The Influence Of Financial Innovation And Financial Ratio On The Financial Performance Of The Banking Sector

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INFO ARTIKEL	ABSTRAK
	Abstract: *Financial performance involves analyzing how well a company adheres to financial regulations and standards. This study investigates the impact of financial innovation and financial ratios on the performance of banking companies from 2009 to 2018. The research employs a descriptive approach with quantitative methods, utilizing secondary data. Purposive sampling is the chosen sampling method. Data analysis is conducted using panel regression analysis techniques, which include the Chow test, Hausman test, Lagrange multiplier test, classical assumption test, and partial regression test. The findings indicate that the NPL ratio has a significant negative effect on ROA, the LDR ratio has a significant positive effect on ROA, while the financial innovation variable and CAR had no effect on ROA.*

INTRODUCTION

Banks play a crucial role in aligning, harmonizing, and balancing various development elements. This strategic role stems from their primary function of efficiently collecting and distributing public funds. Grounded in the principles of economic democracy, banks support development efforts to enhance equality, economic growth, and national stability, thereby enhancing the standard of living. To fulfill their functions effectively, banks must continuously enhance their performance. A bank's financial performance, which is assessed using financial analysis tools, reflects its financial health and operational success over a specific period. This assessment is vital for ensuring optimal resource utilization amid changing environments. One key financial ratio indicating bank performance is Return on Assets (ROA), which measures a bank's ability to produce earnings from its operations (Mawardi, 2005). Based upon Indonesian banking statistics issued by the Financial Services Authority (OJK), the banking sector's ROA was 2.55% as of March 2018. This number increased annually by 50 basis points (bps). This is because industrial banks' pre-tax profits increased by 10.93% on an annual basis or year on year (yoy) to IDR 180.57 trillion as of March 2018.

Factors that influence financial performance are innovation. Innovation is carried out by a company to reduce the costs incurred by the company in carrying out the company's operational activities. At the beginning of the research and development period, companies will spend more money, this happens because of the high costs that must be incurred by companies to develop company innovation in the field of technology so that they can support the firm's operational processes to be more effective and efficient. In the era of Industry 4.0, innovation trends are increasingly shifting towards digital technology, which aims to enable automation across all sectors to achieve greater productivity and efficiency. Carrying out innovation in a company requires developing a comprehensive innovation strategy, a strategy for the company's goals in carrying out innovation by describing the parts (what to innovate) and ways (how to achieve it) integrating various activities that lead to product creation, development and

commercialization as well as technology that enables companies to maximize results from innovation efforts. The relationship between company strategy and innovation strategy will reduce future uncertainty related to the innovation process. One of the innovations carried out by banks to improve customer service is to provide automatic teller machines (ATMs). ATMs make it easier for customers to withdraw money or make other transactions without having to come and queue at the bank. This will enhance the allocative efficacy of the financial intermediation procedure and improve the operational efficacy of the financial system, thereby decreasing costs and boosting financial performance. For instance, research by Chipeta and Muthinja (2018) indicates that financial innovation positively impacts the financial performance of banks in Kenya, while Kuswara (2016) found that ATMs significantly affect banking profitability. In contrast, a study by Sudaryanti, Sahroni, and Kurniawati (2018) revealed that financial innovation in the form of mobile banking has a significant negative effect on ROA. Issues such as security, long-term maintenance, and the bank's capacity to manage mobile banking contribute to this negative impact. Thus, higher financial innovation can correlate with lower banking financial performance (ROA).

This means that if in carrying out innovation, the funds spent, such as purchasing assets and maintenance costs, are greater than the profits obtained, then banking financial performance (ROA) will decrease. Another factor that influences financial performance is financial ratios. In this research, financial ratios include capital ratios which are proxied by the Capital Adequacy Ratio (CAR), credit risk which is proxied by Non-Performing Loans (NPL), and liquidity ratios which are proxied by the Loan to Deposit Ratio (LDR). The Capital Adequacy Ratio (CAR) is a financial metric related to banking capital, indicating whether a bank has sufficient capital to carry out its activities efficiently. Adequate capital allows a bank to absorb unavoidable losses, manage its operations effectively, and potentially increase shareholder wealth. Conversely, insufficient capital can hinder these outcomes. Non-Performing Loans (NPL) measure credit risk, reflecting the likelihood of bank losses due to debtors' failure to repay loans (Ali, 2006). A high NPL indicates a significant proportion of problematic loans compared to total loans, which increases costs related to provisioning for productive assets and other expenses, thereby negatively impacting bank performance. The Loan to Deposit Ratio (LDR) compares the amount of credit provided to third-party funds. A higher LDR suggests increased bank profits, assuming effective credit distribution, which in turn enhances bank performance. Therefore, the LDR ratio significantly influences a bank's performance (Mawardi, 2005). The phenomena expressed above are interesting for conducting research in Indonesia regarding banking financial performance. This research aims to empirically study the aspects that affect the financial performance of the banking industry, specifically focusing on registered banks in Indonesia.

Financial performance involves analyzing how well a company adheres to financial regulations. Company performance reflects the financial health of a business, assessed using financial analysis tools to determine if the financial condition is good or bad, indicating its operational success over a specific period. This assessment is crucial for optimal resource utilization amid environmental changes (Fahmi, 2011). Return on Assets (ROA) is one financial ratio that indicates company performance. A higher ROA signifies better financial performance, as it suggests a higher return rate to investors. An increase in ROA means improved profitability, ultimately benefiting shareholders.

The Influence of Financial Innovation (IK1) on Financial Performance (ROA)

Financial innovation is believed to positively impact banking financial performance. Higher levels of innovation, for instance ATMs, internet banking, and mobile banking, are associated with an increase in banking financial performance, as measured by ROA. This means that innovation is being carried out by banks to make it easier to serve their customers in transactions, so that if a customer wants to make a transaction, they don't have to go to the bank, just use their gadget and they can carry out transactions,

and this could enhance the allocative efficacy of financial intermediation and bolster the operational efficacy of the finance system, thereby reducing costs and improving banking financial performance, as measured by ROA. As a study conducted by Chipeta & Muthinja (2018) shows that financial innovation contributes to the financial performance of banks in Kenya.

The Influence of Financial Innovation (IK2) on Financial Performance (ROA)

The greater the utilization of ATMs by banks, the stronger the banking financial performance, as they enhance customer service effectiveness and efficiency. For instance, Kuswara's (2016) study reveals that ATMs significantly impact banking profitability.

The Effect of Capital Ratio (CAR) on Financial Performance (ROA)

A greater CAR indicates better banking performance, as it signifies that the existing capital can mitigate losses from credit activities like defaults or bad credit and trading in securities. Retrieved from Bank Indonesia regulation no. 10/15/PBI/2008, banks are obligated to maintain a smallest possible capital of 8%. Research by Hasibuan et al. (2018), Warsa and Mustanda (2016), and Sabir et al. (2012) demonstrates that CAR positively and significantly impacts ROA in conventional banks in Indonesia.

The Effect of Credit Risk (NPL) on Financial Performance (ROA)

The greater the NPL, the poorer the banking performance, as defaults on credit payments lead to a decrease in interest income, which is a primary source of revenue for banks. Bank Indonesia's standard sets the threshold at less than 5%. If the NPL exceeds this threshold, the bank's profitability will suffer. Research by Sudaryanti et al. (2018), Nasution and Oktavi (2016), Sabir et al. (2012), Warsa and Mustanda (2016), and Yudiartini and Dharmadiaksa (2016) indicates that NPLs negatively impact the ROA of conventional commercial banks.

Effect of Liquidity Ratio (LDR) on Financial Performance (ROA)

A greater Loan to Deposit Ratio (LDR) corresponds to better banking financial performance, as indicated by ROA. This suggests that with a larger amount of credit extended, the interest earned will also increase, leading to a rise in banking ROA. According to BI regulations, an ideal LDR falls within the range of 80% to 110%. Research by Warsa and Mustanda (2016) supports this, demonstrating that the Loan to Deposit Ratio (LDR) positively influences Return on Assets (ROA).

RESEARCH METHODS

This study investigates the impact of financial innovation and financial ratios on the performance of banking companies between 2009 and 2018, employing the panel regression analysis method. In analyzing panel data, several steps are involved: (1) Descriptive statistical analysis, encompassing measures such as average, minimum, maximum, and standard deviation. (2) Inferential statistical analysis, including multiple linear regression analysis and models like the common effect model (CEM), fixed effect model (FEM), and random effect model (REM). To determine the most suitable model, various tests are conducted, such as the Chow test, Hausman test, and Lagrange multiplier test. (3) Classical assumption tests, consisting of normality tests, heteroscedasticity tests, multicollinearity tests, and autocorrelation tests. (4) Partial regression test (t-test), involving both right-sided and left-sided t-tests.

This research uses a population of conventional banking companies registered with the OJK for the 2009-2018 period. The sample used is banking companies that have total capital of $\geq$ 5 trillion in 2018. This research utilizes a sample size of 10 companies. It adopts an explanatory research approach, intending to assess the influence of one variable on another. The sampling method employed is purposive sampling, whereby samples are selected based on specific criteria to obtain the desired results.

The data utilized in this study comprises financial report data sourced from conventional banking companies. These reports are publicly available on the official OJK website (www.ojk.go.id) and the annual reports published on the respective bank's official website.

The variables used comprise a dependent variable, Return on Assets (ROA) denoted as Y, and independent variables (X) including financial innovation (dummy), financial innovation (LnATM), capital ratio, credit risk, and liquidity ratio in this study.

RESULT

Descriptive Analysis

Descriptive analysis is employed to accomodate an overview of the sample data, describing each variable utilized in this study. Return on Assets (ROA) serves as the dependent variable (Y), while financial innovation (IK1 & IK2), capital ratio (CAR), credit risk (NPL), and liquidity ratio (LDR) function as independent variables (X). The descriptive analysis results, conducted using EViews 8, are outlined below:

Table 1
Descriptive Analysis Results

Variable	N	Mean	Minimum	Maximum	Std. Dev
ROA	100	2.3943	-4.8890	5,1500	1.4927
IK$_1$	100	2.6400	1,0000	3,0000	0.6593
IK$_2$	100	7.4726	2.5600	10,1900	1.9537
CAR	100	16.6900	10.2500	25,6000	3.6448
NPLs	100	1.1850	0.0700	6.3700	1.0186
LDR	100	84.2141	50.2700	97.6700	9.1653

Source: Data processed, (2024)

Financial Performance (ROA)

As stated by Table 1 above, the ROA variable's average value in conventional banking companies is 2.3943, with a standard deviation of 1.4927. Since the average value is greater than the standard deviation, it can be inferred that the ROA variable research data is homogeneous due to low data deviation. PT Bank Rakyat Indonesia (Persero) Tbk attained the highest ROA at 5.15% in 2012, indicating that the bank generated a profit of 5.15% from its average total assets in 2012. Conversely, PT Bank Permata Tbk recorded the lowest ROA at -4.88% in 2016, signifying a loss of 4.88% in 2016 for the bank. There are 100 observation data points. This implies that conventional banks have three forms of financial innovation, namely ATM, internet banking, and mobile banking. The lowest financial innovation dummy (IK1) of 1 is achieved by 10% of the 100-observation data, indicating that only 10% of conventional banks have adopted one form of financial innovation, namely ATMs.

Financial Innovation (IK2)

Based upon Table 1, the average value of the LnATM (IK2) variable in conventional banking companies is 7.4726, with a standard deviation of 1.9537. Since the average value exceeds the standard deviation, it can be inferred that the research data for the LnATM (IK2) variable is homogeneous due to low data deviation. The highest LnATM value was attained by PT Bank Rakyat Indonesia (Persero) Tbk in 2018, reaching 10,1900 or 26,678 ATMs. This suggests that PT Bank Rakyat Indonesia (Persero) Tbk has a widespread presence of ATMs across several regions in Indonesia, enabling them to serve their customers more effectively and efficiently. Conversely, PT BTPN Tbk recorded the lowest LnATM (IK2)

value in 2009 at 2.5600 or 13 ATMs. This indicates that the number of PT BTPN Tbk ATMs was limited to a few regions in Indonesia, resulting in less effective and efficient customer service.

Capital Ratio (CAR)

According to Table 1 above, the average value of the CAR variable in conventional banking companies is 16.6900, with a standard deviation of 3.6448. Since the average value exceeds the standard deviation, it can be inferred that the research data for the CAR variable is homogeneous due to low data deviation. PT BTPN Tbk achieved the highest CAR at 25.60% in 2016, while PT Mayapada Internasional Tbk recorded the lowest CAR at 10.25% in 2014. Both CAR values are in line with BI's minimum standard, which sets a minimum CAR ratio of 8%. This indicates that the capital held by PT BTPN Tbk and PT Mayapada Internasional Tbk can mitigate risks in credit activities for instance defaults or bad credit.

Credit Risk (NPL)

According to Table 1 above, the average value of the NPL variable in conventional banking companies is 1.1850, with a standard deviation of 1.0186. Since the average value exceeds the standard deviation, it can be infrered that the research data for the NPL variable is homogeneous due to low data deviation. PT Bank Bukopin Tbk achieved the highest NPL at 6.37% in 2017. This indicates that PT Bank Bukopin Tbk's NPL exceeds BI standards, which specify an NPL ratio of less than 5%, suggesting high credit risk. Conversely, PT BTPN Tbk recorded the lowest NPL at 0.07% in 2009. This indicates that PT BTPN Tbk's NPL complies with BI standards, with an NPL ratio of less than 5%, signifying minimal credit risk and a secure credit portfolio for PT BTPN Tbk.

Liquidity Ratio (LDR)

According to Table 1 above, the average value of the LDR variable in conventional banking companies is 84.2141, with a standard deviation of 9.1653. Since the average value exceeds the standard deviation, it can be inferred that the research data for the LDR variable is homogeneous due to low data deviation. PT BTPN Tbk achieved the highest LDR at 97.67% in 2014. This indicates that PT BTPN Tbk's LDR value complies with BI regulations, which define a good LDR range between 80% to 110%. This suggests that PT BTPN Tbk has a substantial amount of credit extended to numerous debtors, resulting in significant interest income, which is the primary income for the bank. Conversely, PT Bank Central Asia Tbk recorded the lowest LDR at 50.27% in 2009. This indicates that PT Bank Central Asia Tbk's LDR value does not meet BI regulations, which define a good LDR range between 80% to 110%.

Multiple linear regression

This hypothesis testing employs multiple linear regression analysis techniques. Its aim is to examine the correlation between the independent variables, namely the financial innovation dummy (IK1), LnATM (IK2), capital ratio (CAR), credit risk (NPL), and liquidity ratio (LDR), and the dependent variable, return on assets (ROA). To conduct multiple linear regression tests on panel data, model testing is necessary to identify the most suitable model. There are three panel data regression models:

Table 2
Results of Multiple Linear Regression Analysis

Regression Model	Common Effects Model		Fix Effect Model		Random Effect Model	
Variable	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
IK1	-0.606970	-2.881172	-0.283131	-1.364257	-0.460944	-2.564083
IK2	0.253571	3.371602	-0.250756	-0.839743	0.240369	2.324482
CAR	0.064655	1.755209	-0.083823	-2.181395	-0.040277	1,201744
NPLs	-0.616122	-4.666530	-0.446663	-3.496021	-0.609852	-5.415641
LDR	-0.016385	-1.142490	0.042126	2,400423	0.010122	0.751408

C	3.132740	2.506799	3.396271	2.381819	2.357505	2.127249
R-squared		0.482313		0.755313		0.291335
Adjusted R-Squared		0.454777		0.715012		0.253640
Prob F-stat		0.000000		0.000000		0.000004

Source: Processed data, (2024)

Financial Innovation Dummy (IK1)

According to Table 2, the coefficient value of the Financial Innovation Dummy (IK1) in the multiple linear regression equation is -0.283131. This coefficient value indicates that if the utilization of financial innovation, encompassing ATM, mobile banking, and internet banking, is at a level of 3, it will decrease ROA by 0.283131. Conversely, if the utilization of financial innovation is at a level of 1, which includes only ATM, it will increase ROA.

LnATM (IK2)

According to Table 2, the coefficient value of LnATM (IK2) from the multiple linear regression equation is -0.250756. This coefficient value indicates that if LnATM increases by one unit, it will decrease ROA by 0.250756. Conversely, if LnATM decreases, it will increase ROA.

Capital Ratio (CAR)

According to Table 2, the coefficient value of CAR from the multiple linear regression equation is -0.083823. This coefficient value indicates that if CAR increases by one unit, it will decrease ROA by 0.083823. Conversely, if CAR decreases, it will increase ROA.

Credit Risk (NPL)

According to Table 2, the coefficient value of NPL from the multiple linear regression equation is -0.446663. This coefficient value indicates that if NPL decreases by one unit, ROA will increase by 0.446663. Conversely, if NPL increases, ROA will decrease.

Liquidity Ratio (LDR)

According to Table 2, the coefficient value of LDR in the multiple linear regression equation is 0.042126. This coefficient value indicates that if LDR increases by one unit, ROA will increase by 0.042126. Conversely, if the liquidity ratio (LDR) decreases, ROA will decrease.

Common Effect Model (CEM)

Within this framework, time or individual dimensions are not taken into account, implying that the behavior of company data remains consistent across different time periods. This method typically utilizes the Ordinary Least Squares (OLS) method or the least squares method to estimate panel data models. According to Table 2 above, the Adjusted R-Squared value in the Common Effect Model is 0.454777.

Fixed Effect Model (FEM)

The Fixed Effect Model (FEM) operates under the assumption that individual variances can be accounted for by variations in intercepts. In estimating panel data, the Fixed Effects model employs a dummy variable method to capture these variations in intercepts among companies. These disparities in intercepts may arise from various factors impacting each company. However, the slope remains consistent across companies. According to Table 2 above, the Adjusted R-Squared value in the Fixed Effect Model is 0.715012.

Random Effect Model (REM)

The Random Effect Model (REM) assumes that disturbance variables might be correlated across time and individuals. Variations in intercepts are accounted for by the error terms of each company. An edge of utilizing the Random Effect Model is its ability to mitigate heteroscedasticity. According to Table

2 above, the Adjusted R-Squared value in the Random Effect Model is 0.253640. To select the optimal model for panel data, several tests are required, including the Chow test and Hausman test.

Table 3
Results of Chow Test Analysis and Hausman Test

Model	Test Chow	Hausman test
	Cross-Section F	Random Cross-Section
Sig.	0.0000	0.0005

Source: Processed data, (2024).

Test Chow

Table 3 indicates that the Cross-Section F value is 0.0000, which is less than 0.05. Thus, it can be inferred that the model employed is the Fixed Effect Model (FEM).

Hausman test

Table 3 displays that the Cross-Section Random value is 0.0005, which is below the threshold of 0.05. Hence, it can be inferred that the utilized model is the Fixed Effect Model (FEM).

Hypothesis Test (t Test)

The interpretation of the t-test results for the independent variables—financial innovation dummy (IK1), LnATM (IK2), capital ratio (CAR), credit risk (NPL), and liquidity ratio (LDR)—on the dependent variable, financial performance (ROA), is outlined below:

Table 4
Hypothesis and Research Results

Variable	Hypothesis	Research result
IK1	Positive Influence	No Positive Influence
IK2	Positive Influence	No Positive Influence
CAR	Positive Influence	No Positive Influence
NPLs	Negative Influence	Negative influence
LDR	Positive Influence	Positive Influence

Source: Processed data, (2024)

DISCUSSION

The influence of the financial innovation dummy (IK1) on financial performance (ROA)

The analysis of financial innovation, represented by the financial innovation dummy variable, assigns a value of 1 if the bank employs ATMs, a value of 2 if it utilizes ATMs and internet banking or mobile banking, and a value of 3 if it incorporates ATMs, internet banking, and mobile banking. The hypothesis posited in this study is that financial innovation, as indicated by the dummy variable, exerts a positive influence on financial performance, represented by Return On Assets (ROA). However, according to the outcomes of partial testing using the t-test, it is evident that the financial innovation dummy variable does not exhibit a significant positive effect on financial performance (ROA). This suggests that the adoption of financial innovations, including ATMs, mobile banking, and internet banking, does not impact banking financial performance significantly. Currently, the primary income source for banks in Indonesia is interest income rather than non-interest income. Therefore, financial innovation does not seem to influence banking financial performance, as banks generate non-interest income from providing services such as ATMs, internet banking, and mobile banking. This finding aligns

with a study carried out by Sudaryanti et al. (2018), which suggests that e-banking does not positively affect ROA, possibly because its usage is not comprehensive, and not every customer utilizes the facility. However, this contradicts research conducted by Chipeta & Muthinja (2018), which demonstrates that financial innovation plays a role in the financial performance of banks in Kenya.

Influence of LnATM (IK2) on financial performance (ROA)

The analysis of financial innovation is represented by the natural logarithm of the number of ATMs (LnATM). The research hypothesis posits that financial innovation, as indicated by LnATM, has a positive impact on financial performance, as depicted by Return On Assets (ROA). However, based on the results of partial testing using the t-test, it is evident that LnATM does not exhibit a significant positive effect on ROA. This suggests that whether the number of ATMs is large or small, it does not significantly influence financial performance. The lowest number was recorded by PT BTPN Tbk in 2009. This might be attributed to the limited usage of ATMs by PT BTPN Tbk customers in 2009, resulting in higher unit costs and a decrease in the bank's ROA. This finding aligns with research conducted by Jegede CA (2014), which suggests that ATMs do not positively impact banking financial performance because the benefits derived from having ATMs are insufficient to enhance banking performance in Nigeria. However, this contradicts research conducted by Kuswara (2016), which indicates that ATMs have a significant positive effect on banking profitability. This suggests that the number of ATMs exerts a considerable influence on increasing the bank's non-interest income, thereby enhancing profitability.

The influence of capital ratio (CAR) on financial performance (ROA)

The capital ratio signifies the bank's capacity to allocate funds for business development and mitigate potential risks of loss arising from operational activities (Achmad and Kusno, 2003). In this study, the capital ratio is represented by the Capital Adequacy Ratio (CAR). The hypothesis posited is that the capital ratio, as represented by CAR, positively influences financial performance, proxied by ROA. However, based upon the outcomes of partial testing using the t-test, it is evident that CAR does not exhibit a significant positive effect on ROA. This implies that variations in CAR values, whether higher or lower, do not significantly impact banking ROA. The average CAR in this study surpasses the minimum standard set by BI, which mandates a CAR ratio of at least 8%. The highest CAR recorded in this study was for PT BTPN Tbk in 2016. A high CAR may impede the bank's capacity to expand its business as a significant portion of capital reserves is allocated to cover potential risks associated with operational activities. Consequently, delays in business expansion due to a high CAR may affect banking financial performance. This finding aligns with research carried out by Yudiartini and Dharmadiaksa (2016), which suggests an inverse relationship between CAR and ROA. In conclusion, CAR does not positively influence ROA. However, this contradicts research conducted by Hasibuan et al. (2018), Warsa and Mustanda (2016), and Sabir et al. (2012), which indicate that CAR has a positive and significant effect on ROA in conventional banks.

The influence of credit risk (NPL) on financial performance (ROA)

Credit risk refers to the potential for bank losses stemming from the failure of debtors to repay loans extended by the bank (Ali, 2006). In this study, credit risk is proxied by Non-Performing Loans (NPL). The hypothesis posited is that credit risk, represented by NPL, negatively impacts financial performance, represented by ROA. Based upon the outcomes of partial testing using the t-test, it is evident that NPL exerts a negative effect on ROA. This proposes that a decrease in NPL leads to an increase in ROA, while an increase in NPL results in a decrease in ROA. The highest NPL was observed for PT Bank Bukopin Tbk in 2017 at 6.37%. This indicates that PT Bank Bukopin Tbk's NPL exceeds BI standards, which mandate an NPL ratio of less than 5%. Consequently, the bank's income generated from loans extended to debtors is hindered due to non-performing loans. This elevates the risk of bank losses, and the costs associated with managing and recovering bad loans escalate, thereby diminishing banking

financial performance. This finding aligns with study carried out by Sudaryanti et al. (2018), Khalifaturofi'ah and Nasution (2016), Sabir et al. (2012), Warsa and Mustanda (2016), and Yudiartini and Dharmadiaksa (2016), which illustrates that NPLs have an adverse effect on the ROA of conventional commercial banks.

The influence of liquidity ratios (LDR) on financial performance (ROA)

The liquidity ratio measures the relationship between the amount of credit extended and the volume of third-party funds. In this study, the liquidity ratio is depicted by the Loan to Deposit Ratio (LDR). The hypothesis posits that the liquidity ratio, as proxied by LDR, positively influences financial performance, represented by ROA. Based upon the outcomes of partial testing using the t-test, it is evident that LDR positively affects ROA. This implies that an increase in LDR leads to an increase in ROA, while a decrease in LDR results in a decrease in ROA. The highest LDR was recorded for PT BTPN Tbk in 2014. This indicates that PT BTPN Tbk's LDR aligns with BI regulations, which stipulate a favorable LDR range between 80% and 110%. Consequently, PT BTPN Tbk has extended a substantial amount of credit to depositors, thereby augmenting the bank's interest income and subsequently enhancing ROA. This finding corroborates research conducted by Warsa and Mustanda (2016), which suggests that LDR positively impacts ROA. The study underscores that banks tend to exercise caution in credit provision, notwithstanding the relatively substantial funds received from third parties. Additionally, fluctuations in the LDR ratio across different periods among banking entities may contribute to varying LDR levels, thereby reflecting instances of excessively high or low LDRs.

CONCLUSIONS

This study encounters several limitations that impact its findings as outlined below: (1) The adjusted R-squared of the research model stands at 71.50%, indicating that there are still unexplored variables comprising 28.5% that could potentially influence Return on Assets (ROA). (2) The independent variables represented by dummy variables for financial innovation, LnATM, and capital ratio exhibit no impact on the dependent variable, ROA. Notably, the analysis demonstrates that while the Non-Performing Loan (NPL) ratio significantly negatively affects ROA, the Loan to Deposit Ratio (LDR) ratio notably exerts a significant positive influence on ROA.

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