be concluded that there is no effect of Operating Expenses on Operating Income (BOPO) on Profit Changes of banking companies listed on the IDX in 2018-2022, so hypothesis 4 (H4) is rejected.

The results of the hypothesis testing presented in Table 4.10 indicate that the Loan to Deposit Ratio (LDR) variable has a significant effect on Profit Change. This supports the acceptance of the first hypothesis (H1). The LDR is defined as the percentage of third party funds that can be channeled in the form of lending. A higher LDR results in greater loan interest income, which in turn leads to a greater change in profit. This is consistent with the principles of signal theory, which posits that an entity (the "signal giver") can influence the behavior of another entity (the "signal receiver") through the use of signals. In the context of banking, these signals are cues provided by banking companies (the "signalers") to convey a meaning or message, with the expectation that investors (the "signal receivers") will alter their assessment of the company.

The results of this study are in accordance with the findings of (Puspa, 2019), (Nurwita., 2018), and (Geriadi & Astawa, 2022), which state that the Loan to Deposit Ratio (LDR) has an influence on profitability. The Loan to Deposit Ratio (LDR) is one of the indicators used to assess a financial institution's performance. It is a liquidity ratio that measures the proportion of credit extended to third parties relative to the total amount of third-party funds. In practice, it is commonly used to measure the extent to which third-party funds are channeled in the form of credit. This is because lending is the primary activity of a bank, and therefore the main source of income for the institution. The maximum Loan to Deposit Ratio (LDR) permitted by Bank Indonesia is 110% (Nurwita., 2018). The findings of this study diverge from those of (Fitriyah & Wardani, 2022), (Hermanto, B., Rahayu, S., 2018), and (Fanzhah, R. F. F., Prasetyanto, P. K., & Islami, 2021), who posit that the Loan to Deposit Ratio (LDR) has no impact on changes in profit.

**The Effect of Return on Equity (ROE) on Earnings Changes**

The results of the hypothesis test presented in Table 4.10 indicate that the Return on Equity (ROE) variable has a significant effect on Profit Change. This supports the second hypothesis (H2), which states that the ROE has a positive effect on the company's ability to generate profits for shareholders. The higher the ROE, the greater the profit earned by shareholders. This is consistent with the principles of signal theory, which posits that an entity, the "signal giver," takes action to influence the behavior of another entity, the "signal

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receiver." The greater the profit earned by shareholders, the greater the shareholders' trust in the company and the potential to obtain additional capital.

The results of this study are in accordance with the findings in the research of (Fatimah, S., Obaita, S. W., & Sulistiyo, 2023), (Lestari, D. P., & Sulastri, 2021), and (Rahmawati, 2020), which state that ROE affects the amount of profit growth. Return on equity (ROE) is a financial ratio that measures the level of profitability of a company by comparing net income with shareholders' equity. The inverse relationship between ROE and profit changes can be attributed to a number of factors, one of which is risk. Banking is often characterised by a complex relationship with risk. When ROE increases, it may be due to the utilisation of higher leverage (debt financing) to enhance profits. However, a high level of leverage can also give rise to financial risks, such as credit risk or market risk. Should these risks materialize, the company's profits will be negatively affected (Fatimah, S., Obaita, S. W., & Sulistiyo, 2023). The findings of this study diverge from those of (Hastuti et al., 2022), (Handayani, F., Hakim, M. Z., & Abbas, 2021), and (Larasati, A. A., Handri, & Sevriana, 2021), which posit that changes in earnings are not influenced by ROE.

The results of the hypothesis testing presented in Table 4.10 indicate that the Loan to Deposit Ratio (LDR) variable has a significant effect on Profit Change. This supports the acceptance of the first hypothesis (H1). The LDR is defined as the percentage of third party funds that can be channeled in the form of lending. A higher LDR results in greater loan interest income, which in turn leads to a greater change in profit. This is consistent with the principles of signal theory, which posits that an entity (the "signal giver") can influence the behavior of another entity (the "signal receiver") through the use of signals. In the context of banking, these signals are cues provided by banking companies (the "signalers") to convey a meaning or message, with the expectation that investors (the "signal receivers") will alter their assessment of the company.

The results of this study are in accordance with the findings of (Puspa, 2019), (Nurwita., 2018), and (Geriadi & Astawa, 2022), which state that the Loan to Deposit Ratio (LDR) has an influence on profitability. The Loan to Deposit Ratio (LDR) is one of the indicators used to assess a financial institution's performance. It is a liquidity ratio that measures the proportion of credit extended to third parties relative to the total amount of third-party funds. In practice, it is commonly used to measure the extent to which third-party funds are channeled in the form of credit. This is because lending is the primary activity of a bank, and therefore the main source of income for the institution. The maximum Loan to Deposit Ratio (LDR) permitted by Bank Indonesia is 110% (Nurwita., 2018). The findings of this study diverge from those of (Fitriyah & Wardani, 2022), (Hermanto, B., Rahayu, S., 2018), and (Fanzhah, R. F. F., Prasetyanto, P. K., & Islami, 2021),, who posit that the Loan to Deposit Ratio (LDR) has no impact on changes in profit.

**The Effect of Return on Equity (ROE) on Earnings Changes**

The results of the hypothesis test presented in Table 4.10 indicate that the Return on Equity (ROE) variable has a significant effect on Profit Change. This supports the second hypothesis (H2), which states that the ROE has a positive effect on the company's ability to generate profits for shareholders. The higher the ROE, the greater the profit earned by shareholders. This is consistent with the principles of signal theory, which posits that an entity, the "signal giver," takes action to influence the behavior of another entity, the "signal receiver." The greater the profit earned by shareholders, the greater the shareholders' trust in the company and the potential to obtain additional capital.

The results of this study are in accordance with the findings in the research of of (Fatimah, S., Obaita, S. W., & Sulistiyo, 2023), (Lestari, D. P., & Sulastri, 2021), and (Rahmawati, 2020), which state that ROE affects the amount of profit growth. Return on equity (ROE) is a financial ratio that measures the level of profitability of a company by comparing net income with shareholders' equity. The inverse relationship between ROE and profit changes can be attributed to a number of factors, one of which is risk. Banking is often characterised by a complex relationship with risk. When ROE increases, it may be due to the utilisation of higher leverage (debt financing) to enhance profits. However, a high level of leverage can also give rise to financial risks, such as credit risk or market risk. Should these risks materialize, the company's profits will be negatively affected (Fatimah, S., Obaita, S. W., & Sulistiyo, 2023) The findings of this study diverge from those of (Hastuti et al., 2022), (Handayani, F., Hakim, M. Z., & Abbas, 2021), and (Larasati, A. A., Handri, & Sevriana, 2021), which posit that changes in earnings are not influenced by ROE.

Based on the research results through hypothesis testing presented in table 4.10, it shows that the Operating Expenses of Operating Income (BOPO) variable does not have a significant effect on Profit Change, which means that the fourth hypothesis (H4) is rejected. Operating Expenses Operating Income (BOPO) is the ratio of the ratio between Operating Expenses and Operating Income, the lower the level of the BOPO ratio, the better the bank's management performance, because it is more efficient in using existing resources in the company. The BOPO ratio is an indicator of bank efficiency in managing every banking operational activation. When linked to agency theory by (Jensen & Meckling, 1976), it is possible for agency conflicts to occur between shareholders as budget implementers and management as supervisors of budget implementers. Conflicts from this agency theory arise because individuals prioritize their own interests. Meanwhile, in this study the reason why BOPO has no significant effect on profit growth is that BOPO is a ratio of operating costs to operating income.

The results of this study are in line with the results of research from (Syafaat, 2021b), (Ginting, 2019)), and (Hermanto, B., Rahayu, S., 2018) which state that it has no effect on profit growth. The main reason why BOPO has no effect on profit changes is because BOPO is a ratio of operating costs to operating income. BOPO is also used to measure the level of efficiency and ability of banks in carrying out their operations. To increase BOPO, banks must be able to reduce operating expenses. In addition, the potential to obtain operating income must be optimized. The overall costs that must be borne by the bank will affect how much the bank must increase the operating income margin against its operating expenses. The smaller this ratio, the more efficient the operating costs incurred by the bank (Syafaat, 2021). These results are not in line with research by (Fanzhah, R. F. F., Prasetyanto, P. K., & Islami, 2021), (Puspa, 2019) which state that Operating Expenses Operating Income (BOPO) has a significant effect on changes in profit.

This study has limitations and implications, namely not discriminating between large banking companies and small banking companies. Because if a large banking company certainly has resources and has many assets, which illustrates that the financial performance of large banking companies has increased well every year. However, if a small banking company does not have many assets, it has an impact on the results of its financial performance which is not too high compared to large banking companies.

## CONCLUSION

Based on the findings of the testing and discussions regarding the impact of loan-to-deposit ratio (LDR), return on equity (ROE), net interest margin (NIM), and operating expenses on operating income (BOPO) on profit changes, we can conclude that LDR has a negative and statistically significant effect on the changes in profit for banking companies that are publicly traded on the Indonesia Stock Exchange between 2018 and 2022. The results of the study indicate that Return on Equity (ROE) has a negative and significant effect on the profit changes of banking companies listed on the IDX in 2018-2022. Conversely, Net Interest Margin (NIM) has a negative and insignificant effect on the profit changes of banking companies listed on the IDX in 2018-2022. The ratio of operating expenses to operating income (BOPO) has a negative and statistically insignificant effect on the profit changes of banking companies listed on the IDX in the period between 2018 and 2022.

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