



DETERMINANT ANALYSIS OF PROFITABILITY OF CONVENTIONAL COMMERCIAL BANKS LISTED ON THE INDONESIA STOCK EXCHANGE

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This study aims to determine the factors that determine the profitability of conventional commercial banks listed on the Indonesia Stock Exchange in the 2016-2020 period. Profitability in this study was measured using 2 (two) proxies, namely Return on Assets (ROA) and Return on Equity (ROE). The method used in this study uses quantitative methods with data obtained from financial statements issued by each bank, or the official website of the Indonesia Stock Exchange and the Financial Services Authority. The population in this study were all conventional commercial banks listed on the Indonesia Stock Exchange. This study uses a purposive sampling technique with predetermined criteria. There are 40 conventional commercial banks that are included in the sample criteria. The results of this study indicate that there is a significant effect of loan to asset, operating expenses on operating income (BOPO), labor costs to income, non-performing loans. (NPL), Capital Adequacy Ratio (CAR), while bank size, security specialization, and deposit specialization have no significant effect on ROA. Variables Bank size, BOPO, labor cost to income have a significant effect on ROE, while loan to assets, security specialization, deposit specialization, NPL, and CAR have no significant effect on ROE.

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1. Introduction

The banking sector plays a very important role in the economy of a country. The main activity of the banking industry is to raise funds to be re-channeled. Banks can be defined as financial institutions that carry out the role of financial intermediaries and support the smooth running of the payment system and as institutions that carry out government policies, namely monetary policy (Purnamawati, 2014). A good and efficient bank intermediation will advance economic growth and stability, and conversely, the economic crisis is caused due to bank insolvency. Therefore, banks as financial intermediary institutions that have a role in financial stability and monetary policy, a healthy, transparent, and accountable banking system is needed (Hendrawan, 2017).

Many changes have been experienced by the banking world in Indonesia from time to time, where the causative factors can come from internal and external (Sadiyah, 2019). In fact, many banking sectors have been frozen or forced to close due to poor operational management. This certainly has a lot of impact. It is the impact caused by the failure of the banking industry that gives rise to the need to conduct a series of financial analyses in such a way that the risk of failure in a bank can be detected as early as possible. Difficult economic conditions, intense competition, and rapid regulatory changes that have an impact on market competition can cause low banking performance, causing many banks to be lacking or unhealthy. To



assess whether a bank is healthy or not in terms of finances can be observed based on its profitability performance (Priatna, 2016).

According to Adyani (2011), a bank's financial performance is defined as a picture of the bank's financial condition in a period including aspects of raising funds and distributing funds. Achieving the maximum level of profitability is the main goal of the bank, where profitability is the bank's ability to make profits effectively and efficiently. Given the important role of the banking industry, therefore it is necessary to assess the performance of banks to see whether the bank has performed well or not. The assessment is used to determine the level of profitability generated by the bank.

Based on the explanation above, it can be seen that the role of banking is currently very dominant in the financial system, so that good understanding and management of banks will certainly encourage a good financial system as well (Sudiyatno, 2013). Moreover, our understanding is enriched by various presentations on managing financial ratios, health levels, and adequate performance evaluations. This study examines internal factors that affect the profitability performance of banks. These factors are *bank size*, *loan to asset*, *security specialization*, *deposit specialization*, Operating Expenses to Operating Income (BOPO), *labor cost to income*, *Non-performing Loan (NPL)*, and *capital adequacy ratio (CAR)*.

Profitability is a measure of a company's ability to seek profit. According to Sabir (2012), profitability is part of the company's performance expected by shareholders in the activities carried out. Profit or profit is often also compared with other financial conditions, such as assets, sales, and also capital/equity (Sofie, 2015). The assessment of the profitability of banks can be seen from the profitability ratio. The profitability ratios used in this study are *Return on Asset (ROA)* and *Return on Equity (ROE)*.

ROA is used to assess the company's ability to make a profit with the total assets owned (Cashmere, 2016). ROA is the most important ratio among other profitability ratios. The level of profitability using the ROA approach aims to measure the ability of bank management in empowering the assets it controls to achieve income (Horne & Wachowicz, 2013).

ROE is an important ratio that investors see if they want to invest. This ratio is a measure of the company's potential in reaping profits by using its capital. The higher the ROE, the better, this indicates the stronger the position of the owner of the company (Gitman & Zutter, 2012). ROE is the ratio of return on equity, which is the net profit of the shareholders divided by the total equity (Brigham & Houston, 2011).

The Relationship of *Bank size* to Profitability

Bank size is one of the measurement scales that shows the size of a bank. The size of the bank can be seen from the number of assets of the bank. The size of the bank has an influence on the bank's ability to bear the risks that may arise due to various conditions that will be faced in banking activities. Large banks have a higher attractiveness in the eyes of consumers, besides that large banks will also be easier to enter the capital market, so the risk of bankruptcy is lower (Ardiana & Chabachib, 2018). Thus it will have an effect on the level of profitability of the bank.

Previous research conducted by Lipunga (2014), Rahman and Khan (2015), Knutsen (2019), and Ranaswijaya (2019) found a significant positive influence between *bank size* and profitability.

H_1 : *Bank size has a significant positive effect on banking profitability.*

The Relationship of *Loan to Asset Ratio* to Profitability

According to Cashmere in Sanger *et al.*, (2016), *loan to asset ratio (LAR)* is a ratio to measure a bank's ability to meet credit demand by the number of assets owned. The higher *the loan to asset ratio (LAR)* means that the level of credit performance is better because the credit component is greater in the asset structure owned by the bank. The credit/loan provided will generate interest income for the bank. Thus, *the loan to asset ratio (LAR)* can increase banking profitability. Research of Zeuspita and Yadnya (2019), Yuniari and Badjra (2019), Parvin *et al.* (2019), Wijayanti (2020), Syaifuddin *et al.* (2018), and Miadalyni (2013) found that *loan to asset* has a significant positive influence on profitability.

H_2 : *Loan to asset ratio has a significant positive effect on banking profitability.*

The Relationship of *Security Specialization* to Profitability

Security specialization is a ratio to measure the number of placements of other productive assets from the total assets owned. Other productive assets in question are those set aside in the form of other plantings besides credit, namely securities. Other productive assets in the form of *securities* will generate *returns* for banks so as to increase bank profitability. Munthalib's research (2016) on the effect of securities on bank



profitability shows a significant positive influence between *security specialization* and profitability because securities are a form of investment, securities whose management is good will contribute to the bank. Similar results were also found in the research of Fernanda (2016), Rekik and Kalai (2018), Novita (2021) which showed a positive relationship between *security specialization* and bank profitability.

H₃: Security specialization has a significant positive effect on banking profitability.

The Relationship of Deposit Specialization to Profitability

Deposit specialization is a ratio to measure the total customer deposits to the total bank obligations. *Deposits* are an important source of funds for the sustainability of banking activities. With adequate *deposits*/third party funds, it also supports the development of the banking business to be re-channeled in the form of providing credit that will generate returns for the bank.

Menicucci and Paolucci (2016) in their research revealed that *deposits from customers* have a positive effect on banking profitability because when the amount of third-party funds is channeled to credit, the potential for banks to generate profits will also increase due to the income from these loans. The results of this study are also in line with the research of Wiagustini (2014), Suputra (2015), Sari (2015), Setiawan (2016), Salim (2017), Agustina (2018), and Rekik and Kalai (2018) which stated that *deposits specialization* have a positive influence on banking profitability.

H₄: Deposit specialization has a significant positive effect on banking profitability.

Relationship of Operating Expenses to Operating Income (BOPO) to Profitability

BOPO is a ratio to measure the effectiveness and efficiency of banking operations. The purpose of this ratio is to measure the ability to cover operating costs using the bank's operating income. The smaller the BOPO ratio means that the better the bank's performance, because the resources owned by the bank are used efficiently. And vice versa, if the bopo ratio is greater, it means that the bank's performance is inefficient (Zulifiah & Susilowibowo, 2014). The more efficient a bank is, the better its profitability level will be.

Hakiim (2018) focuses on examining the influence of internal factors on increasing profitability with a sample of research taken, namely Islamic banks in Indonesia stating the results that BOPO has a negative and significant effect on profitability, where the lower the BOPO, the more efficient the bank's operational activities, in other words, low operating costs will increase bank profitability. The results of research by Dewi (2015), Sofyan (2019), Hanifa (2019), Pratiwi and Wiagustini (2015) also stated that the BOPO ratio has a negative and significant influence on profitability.

H₅: BOPO has a significant negative effect on banking profitability.

The Relationship between Labor Cost to Income and Profitability

Labor Cost to Income Ratio is a ratio to measure labor / HR costs incurred by the company using existing income. This ratio describes the level of labor efficiency, the smaller this ratio will be, it will allow the bank to achieve a higher level of profitability. Rekik and Kalai (2018) who examined the determinants of profitability and efficiency of banks in 14 (fourteen) countries found a negative influence between *labor cost to income* and profitability. In his research, he revealed that if there is an increase in labor costs, it will result in a decrease in the level of profitability because the costs incurred by the company become greater. Similar results were also found in maulida's study (2019).

H₆: Labor cost to income has a significant negative effect on banking profitability.

The Relationship of Non-performing Loans (NPLs) to Profitability

NPL is a ratio that indicates credit risk. The higher the risk of non-performing loans, the more potential for a decrease in the profit/profit of a bank. The main source of bank income comes from interest on loans that have been disbursed, so that if there is a risk of non-performing loans, it will be a loss for the bank in its operational activities. The NPL ratio reflects the poor level of credit quality. The situation causes costs to arise and makes the bank's output not optimal, resulting in a decrease in bank profitability (Jasman, 2018). Research by Wahab (2015), Ahmad (2015), Warsa and Mustanda (2016), Holly Najooan (2016), Saraswati (2017), Dewi (2017), Kwee Kim Peong (2018), and Hanifa (2019) who both examined factors affecting banking profitability with the results of the study found that the NPL ratio had a significant negative effect to profitability.

H₇: Non-performing loans have a significant negative effect on banking profitability.

The Relationship of *Capital Adequacy Ratio (CAR)* to Profitability

CAR is a ratio that measures a bank's capital ability to cover possible risks. The higher the CAR of a bank, the stronger the bank's ability to bear/absorb risks from each asset owned. Considerable capital can be managed again for optimal lending, so that the bank will get profits that will increase profits and will eventually increase the bank's profitability (Trianto, 2019).

Datta's research (2019) on the effect of *capital adequacy* on the profitability of banks in Bangladesh suggests that there is a significant positive influence between *capital adequacy ratio (CAR)* and profitability because strong capital is able to fight the instability of the country's financial condition, banks that have sufficient capital get more better future prospects that will encourage businesses to move forward. This result is supported by research conducted by Kholis (2016), Warsa and Mustanda (2016), Hasanov *et al.* (2018), Liviawati and Putri (2019), Knutsen (2019) who stated that *the capital adequacy ratio* has a positive and significant effect on profitability.

H_3 : *Capital adequacy ratio* has a significant positive effect on banking profitability.

RESEARCH METHODS

This research is a type of quantitative research, namely research that emphasizes more on testing theories through measuring research variables using numbers and conducting data analysis with statistical procedures (Indriantoro & Supomo, 2014). This study is also causal associative, namely research that aims to determine the relationship (correlation) of causation between two or more variables, namely independent variables to dependent variables (Sugiyono, 2016).

The data sources to be processed in this study were obtained indirectly or commonly referred to as secondary data (Indriantoro & Supomo, 2014). Data is collected through financial statements published on the official website of the IDX (www.idx.co.id), the official website of the OJK (www.ojk.go.id), as well as the official website of the bank which is used as a research sample. The data analysis method used in this study is to use panel data regression analysis to test the influences of independent variables on dependent variables.

Researchers use the financial statements of conventional commercial banks listed on the Indonesia Stock Exchange (IDX) as a population. The financial statements sampled in this study were only from 2016 to 2020. The sampling criteria in this study were:

1. Conventional commercial banks that have been listed on the Indonesia Stock Exchange in 2016-2020.
2. Conventional commercial banks with complete annual financial reports successively during the research period, starting from 2016-2020 which can be accessed by the public through their respective bank *websites*, *IDX websites*, or *OJK websites*.

Conventional commercial banks that issue audited annual financial statements and provide the data needed to measure research variables consecutively during the period 2016-2020. The operational definition of the variable can be seen in the following details:

1. Profitability

Profitability is a measure of a company's ability to seek profit. According to Sabir *et al.*, (2012), profitability is part of the company's performance that shareholders want in the business being run. To measure the profitability of banking can be used profitability ratio. The profitability ratio used in this study is ROA and ROE. The calculation of roa and roe of banks is formulated as follows:

$$\text{Return on Assets (ROA)} = \frac{\text{Profit before tax}}{\text{Average total assets}}$$

$$\text{Return on Equity (ROE)} = \frac{\text{Profit after tax}}{\text{Average equity}}$$

2. *Bank size*

Bank size is one of the measurement scales that shows the size of a bank. The size of the bank is proxied by the total assets owned. The following is the equation of *the bank size* variable:

$$\text{Bank size} = \text{Natural Logarithm of Total Assets}$$

3. *Loan to Asset Ratio (LAR)*

According to Cashmere in Sanger *et al.*, (2016), *Loan to Asset (LAR)* is a ratio to assess how much credit is disbursed using assets owned by a bank. The larger the LAR means the level of credit performance



is better because the credit component is getting bigger in the asset structure owned by the bank. LAR is formulated as follows:

$$\text{Loan to Asset} = \frac{\text{Amount of credit}}{\text{Amount of Assets}}$$

4. *Security Specialization*

Security specialization is a ratio to measure the number of placements of other productive assets from the total assets owned. Other productive assets referred to in this research are those set aside in the form of securities. *Security specialization* is formulated as follows:

$$\text{Security Specialization} = \frac{\text{Securities}}{\text{Amount of Assets}}$$

5. *Deposit specialization*

Deposit specialization is the ratio between the customer's total deposits divided by the total liabilities. *Deposits* are an important source of funds for the sustainability of banking activities. With adequate *deposits*, it will support the development of the banking business. *The deposit specialization* is formulated as follows:

$$\text{Specialization deposit} = \frac{\text{Third Party Funds}}{\text{Number of Liabilities}}$$

6. Operating Expenses to Operating Income (BOPO)

BOPO is a ratio to assess the efficiency and effectiveness of banking operations. The purpose of this ratio is to measure the ability to cover operating costs using the operating income owned. The lower this ratio means that the better the performance of the bank, because the resources owned by the bank are used efficiently. And vice versa, if the bopo ratio is greater, it means that the bank's performance is inefficient (Zulifah & Susilowibowo, 2014). BOPO is formulated as follows:

$$\text{BOPO} = \frac{\text{Operating Expenses}}{\text{Operating Income}}$$

7. *Labor Cost to Income*

Labor Cost to Income is a ratio to measure labor / HR costs incurred by the company using the income generated. This ratio describes the level of labor efficiency, the lower this ratio, the better the performance of the bank, and vice versa. The LCI is formulated as follows:

$$\text{Labor Cost to Income} = \frac{\text{Labor Cost}}{\text{Gross Income}}$$

8. *Non-performing Loan (NPL)*

NPL is a ratio that signifies credit risk. The higher the risk of non-performing loans, the more potential for a decrease in the profit/profit of a bank. The bank's main income is sourced from interest on loans that have been disbursed, so that if there is a risk of non-performing loans, it will be a loss for the bank in its operational activities. Conversely, the bank's profitability will be higher if the level of credit risk is low. The NPL is formulated as follows:

$$\text{Non-performing Loans} = \frac{\text{Non-Performing Loans}}{\text{Total Credits}}$$

9. *Capital Adequacy Ratio (CAR)*

CAR is a ratio that measures a bank's capital ability to cover risks that are likely to occur. The higher the CAR of a bank, the stronger the bank is to absorb risk from each asset owned. CAR is formulated as follows:

$$\text{Capital Adequacy Ratio (CAR)} = \frac{\text{Capital}}{\text{Risk-Weighted Assets}}$$

RESULTS AND DISCUSSION

1. Descriptive Statistics

The type of data in this study is in the form of panel data, which is a combination of time series data using data for 5 years, namely the 2016-2020 period and cross-section data including Conventional Commercial Banks Listed on the Indonesia Stock Exchange in Indonesia, namely companies that are research samples of 40 companies.

Table 1 Descriptive Statistical Test Results

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ROA	200	-15,89000	4,020000	0,586747	2,613628
ROE	200	-89,03000	23,08000	2,013098	17,33953
Bank size	200	13,40705	21,07518	17,37693	1,804327
Loan to Asset	200	0,215581	0,869452	0,615279	0,101473
Security Specialization	200	0,000000	0,409940	0,117803	0,068906
Deposit specialization	200	0,552754	0,990456	0,873515	0,090434
BOPO	200	0,864820	261,1000	94,10400	30,14815
Labor Cost to Income	200	-10,31370	57,48348	2,057187	5,181512
NPL	200	0,000000	22,27000	3,619571	2,706490
CAR	200	0,236800	148,2800	23,53172	13,41197

From table 1 above, it can be seen the minimum, maximum, average values (*mean*), and standard deviations in the conventional commercial bank data sample in this study, where the number of sample data used was as many as 200 data. The ROA variable observed during the research period, namely the 5 (five) year period, can be seen that the maximum ROA value of 4.020000 owned by Bank BCA in 2019 and the minimum value of -15.89000 owned by Bank Artos Indonesia in 2019. Meanwhile, the average value of 0.586747 shows that the average bank in Indonesia has a good performance and maximizes the assets it has to generate profits for the company and meets SE BI No.6/23/DPNP dated May 31, 2004 which sets a minimum standard of 0.5%. The standard deviation value is 2.613628, from these results it can be seen that the average value is smaller than the standard deviation, this shows that the data in this study are varied or heterogeneous.

The ROE variable observed during the research period, namely the 5 (five) year period, it can be seen that the maximum ROE value of 23.08000 was owned by Bank Rakyat Indonesia in 2016 and the minimum of -89.03000 was owned by Bank Artos Indonesia in 2019. Meanwhile, the *mean* of 2.013098 is still below the BI standard (at least 5%), which shows that investment management efforts made by the company have proven to be less effective in generating profits. The standard deviation value of 17.33953, from these results it can be seen that the average value is smaller than the standard deviation, this shows that the data in this study varies.

Based on the descriptive test of *bank size* data during the research period, it can be seen that the maximum *bank size* value of 21.07518 was owned by Bank Rakyat Indonesia in 2020 and the minimum of 13.40705 was owned by Bank Artos Indonesia in 2018. While the *mean* (average) is 17.37693 with a standard deviation of 1.804327, from these results it can be seen that the average value is greater than the standard deviation, this shows that the data in this study are not varied or homogeneous.

The results of the descriptive test of LAR data during the research period can be seen that the maximum value of 0.869452 was owned by Bank Yudha Bakti in 2018 and the minimum value of 0.215581 was owned by Bank Artos Indonesia in 2019. While the *mean* (average) is 0.615279 with a standard deviation of 0.101473, from these results it can be seen that the average value is greater than the standard deviation, this shows that the data in this study are not varied or homogeneous.

The results of the descriptive test of *the security specialization* data during the research period showed a maximum value of 0.409940 owned by Bank Mestika Dharma in 2020 and a minimum value of 0.000000 owned by Bank Maspion Indonesia in 2018. While the *mean* (average) is 0.117803 with a standard deviation of 0.068906, from these results it can be seen that the average value is greater than the standard deviation, this shows that the data in this study are not varied or homogeneous.

The descriptive test results of *the deposit specialization* data during the research period can be seen in the maximum *specialization deposit* value of 0.990456 owned by Bank Capital Indonesia in 2017 and the minimum value of 0.552754 owned by Bank BTPN in 2019. While the *mean* (average) is 0.873515 with a standard deviation of 0.090434, from these results it can be seen that the average value is greater than the standard deviation, this shows that the data in this study are not varied or homogeneous.

The results of the descriptive test of BOPO data during the research period can be seen that the maximum BOPO value of 261.1000 was owned by Bank Artos Indonesia in 2020 and the minimum of 0.864820 was owned by Bank Rakyat Indonesia Agroniaga in 2017. Meanwhile, the *mean* (average) of 94.10400 meets the BI standard of a maximum of 96% as stated in BI SE No.6/23/DPNP dated May 31,



2004. This shows that the average bank in Indonesia has a fairly good level of efficiency. The standard deviation value of 30.14815 indicates that the data in this study were not varied or homogeneous.

The results of the descriptive test of LCI data during the research period can be seen that the maximum LCI value of 57.48348 was owned by QNB Indonesia in 2019 and the minimum value of -10.31370 was owned by Bank IBK Indonesia in 2017. While the *mean* (average) is 2.057187 with a standard deviation of 5.181512, from these results it can be seen that the average value is smaller than the standard deviation, this shows that the data in this study is varied or heterogeneous.

The results of the descriptive test of NPL data during the research period can be seen that the maximum value of 22.27000 was owned by the Banten Regional Development Bank in 2020 and the minimum value of 0.000000 was owned by Bank Nasional Nobu in 2016. The *mean* value (average) of 3.619571 shows that the average bank in Indonesia has a relatively low number of non-performing loans, so it can be said to have good performance because based on BI regulations, the maximum limit for NPL ratio is 5% of the total loans provided. The standard deviation value of 2.706490, from these results it can be seen that the average value is greater than the standard deviation, this shows that the data in this study are not varied or homogeneous.

The descriptive test results of CAR data during the research period showed a maximum value of 148.2800 owned by Bank Artos Indonesia in 2019 and a minimum of 0.236800 owned by Bank Rakyat Indonesia Agroniaga in 2016. Meanwhile, the *mean* of 23.53172 is above the standard set by BI, which is 8%, so it can be seen that the average bank in Indonesia has a strong capital component. The standard deviation value of 13.41197 is smaller than the average value, this shows that the data in this study are not varied or homogeneous.

2. Multicholinerity Test

Table 2 Multicholinerity Test Results

	SIZE	LAR	SS	DS	BOPO	LCI	NPL	CAR
SIZE	1,000000	0,146457	0,255981	-0,276037	-0,202563	-0,304519	-0,111630	-0,183396
LAR	0,146457	1,000000	-0,252475	-0,148863	-0,157005	-0,076757	0,067300	-0,283147
SS	0,255981	-0,252475	1,000000	0,155755	-0,060066	-0,178159	0,096765	0,010932
DS	-0,276037	-0,148863	0,155755	1,000000	-0,089384	0,182501	-0,034789	0,029747
BOPO	-0,202563	-0,157005	-0,060066	-0,089384	1,000000	0,081043	0,661420	0,653986
LCI	-0,304519	-0,076757	-0,178159	0,182501	0,081043	1,000000	0,098488	-0,010430
NPL	-0,111630	0,067300	0,096765	-0,034789	0,661420	0,098488	1,000000	0,328434
CAR	-0,183396	-0,283147	0,010932	0,029747	0,653986	-0,010430	0,328434	1,000000

Based on table 2 , it can be seen that the relationship between independent variables has no relationship (correlation) of height, which is more than 0.8, as an illustration of the relationship between *the variable bank size* and loan to asset ratio is 0.146457, the relationship between *the variable bank size* and security specialization is 0.255981, the relationship between the variable *bank size* and *deposit specialization* is -0.276037, the relationship between *bank size* and operating expenses to operating income is -0.202563, the relationship between *bank size* and LCI is -0.304519, the relationship between *bank size* and *non-performing* loans is -0.111630, and the relationship between *bank size* and the capital adequacy ratio is -0.183396. So following this method it can be concluded that in the model there is no multicholinerity.

3. Heterochedasticity Test

Table 3 Heteroskedasticity Test Using Glejser with ROA Dependent

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-3,46193	4,89806	-0,7068	0,481
<i>Bank size</i>	1,320489	1,76791	0,746922	0,456
Loan to asset	0,103729	0,16842	0,615904	0,539
Security Specialization	0,042432	0,0418	1,015103	0,312
<i>Deposit specialization</i>	-0,04269	0,26671	-0,16007	0,873
BOPO	0,095112	0,08636	1,101411	0,273

Labor cost to income	-0,03214	0,02189	-1,4681	0,144
Non-performing loans	-0,0286	0,04534	-0,63074	0,529
Capital adequacy ratio	-0,07247	0,05851	-1,23857	0,217

From table 3 above it can be seen that the significance value of the entire independent variable is more than 0.05. Thus it can be concluded that there is no problem of heteroskedasticity in the first regression model.

Table 4 Heteroskedasticity Test Using Glejser with ROE Dependents

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	1,74861	4,209973	0,415349	0,6785
Bank size	-0,488593	1,51955	-0,321538	0,7482
Loan to asset	-0,019144	0,144758	-0,132249	0,895
Security Specialization	0,049559	0,035928	1,379374	0,1698
Deposit specialization	-0,30518	0,229245	-1,331243	0,1851
BOPO	-0,013592	0,074223	-0,183127	0,8549
Labor cost to income	0,035658	0,018816	1,89509	0,06
Non-performing loans	0,04508	0,038974	1,156677	0,2492
Capital adequacy ratio	-0,017133	0,050289	-0,340697	0,7338

From table 4 above it can be seen that the significance value of the entire independent variable is more than 0.05. Thus it can be concluded that there is no problem of heteroskedasticity in the regression model.

4. Chow Test

Table 5 Chow ROA Test Results

Effects Test	Statistics	d.f.	Prob.
Cross-section F	6,675685	-39,152	0
Cross-section Chi-square	199,5992	39	0

The results of the ROA variable test in table 5 above are known that the p-value (Prob) of the F-Statistical Test is 0.0000 (less than 0.05), so based on the chow test, the *fixed effect model* method is more appropriately used than the *common effect model* method.

Table 6 Chow ROE Test Results

Effects Test	Statistics	d.f.	Prob.
Cross-section F	4,921715	-39,152	0
Cross-section Chi-square	163,3213	39	0

The results of the ROE variable test in table 6 above are known that the p-value (Prob) of the F-Statistical Test is 0.0000 (less than 0.05), so based on the chow test, the *fixed effect model* method is more appropriately used than the *common effect* method.

5. Hausman Test

Table 7 Hausman ROA Test

Test Summary	Chi-Sq. Statistics	Chi-Sq. d.f.	Prob.
Cross-section random	12,82841	8	0,1179

The results of the ROA variable test in table 7 above are known that the p-value (Prob) is 0.1179 (more than 0.05), so based on the hausman test, it is shown that the *random effect model* method is more appropriate to use than the *fixed effect model*.



Table 8 Hausman ROE Test

Test Summary	Chi-Sq. Statistics	Chi-Sq. d.f.	Prob.
Cross-section random	31,58972	8	0,0001

The results of the ROE variable test in table 8 above are known that the p-value (Prob) is 0.0001 (less than 0.05), so based on the hausman test, it shows that *the fixed effect model* method is more appropriate to use than *the random effect model*.

6. Lagrange Multiplier Test

Table 9 Lagrange Multiplier ROA Test

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	91,93050	0,763066	92,69357
	0	-0,3824	0

The results of the ROA variable test in table 9 above obtained a p value indicated by a number that is below 0.05, which is 0.0000. So this lagrange multiplier test shows that which means that the best estimation method is a *random effect model* rather than a *common effect*.

7. Simultaneous Test (F Test)

Table 10 F ROA Test Results

F-statistics	181,9156
Prob(F-statistics)	0.000000

Based on table 10 simultaneous test results with tables of 1.987 obtained a calculated F value of 181.9156 and a Prob (F-Statistic) value of 0.000000. Because the F value of the Fhitung > Ftabel (181.9156 > 1.987) and the probability value < a significant degree (0.000000 < 0.05). So it can be concluded that all independent variables in this study simultaneously have a significant effect on ROA in conventional commercial banks listed on the Indonesian stock exchange for the 2016-2020 period.

Table 11 F ROE Test Results

F-statistics	33.66376
Prob(F-statistics)	0.000000

Based on the results of simultaneous tests with F of 1.997, a calculated F value of 33.66376 and a Prob (F-Statistic) value of 0.000000 were obtained. Because the F value of the F>table (33.66376 > 1.997) and the probability value < a significant degree (0.000000 < 0.05). So it can be concluded that all independent variables in this study simultaneously have a significant effect on ROE.

8. T Test Results

Table 12 ROA T Test Results

Variable	Coefficient	Prob.	Information	Hypothesis
Constant	-3,945093	0,0164		
<i>Bank size</i>	0,100063	0,8571	Insignificant	Unproven
<i>Loan to Asset</i>	0,469675	0,0115	SignificantLy Positive	Evident
<i>Security Specialization</i>	-0,026908	0,5861	Insignificant	Unproven
<i>Deposit specialization</i>	0,562077	0,0563	Insignificant	Unproven
BOPO	0,849178	0,0000	SignificantLy Positive	Unproven
LCI	-0,847947	0,0000	Significant Negative	Evident
NPL	-0,142005	0,0067	Significant Negative	Evident
CAR	0,181146	0,0081	SignificantLy Positive	Evident

Based on the results of table 13 above, the data of the panel data regression equation is obtained as follows: Profitability = $-3.945093 + 0.100063 \text{ Bank size} + 0.469675 \text{ Loan to Asset} + 0.026908 \text{ Security Specialization} - 0.562077 \text{ Deposit specialization} + 0.849178 \text{ Operating Expenses to Operating Income} - 0.847947 \text{ Labor Cost to Income} - 0.142005 \text{ Non-performing Loan} + 0.043367 \text{ Capital Adequacy Ratio}$.

The results of the T test in table 12 above show that the probability value of the *bank size* variable is 0.8571, so it can be concluded that the *bank size* has no significant effect on ROA and hypothesis 1 is not proven. This is allegedly because large total assets are not balanced with placements in lending that have the potential to generate high ROA, besides that banks only pay attention to credit management without paying attention to earning assets in other forms such as securities, placements in other banks, and bank capital participation in financial institutions that are not banks or other companies (Wardana & Widyarti, 2015). This result is in line with research by Tharu and Shrestha (2019) which states that *bank size* does not have a significant influence on ROA.

The probability value of LAR of 0.0115 with a coefficient of 0.469675 indicates that LAR has a significant positive effect on ROA so hypothesis 2 is proven. This is because the higher the crediting component in the asset structure, the greater the potential for the bank to make a profit. This result is in line with research by Dewi (2015) and Zeuspita & Yadnya (2019) which stated that the loan to asset ratio (LAR) had a significant positive effect on ROA.

Security specialization has a negative but insignificant influence on ROA so hypothesis 3 is not proven. The conclusion is reflected in the probability value of 0.5861 with a coefficient value of -0.026908. This can happen because the bank stores the securities it has to maintain its liquidity capabilities so that the securities owned by the bank become unproductive and have an impact on reducing the bank's profit or profit (Dewi & Fajri, 2020). This result is contrary to research by Rezik & Kalai (2018) which found a significant positive influence of security specialization on bank profitability.

The probability value of a *specialization deposit* of 0.0563 with a coefficient of 0.562077 indicates that the *specialization deposit* has no significant effect on the ROA so hypothesis 4 is not proven. The results show that the greater the third-party funds that the bank has does not necessarily reflect the bank's high income. This is due to an imbalance between the funds raised and the funds distributed. If the bank has high third-party funds but is not balanced with lending, it will cause the bank's profit to be not optimal (Ulfa, 2020). This result is in line with research by Moussa (2020) and Nurmalasari (2021) which states that third-party funds do not have a significant influence on ROA.

The probability value of the influence of BOPO is 0.0000 with a coefficient of 0.849178. The probability value is below 0.05 which indicates that BOPO has a significant positive influence on ROA so hypothesis 5 is stated to be unproven. These results are in line with research by Susilowati and Tiningrum (2019) which found a significant positive relationship between BOPO and ROA. However, the findings of this study contradict the logic of the relationship between BOPO and ROA theoretically.

The results of panel data analysis for the LCI variable obtained a probability value of 0.0000 with a coefficient of -0.847947. Then the conclusion is that LCI has a significantly negative effect on ROA and hypothesis 6 is proven. This means that any increase in the ratio of labor costs will result in a decrease in the bank's profitability level. This result is in line with Maulida's research (2019) which examined the determinants of profitability and efficiency in banks found a significant negative influence between LCI and bank profitability.

The probability value of the influence of the NPL of 0.0067 with a coefficient of -0.142005 indicates that the NPL has a significant negative influence on the ROA so that hypothesis 7 is stated to be proven. The greater the NPL, the higher the credit risk experienced by a bank. In this case, what is meant by credit risk is the possibility of default and non-repayment of credit received by customers so that the greater the NPL of a bank will result in the bank's profitability falling. These results are in line with the research of Wahab (2015) and Sari & Saraswati (2017) which also found a significant negative influence between NPL and ROA.

The results of panel data analysis for the CAR variable obtained a probability value of 0.0081 with a coefficient of 0.181146. So the conclusion is that CAR has a significant positive effect on ROA and hypothesis 8 is proven. The higher the CAR means that the capital owned by the bank is higher, therefore the bank is stronger to bear the risks of any credit or productive assets that are risky, so that the bank is more flexible in providing credit to third parties which will then increase the profitability of the bank (Wardana &

Widyarti, 2015). This result is in line with research by Munangi and Sibindi (2020) which found a significant positive influence of the CAR variable on ROA.

Table 13 ROE T Test Results

Variable	Coefficient	Prob.	Information	Hypothesis
Constant	21,04404	0,0215		
Bank Size	-8,142559	0,0138	Significant Negative	Unproven
Loan to Asset	0,068191	0,827	Insignificant	Unproven
Security Specialization	-0,092663	0,2324	Insignificant	Unproven
Deposit Specialization	0,381615	0,4402	Insignificant	Unproven
BOPO	0,916957	0	SignificantLy Positive	Unproven
LCI	-0,88487	0	Significant Negative	Evident
NPL	-0,097876	0,2449	Insignificant	Unproven
CAR	0,019258	0,8589	Insignificant	Unproven

Based on the results in table 13 above, the data of the panel data regression equation is obtained as follows: Profitability = 21.04404 – 8.142559 *Bank size* + 0.068191 *Loan to Asset* – 0.092663 *Security Specialization* + 0.381615 *Deposit specialization* + 0.916957 *Operating Expenses to Operating Income* – 0.884870 *Labor Cost to Income* – 0.097876 *Non-performing Loan* + 0.019258 *Capital Adequacy Ratio*.

The results of the T test in table 13 above show that the probability value of the *bank size* variable is 0.0138 with a coefficient of -8.142559, then it can be concluded that the *bank size* has a significant negative effect on ROE and hypothesis 1 is not proven. This significant negative influence suggests that *bank size* is not the main factor that can affect the level of profitability. The larger the size of the bank, the greater the costs will be so that it will negatively affect the company's profit (Gaber, 2018). These results are in line with research conducted by Căpraru & Ihnatov (2014) and Alber (2015).

The probability value of the loan to asset ratio (LAR) of 0.8270 with a coefficient of 0.068191 indicates that the loan to asset ratio (LAR) has no significant effect on ROE. Thus hypothesis 2 is not proven. This is because the higher the credit component in the asset structure, it is possible that the credit quality provided is not entirely good so that the potential for banks to generate profits is not optimal. These results are in line with the results of research conducted by Sanger et al. (2016).

Security specialization has a negative but insignificant influence on ROE. so hypothesis 3 is not proven. The conclusion is reflected in the probability value of 0.2324 with a coefficient value of -0.092663. This can happen because the bank stores the securities it has to maintain its liquidity capabilities so that the securities owned by the bank become unproductive and have an impact on reducing the bank's profit or profit (Dewi & Fajri, 2020). This result is contrary to research by Rezik & Kalai (2018) which found a significant positive influence of security specialization on bank profitability.

The probability value of a *specialization deposit* of 0.4402 with a coefficient of 0.381615 indicates that the *specialization deposit* has no significant effect on ROE so hypothesis 4 is not proven. The results show that the greater the third-party funds that the bank has does not necessarily reflect the bank's high income. This is due to an imbalance between the funds raised and the funds distributed. If the bank has high third-party funds but is not balanced with lending, it will cause the bank's profit to be not optimal (Ulfa, 2020). This result is in line with research conducted by Moussa (2020).

The probability of influence of BOPO is 0.0000 with a coefficient of 0.916957. The probability value is below 0.05 which indicates that BOPO has a significant positive influence on ROE so hypothesis 5 is declared unproven. These results are in line with the research of Susilowati & Tiningrum (2019) which found a significant positive relationship between BOPO and ROE. However, the findings of this study contradict the logic of the relationship between BOPO and ROE theoretically.

The results of panel data analysis for the LCI variable obtained a probability value of 0.0000 with a coefficient of -0.884870. So the conclusion is that LCI has a significant negative effect on ROE and hypothesis 6 is proven. This means that any increase in the ratio of labor costs will result in a decrease in the bank's profitability level. This result is in line with Maulida's research (2019) which examined the determinants of profitability and efficiency in banks found a significant negative influence between LCI and bank profitability.

The probability value of the influence of the NPL of 0.2449 with a coefficient of -0.097876 indicates that the NPL has no significant effect on the ROE so hypothesis 7 is declared unproven. NPLs reflect credit risk. The absence of a significant influence between credit risk and bank profitability can be because most or on average commercial banks have an NPL ratio of less than 5% which indicates that these banks have low credit risk (Wahyuni Pratiwi & Wiagustini, 2016). These results are in line with research conducted by Masril (2018).

The results of panel data analysis for the CAR variable obtained a probability value of 0.8589 with a coefficient of 0.019258. Then the conclusion is that CAR has no significant effect on ROE and hypothesis 8 is not proven. This is suspected to have happened due to Bank Indonesia's regulation on CAR which states that the CAR at banks is at least 8%. This condition results in the bank always keeping the regulations on the CAR can always be met. However, banks tend to keep their CAR at no more than 8% because this means *idle funds* or even waste, besides that another guess is that because banks focus on sustainability, banks consistently apply the precautionary principle in investing their funds. Ideally, banks should not only invest in the provision of credit, but should also be allocated in financial instruments or tangible assets, both in the long and short term (Widyastuti et al. 2017).

9. Coefficient of Determination Test (R^2)

Table 14 Determination Coefficient Test Results

	ROA	ROE
R-squared	0,883984	0,912351

The results of the coefficient of determination test in table 14 above prove that the bank profitability variable measured by ROA is 0.883984 and ROE is 0.912351. From this value, it can be proven that the independent variable is simultaneously able to provide an explanation on the ROA variable of 88.3984% and on the ROE variable of 91.2351%. While the rest is explained by other factors that were not studied in this study.

CONCLUSION

From the results of the partial test, it can be concluded that the *bank size* variable does not have a significant effect on the *return on assets*, but has a significant negative effect on the *return on equity*. The results of the partial test can be concluded that the *variable loan to asset ratio* has a significant positive effect on *return on assets*, but does not have a significant effect on *return on equity*. Partial test results can be concluded that the *variable deposit specialization* has no significant effect on bank profitability as measured by *return on assets* and *return on equity*. The results of partial testing can be concluded that the variable operating expenses to operating income have a significant positive effect on bank profitability as measured by return on assets and return on equity. As a result of partial testing, it can be concluded that the *non-performing loan* variable has a significant negative effect on *return on assets*, but does not have a significant effect on *return on equity*.

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