

The Effect of Liquidity, Operational Efficiency, Credit Quality, and Capital on Profitability at PT BPR Kerta Raharja 2021–2025 Period

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Abstract

Profitability is a key indicator reflecting a bank's financial performance in generating earnings through the utilization of its assets. A decline in profitability may be influenced by various internal factors, including liquidity, operational efficiency, credit quality, and capital adequacy. This study aims to analyze the development of liquidity, operational efficiency, credit quality, capital adequacy, and profitability, as well as to examine the partial and simultaneous effects of liquidity, operational efficiency, credit quality, and capital adequacy on profitability at PT BPR Kerta Raharja during the 2021–2025 period. This study employed a quantitative approach with descriptive and verification methods. Secondary data were obtained from the quarterly financial reports of PT BPR Kerta Raharja for the 2021–2025 period, consisting of 20 observations. Data analysis was conducted using multiple linear regression preceded by classical assumption tests, followed by the coefficient of determination (R^2), partial t-tests, and simultaneous F-tests. Descriptively, the Loan-to-Deposit Ratio (LDR) tended to increase, while the Operating Expenses to Operating Income (BOPO) ratio and Non-Performing Loan (NPL) ratio showed increasing trends. The Capital Adequacy Ratio (CAR) remained relatively stable, whereas Return on Assets (ROA) fluctuated with a declining tendency. Partially, LDR had a positive and significant effect on ROA ($p = 0.006$), BOPO had a negative and significant effect ($p = 0.000$), while NPL ($p = 0.997$) and CAR ($p = 0.477$) did not demonstrate significant effects. Simultaneously, all four variables significantly affected ROA ($F = 72.97$; $p = 0.000$), with a coefficient of determination of 95.1%. Liquidity and operational efficiency were the dominant factors influencing profitability, while credit quality and capital adequacy did not show significant partial effects. Improving ROA requires integrated management of intermediation functions, operational cost efficiency, credit quality, and capital structure.

INTRODUCTION

Banks have a strategic position in the national economy because they perform the function of financial intermediation by collecting public funds and redistributing them through credit financing to productive sectors. Within the structure of the Indonesian banking industry, Rural Banks (Bank Perekonomian Rakyat or BPR) have distinct characteristics as financial institutions oriented toward providing community-based financial services, particularly by facilitating access to financing for micro, small, and medium enterprises (MSMEs).

The 2021–2025 period was characterized by complex economic dynamics. In 2021, the banking sector continued to experience the effects of the Coronavirus Disease 2019 (COVID-19) pandemic, which weakened debtors' ability to fulfill credit obligations and affected the quality of banks' productive assets. During 2022–2023, economic conditions began to recover;

however, the recovery was accompanied by global inflationary pressures, increases in Bank Indonesia's benchmark interest rate, and ongoing global economic uncertainty, which influenced funding activities and credit distribution.

PT BPR Kerta Raharja Perseroda is a banking institution owned by the Bandung Regency Government that plays an important role in supporting regional economic development through the provision of financial services for MSMEs (Putri et al., 2024). Based on the company's consolidated financial statement data for the 2021–2025 period, the following financial ratios were obtained.

Table 1. Financial Ratio of PT BPR Kerta Raharja in 2021–2025

Year	CAR	LDR	NPL Net	BOPO	LONG
2021	19,70%	82,49%	1,44%	88,20%	2,02%
2022	17,13%	82,49%	1,74%	88,05%	1,90%
2023	18,95%	119,79%	4,98%	91,82%	1,20%
2024	18,76%	137,13%	4,20%	92,18%	1,16%
2025	20,58%	132,91%	5,68%	92,72%	1,30%

Source: Financial Statements of PT BPR Kerta Raharja for 2021–2025.

Return on Assets (ROA) as an indicator of profitability was recorded at 2.02% in 2021, decreased to 1.90% in 2022, and declined significantly to 1.20% in 2023. This condition continued in 2024, with ROA reaching 1.16%, before slightly improving to 1.30% in 2025. However, this figure remained below the initial level observed at the beginning of the study period. This decline in profitability is important to investigate because it occurred while the company's total assets remained relatively large and continued to increase, from IDR 409.23 billion in 2021 to IDR 550.54 billion in 2025. Thus, the ability to generate profits was not proportional to asset growth.

Liquidity, proxied by the Loan-to-Deposit Ratio (LDR), showed a significant upward trend, increasing from 82.49% in 2021–2022 to 137.13% in 2024 and 132.91% in 2025. Theoretically, an increase in LDR should be accompanied by higher ROA through increased interest income. However, the empirical condition showed the opposite pattern, indicating a gap between theoretical expectations and actual conditions that warranted further investigation.

Operational efficiency, proxied by the Operating Expenses to Operating Income (BOPO) ratio, indicated an increase in operating expenses, rising from 88.20% in 2021 to 92.72% in 2025. Credit quality, proxied by the Non-Performing Loan (NPL) ratio, also tended to deteriorate, increasing from 1.44% in 2021 to 5.68% in 2025. Meanwhile, capital adequacy, proxied by the Capital Adequacy Ratio (CAR), remained relatively adequate and above the regulatory minimum requirement, although a high CAR level was not followed by a substantial increase in ROA.

Bank profitability has been widely examined in previous studies; however, empirical findings have not produced consistent conclusions. Research findings regarding LDR, for instance, continue to show differences in the direction and significance of its effect on ROA. Similar inconsistencies have also been identified in studies examining NPL and BOPO. These

variations indicate the existence of a research gap that requires further investigation, particularly in a single research setting involving a Rural Bank (Bank Perekonomian Rakyat/BPR Perseroda) such as PT BPR Kerta Raharja.

Based on this background, the research problems were formulated as follows: (1) how LDR, BOPO, NPL, CAR, and ROA developed at PT BPR Kerta Raharja during the 2021–2025 period; (2) how LDR, BOPO, NPL, and CAR partially affected ROA; and (3) how LDR, BOPO, NPL, and CAR simultaneously affected ROA. In accordance with these research problems, this study aimed to describe the development of the five variables and analyze their partial and simultaneous effects on the profitability of PT BPR Kerta Raharja during the 2021–2025 period. The results of this study are expected to provide input for PT BPR Kerta Raharja management, banking regulators, academics, and future researchers.

A Rural Bank (Bank Perekonomian Rakyat or BPR) is a financial institution that conducts business activities conventionally or based on sharia principles but does not provide payment transaction services. BPRs function as intermediary institutions at the local level that directly support MSME actors (OJK, 2022). The income structure of BPRs is generally dominated by credit interest income; therefore, credit portfolio quality, operational cost efficiency, and capital adequacy are important determinants of profitability (Dendawijaya, 2019; Kasmir, 2023).

This research was based on three main theories. Financial intermediation theory explains that banks exist to overcome transaction costs, information asymmetry, and maturity transformation between surplus and deficit units. Through this function, banks generate income spreads while simultaneously bearing credit, liquidity, and operational risks (Mishkin, 2022). Agency theory describes the relationship between principals and agents, in which financial ratios such as ROA, NPL, BOPO, LDR, and CAR serve as monitoring mechanisms to assess bank management performance and efficiency (Jensen & Meckling, 1976). Signaling theory views financial reports and financial ratios as signals to external stakeholders regarding asset utilization effectiveness, financial quality, and operational efficiency (Brigham & Houston, 2019).

Profitability refers to a bank's ability to generate earnings from the resources it manages. This study used Return on Assets (ROA) as the measure of profitability because it reflects the bank's ability to generate profit before tax through the utilization of its total assets (Kasmir, 2023; OJK, 2022).

Liquidity was measured using the Loan-to-Deposit Ratio (LDR), which represents the proportion of loans provided relative to third-party funds collected. Based on financial intermediation theory, an increase in LDR within a healthy range reflects improved intermediation effectiveness and has the potential to increase interest income (Mishkin, 2022; OJK, 2024a). H1: Liquidity (LDR) has a positive effect on profitability (ROA).

BOPO measures the proportion of operating expenses relative to operating income. A higher BOPO ratio indicates lower operational efficiency, thereby reducing the potential for profit generation (Kasmir, 2023; OJK, 2024a). H2: Operational efficiency (BOPO) has a negative effect on profitability (ROA).

Non-Performing Loans (NPLs) represent the proportion of problematic loans relative to total outstanding loans. Higher NPL levels reduce interest income and increase loan loss

provisions, thereby negatively affecting profitability (Dendawijaya, 2019; OJK, 2024b). H3: Credit quality (NPL) has a negative effect on profitability (ROA).

Capital Adequacy Ratio (CAR) reflects a bank's ability to absorb potential losses arising from risks associated with its assets. Adequate capital strengthens financial resilience, supports credit expansion capacity, and increases depositor confidence (Kasmir, 2023; OJK, 2022). H4: Capital (CAR) has a positive effect on profitability (ROA).

The four ratios—LDR, BOPO, NPL, and CAR—are key indicators that are interrelated in determining a bank's overall financial condition. Profitability tends to improve when fund distribution is optimized, operational costs are managed efficiently, credit quality is maintained, and capital remains at an adequate level. H5: Liquidity, operational efficiency, credit quality, and capital simultaneously affect profitability (ROA).

A summary of previous studies examining the relationships among these variables is presented in the following table.

Table 2. Summary of Previous Research

No	Researcher (Year)	Variable	Key Results
1	Aminudin (2025)	NPL, BOPO → TWO	NPLs and BOPO tend to suppress BPR ROA.
2	Rifansa & Pulungan (2022)	CAR, NPL, LDR, BOPO → LONG	NPL and BOPO are negative; CAR positive; LDR varies.
3	Susilawati & Nurulrahmatiah (2021)	NPL, LDR → LONG	NPL negative against ROA; LDR is affected through NIM.
4	Hidayat, Lubis, & Salim (2022)	NIM, BOPO, NPL, LDR → TWO	negative BOPO and NPL; LDR affects ROA.
5	Junianti, Wibowo, & Hartati (2023)	CAR, NPL, LDR → LONG	CAR supports profitability; NPLs are suppressing profitability.
6	Primary et al. (2024)	CAR, NPL, LDR, BOPO → LONG	BOPO and NPL are predominantly negative; CAR positive; LDR varies.
7	Nurfitriani (2021)	CAR, NPL, LDR → LONG	CAR and LDR support ROA; NPLs lower ROA.
8	Mufitasari & Kurniasari (2025)	BOPO, LDR, NPL → ROA	BOPO and NPL suppress ROA; LDR depends on the quality of the intermediation.
9	Setyarini (2020)	CAR, NPL, BOPO, LDR → LONG	negative BOPO and NPL; CAR positive; LDR is inconsistent.
10	Nurkhofifah, Rozak, & Apip (2020)	LONG → NPL	NPLs have a negative effect on profitability.
11	Nufus & Munandar (2021)	CAR, NIM → LONG	CAR has a positive effect on ROA.
12	Sari & Septiano (2020)	LDR → Profitability	Liquidity through LDR plays a role in explaining the bank's profitability.

No	Researcher (Year)	Variable	Key Results
13	Wardana et al. (2023)	CAR, LDR, BOPO, NPL → LONG	BOPO and NPL are significantly negative; CAR positive; LDR is weak.
14	Safitri et al. (2025)	CAR, LDR, NPL, BOPO → LONG	CAR has a significant effect; other variables vary.
15	Hanif et al. (2025)	CAR, NPL, LDR, BOPO → LONG	NPL and BOPO are the most consistent in suppressing ROA.
16	Sholika (2024)	NPL, BOPO, CAR → LONG	NPL and BOPO are significantly negative; CAR positive is significant.
17	Ningsih & Ilhami (2023)	CAR, LDR → LONG	CAR and LDR have an effect with a dominant positive direction.
18	Squirrels (2020)	NPL, BOPO, CAR, LONG	Internal factors, especially NPLs and BOPO, affect profit performance.

Source: Processed Research, 2026.

Based on previous research, three main research gaps were identified. First, empirical findings regarding the effects of LDR and CAR on ROA remain inconsistent. Second, most previous studies have used commercial bank samples or cross-bank panel data, whereas studies specifically examining a single Bank Perkreditan Rakyat (BPR) with Perseroda status, such as PT BPR Kerta Raharja, remain limited. Third, the 2021–2025 period represents a post-pandemic recovery phase accompanied by adjustments in asset quality management policies; therefore, the relationships among the observed variables during this period may differ from those identified in previous periods.

Based on the background description and problem identification, this study generally aims to analyze the development of liquidity (LDR), operational efficiency (BOPO), credit quality (NPL), capital (CAR), and profitability (ROA) at PT BPR Kerta Raharja during the 2021–2025 period, as well as to examine the effects of these four independent variables on profitability, both partially and simultaneously. More specifically, this study was designed to measure the extent to which LDR, BOPO, NPL, and CAR individually affect ROA, while also assessing the combined effect of these four variables in explaining variations in the company's profitability during the observation period.

The results of this study are expected to provide theoretical and practical benefits. Theoretically, this research can enrich the body of knowledge in banking financial management and serve as empirical verification of financial intermediation theory, agency theory, and signaling theory within the context of local banking institutions in Indonesia. Practically, this research is expected to provide strategic input for the management of PT BPR Kerta Raharja in managing liquidity, operational efficiency, credit quality, and capital to improve profitability sustainably. For regulators, particularly the Financial Services Authority (Otoritas Jasa Keuangan/OJK), the findings may serve as input for evaluating BPR supervision policies. Meanwhile, for academics and future researchers, this study can serve as a reference for developing similar research with longer observation periods, broader samples, or additional variables. The public and investors may also utilize the findings as a consideration in evaluating

the performance and financial soundness of PT BPR Kerta Raharja as a regionally owned financial institution.

METHODS

This research used a quantitative method with a descriptive and verificative approach and was classified as causal explanatory research aimed at empirically examining the cause-and-effect relationships among variables. LDR, BOPO, NPL, and CAR were positioned as independent variables, while ROA was used as the dependent variable.

The research design employed a time-series approach with PT BPR Kerta Raharja Perseroda as the unit of analysis. The data were compiled in quarterly periods, resulting in a total of 20 observations during 2021–2025 (5 years × 4 quarters). Sample selection used a saturated sampling technique (census), in which all quarterly financial reports within the research period were included as the research sample.

Table 3. Operationalization of Research Variables

Variable	Conceptual Definition	Formula	Scale	Directions
Liquidity (X1)	The ability of banks to meet short-term obligations and manage the distribution of funds productively.	Total Third Party Credits/Funds × 100%	Ratio	Positive (+)
Operational Efficiency (X2)	The ability of banks to efficiently manage operating expenses to generate operating income.	Operating Expenses / Operating Income × 100%	Ratio	Negative (–)
Credit Quality (X3)	The quality condition of the credit portfolio reflects the level of default risk of the debtor.	Non-Performing Loans / Total Loans × 100%	Ratio	Negative (–)
Capital (X4)	The bank's ability to provide adequate capital to absorb risk and support business expansion.	Capital/ATMR × 100%	Ratio	Positive (+)
Profitability (Y)	The bank's ability to generate profits from the total assets it owns.	Profit Before Tax / Total Assets × 100%	Ratio	–

Source: Processed Research, 2026.

This study used secondary data obtained from the published financial statements of PT BPR Kerta Raharja Perseroda for the 2021–2025 period through a documentation study. The collected data included total credit, third-party funds, operating expenses, operating income, non-performing loans, capital, Risk-Weighted Assets (RWA), profit before tax, and total assets, which were used to calculate LDR, BOPO, NPL, CAR, and ROA.

Data analysis was conducted using descriptive and verificative analyses with the assistance of IBM SPSS Statistics software. The analysis stages included descriptive statistics, classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation), multiple linear regression analysis, the coefficient of determination (R^2) test, simultaneous hypothesis testing (F-test), and partial hypothesis testing (t-test). The regression model applied in this study was:

$$ROA = \alpha + \beta_1 LDR + \beta_2 BOPO + \beta_3 NPL + \beta_4 CAR + \varepsilon$$

where ROA represented profitability, α represented the constant, β_1 – β_4 represented the regression coefficients of each independent variable, and ε represented the error term. The normality test was conducted using the Shapiro–Wilk test, the multicollinearity test was assessed using tolerance and Variance Inflation Factor (VIF) values, the heteroscedasticity test was performed using the Glejser test, and the autocorrelation test was evaluated using the Durbin–Watson statistic. Hypothesis testing was conducted using a significance level of 5% ($\alpha = 0.05$), where the null hypothesis (H_0) was rejected when the significance value was less than 0.05.

RESULTS AND DISCUSSION

Overview of Research Objects

PT BPR Kerta Raharja Perseroda is a banking institution owned by the Bandung Regency Government. Its institutional development began with the Village Production Bank (BKPD) which was formed in 1965/1976, then changed to BPR Regional Company (PD. BPR) in 1997, consolidated into PD. BPR Bandung Regency in 2010, changed its name and form of legal entity to PT BPR Kerta Raharja in 2014, and finally to PT BPR Kerta Raharja Perseroda in 2020. The company's main business activities include raising public funds, distributing credit, managing liquidity and credit risk, strengthening capital, and increasing profitability.

Development of Liquidity (LDR), Operational Efficiency (BOPO), Credit Quality (NPL), Capital (CAR), and Profitability (ROA)

The data of research variables collected from the quarterly report of PT BPR Kerta Raharja for the 2021–2025 period are presented in the following table.

Table 4. Research Variable Data of PT BPR Kerta Raharja in 2021–2025

Year	Stuttgart	LDR	BOPO	Gross NPL	CAR	LONG
2021	I	82,52%	89,31%	7,34%	23,05%	1,49%
2021	II	84,37%	89,74%	7,04%	23,12%	1,52%
2021	III	85,25%	89,84%	6,40%	23,13%	1,63%
2021	IV	82,49%	88,88%	5,69%	19,70%	2,02%
2022	I	92,81%	88,50%	4,81%	20,06%	2,09%
2022	II	93,56%	87,02%	4,41%	19,25%	2,29%
2022	III	94,49%	85,46%	4,11%	18,06%	2,53%
2022	IV	82,49%	88,05%	4,77%	17,13%	1,90%
2023	I	89,97%	89,15%	4,93%	15,07%	1,62%
2023	II	92,47%	88,19%	4,97%	15,50%	1,79%
2023	III	82,50%	91,56%	9,64%	19,06%	1,22%
2023	IV	79,00%	91,82%	9,76%	19,34%	1,20%
2024	I	132,69%	98,87%	10,10%	19,83%	0,08%
2024	II	147,87%	95,77%	10,77%	19,24%	0,58%
2024	III	139,10%	95,28%	10,75%	18,61%	0,67%

Year	Stuttgart	LDR	BOPO	Gross NPL	CAR	LONG
2024	IV	137,13%	92,18%	10,60%	18,76%	1,16%
2025	I	151,13%	91,03%	13,02%	19,02%	1,92%
2025	II	161,29%	91,89%	15,51%	18,76%	1,58%
2025	III	151,85%	91,64%	16,17%	20,21%	1,55%
2025	IV	132,91%	92,72%	15,44%	20,58%	1,30%

Source: PT BPR Kerta Raharja Quarterly Report (processed).

Quarterly data shows that in 2021 the bank's financial condition in general is still relatively healthy, with LDR ranging from 82%–85%, BOPO 88%–89%, and NPLs improving from above 7% to 4.11% in the third quarter of 2022, so that ROA had reached 2.53%—the highest level during the observation period. Entering 2023–2024, LDR jumped from the range of 82%–92% to more than 130%, but the increase was not accompanied by an improvement in credit quality; NPLs actually increased from 4%–5% to 16.17% in the third quarter of 2025, while BOPO jumped to 98.87% in the first quarter of 2024. This series of pressures caused ROA to drop drastically to a low of 0.08% in the first quarter of 2024, before gradually improving to the range of 1.30%–1.92% in 2025, but remaining below the initial achievement of the period. Capital (CAR) is relatively maintained at a safe level despite a gradual downward trend from 23% (2021) to 18%–20% (2024–2025).

Table 5. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Red	Std. Deviation
LDR	20	0,7900	1,6129	1,0979	0,2982
BOPO	20	0,8546	0,9887	0,9085	0,0318
Gross NPL	20	0,0411	0,1617	0,0881	0,0397
CAR	20	0,1507	0,2313	0,1937	0,0213
LONG	20	0,0008	0,0253	0,0151	0,0059

Source: Research data of PT BPR Kerta Raharja for the period 2021–2025 (processed).

The LDR during the observation period had an average value of 109.79% with a range of 79.00%–161.29% and a standard deviation of 29.82%, indicating a relatively low liquidity variation and tending to be stable, with a tendency to increase until the end of the period—indicating an increasingly active intermediation function.

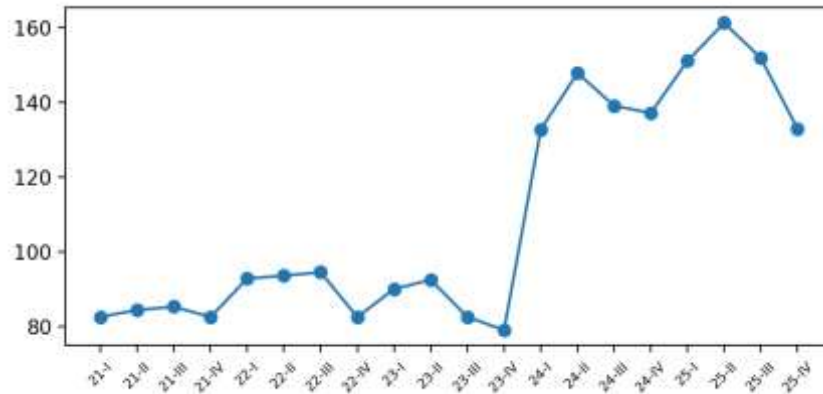


Figure 1. Development of Loan to Deposit Ratio (LDR) in 2021–2025

Source: Quarterly Financial Statements of PT BPR Kerta Raharja (Processed by researchers, 2026).

BOPO has an average score of 90.85%, being in the range of 85.46%–98.87% with a standard deviation of 3.18%. The high average value shows that the portion of operating income used to finance operating expenses is still quite large, so the room for cost control and optimization is still open.

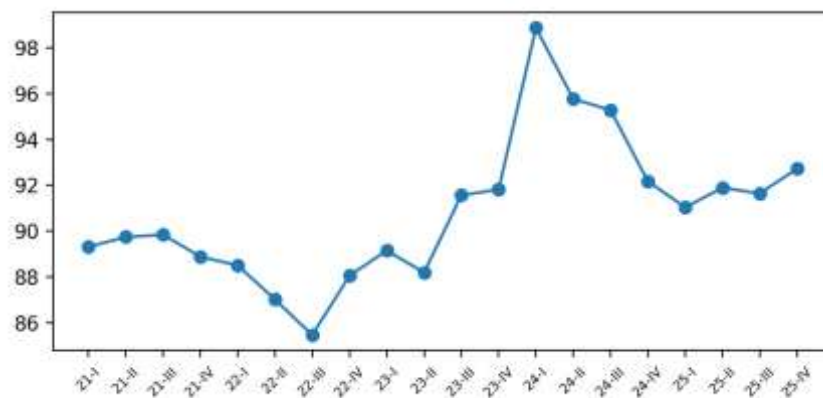


Figure 2. Development of BOPO in 2021–2025

Source: Quarterly Financial Statements of PT BPR Kerta Raharja (Processed by researchers, 2026).

Gross NPL has an average value of 8.81%, is in the range of 4.11%–16.17% with a standard deviation of 3.97%, indicating that there are variations in credit risk between periods that need to be considered by management through strengthening credit analysis, debtor monitoring, and resolving non-performing loans.

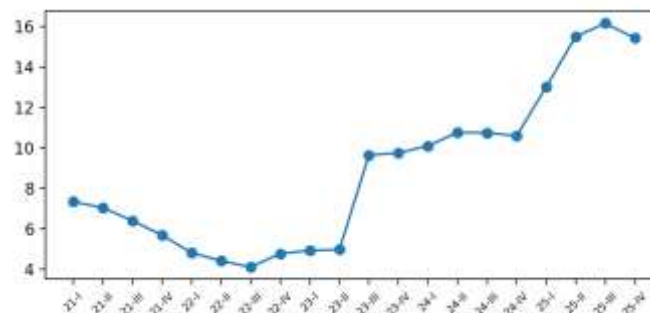


Figure 3. Development of Non-Performing Loans (NPLs) in 2021–2025

Source: Quarterly Financial Statements of PT BPR Kerta Raharja (Processed by researchers, 2026).

CAR has an average value of 19.37%, with a range of 15.07%–23.13% and a standard deviation of 2.13%, indicating a relatively stable and adequate capital structure to absorb potential losses while supporting business expansion. ROA has an average value of 1.51%, with a range of 0.08%–2.53% and a standard deviation of 0.59%, indicating a relatively stable level of profitability despite fluctuations in several quarterly periods.

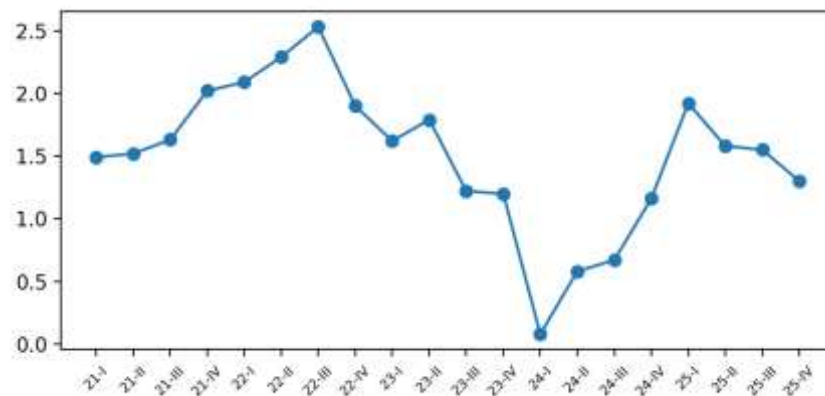


Figure 4. Return on Assets (ROA) Development in 2021–2025

Source: Quarterly Financial Statements of PT BPR Kerta Raharja (Processed by researchers, 2026).

Classic Assumption Test

Normality testing used the Shapiro–Wilk method because the number of observations was relatively small (20 observations).

Table 6. Normality Test Results

Testing	Statistics	Sig.	Conclusion
Shapiro–Wilk	0,978	0,898	Normally distributed residual

Source: Secondary data processed (SPSS 26, 2026)

The significance value of 0.898 is above 0.05, so H_0 (normally distributed residuals) cannot be rejected and the model is feasible to proceed to the next stage of testing.

Table 7. Multicollinearity Test Results

Variable	Tolerance	VIVID	Remarks
LDR	0,406	2,461	Multicollinearity does not occur
BOPO	0,455	2,199	Multicollinearity does not occur
NPL	0,327	3,062	Multicollinearity does not occur
CAR	0,950	1,053	Multicollinearity does not occur

Source: Secondary data processed (SPSS 26, 2026)

All independent variables have a Tolerance value above 0.10 and a VIF below 10, so the regression model does not experience multicollinearity problems.

Table 8. Results of Heteroscedasticity Test (Glejser Test)

Variable	Sig.	Remarks
LDR	>0.05	Heteroscedasticity does not occur
BOPO	>0.05	Heteroscedasticity does not occur
NPL	>0.05	Heteroscedasticity does not occur
CAR	>0.05	Heteroscedasticity does not occur

Source: Secondary data processed (SPSS 26, 2026)

The significance value of all variables is above 0.05, so the residual variance does not show a systematic heteroscedasticity pattern.

Table 9. Autocorrelation Test Results

Models	Durbin–Watson	Conclusion
Regression	1,444	No annoying autocorrelation

Source: Secondary data processed (SPSS 26, 2026)

The Durbin–Watson statistic of 1,444 shows that the model does not undergo interfering autocorrelations, so it can be used for the hypothesis testing stage.

Multiple Linear Regression Analysis

Table 10. Multiple Linear Regression Results

Variable	Coefficient (B)	t count	Sig.
Constant	0,1978	14,802	0,000
LDR	0,0057	3,186	0,006
BOPO	−0.2105	−13,366	0,000
NPL	0,0001	0,004	0,997
CAR	0,0118	0,729	0,477

Source: Secondary data processed (SPSS 26, 2026)

The regression equation obtained was: $ROA = 0.1978 + 0.0057(LDR) - 0.2105(BOPO) + 0.0001(NPL) + 0.0118(CAR)$.

Partial Hypothesis Testing (t-test)

The LDR variable obtained a significance value of 0.006 (< 0.05) with a positive coefficient, so H_0 was rejected and H_1 was accepted: liquidity had a positive and significant effect on profitability. The increase in the distribution of third-party funds into productive credit is related to the increasing ability of banks to generate profits, in line with the concept of the banking intermediation function (Mishkin, 2022) and the findings of Susilawati and Nurulrahmatiah (2021) and Ningsih and Ilhami (2023).

The BOPO variable obtained a significance value of 0.000 (< 0.05) with a negative coefficient, so that H_0 was rejected and H_2 was accepted: operational efficiency had a negative and significant effect on profitability, and was the most dominant variable affecting ROA. The greater the proportion of operating costs to operating income, the smaller the room for profit

formation. These findings are consistent with Sholika (2024), Wardana et al. (2023), Pratama et al. (2024), and Hidayat et al. (2022).

The NPL variable obtained a significance value of 0.997 (> 0.05), so that H_0 was accepted and H_3 was rejected: credit quality was not shown to have a significant effect on profitability. Changes in the level of non-performing loans during the observation period are suspected to still be manageable through restructuring and the establishment of the Impairment Loss Reserve (CKPN), so that they have not had a statistically significant impact on ROA. This result is different from the findings of Nurkhofifah, Rozak, and Apip (2020) and Hanif et al. (2025) who found a significant negative influence.

The CAR variable obtained a significance value of 0.477 (> 0.05) with a positive coefficient, so that H_0 was accepted and H_4 was rejected: capital was not proven to have a significant effect on profitability. The relatively adequate and stable condition of capital throughout the study period indicates that capital functions more as a risk buffer than as a direct driver of profit increases, so these results do not fully support the views of Kasmir (2023) and the findings of Junianti, Wibowo, and Hartati (2023).

Table 11. Overview of Partial Hypothesis Testing Results

Hypothesis	Results
H1: LDR $\rightarrow$ LONG	Accepted (significant positive effect)
H2: DOUBLE $\rightarrow$ BOO	Accepted (significant negative effect)
H3: LONG $\rightarrow$ NPL	Rejected (no significant effect)
H4: LONG $\rightarrow$ CAR	Rejected (no significant effect)

Source: Secondary data processed (SPSS 26, 2026)

Simultaneous Hypothesis Testing (F Test) and Coefficient of Determination (R^2)

Table 12. Simultaneous Test Results (ANOVA)

Models	Sum of Squares	df	Mean Square	F count	Sig.
Regression	0,001020	4	0,000255	72,97	0,000
Residual	0,000052	15	0,000003		
Total	0,001072	19			

Source: Results of research data processing (2026).

The calculated F-value of 72.97 with a significance of 0.000 (< 0.05) indicates that H_0 is rejected and H_5 is accepted: LDR, BOPO, NPL, and CAR together have a significant effect on the ROA PT BPR Kerta Raharja Perseroda for the 2021–2025 period.

Table 13. Coefficient of Determination (Model Summary)

Models	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0,975	0,951	0,938	0,00186

Source: Results of research data processing (2026).

An R value of 0.975 indicates a very strong relationship between independent variables together and ROA. An R-Square value of 0.951 indicates that 95.1% of ROA variations can be explained by LDR, BOPO, NPL, and CAR, while the remaining 4.9% are explained by other factors outside the model. The Adjusted R Square value of 0.938 confirms the model's explanatory ability remains high after considering the number of variables and sample size, with a Standard Error of Estimate of 0.00186 indicating a relatively small rate of model prediction error.

Discussion of Simultaneous Influences

The results showed that LDR, BOPO, NPL, and CAR simultaneously had a significant effect on ROA. This finding is in line with the Financial Intermediation Theory (Mishkin, 2022) which explains that bank profitability increases if the intermediation function is supported by efficient cost management, good asset quality, and adequate capital structure, and is also consistent with banking management theory (Kasmir, 2023) which places liquidity, asset quality, operational efficiency, and capital adequacy as the main ratios that shape the bank's financial performance. Although only LDR and BOPO are partially proven to be significant, together the four variables are able to explain almost all variations in the profitability of PT BPR Kerta Raharja Perseroda, so that increasing profitability cannot be achieved by improving only one financial indicator separately, but requires an integrated strategy through optimizing quality credit distribution, improving operational efficiency, controlling non-performing loans, and maintenance of adequate capital levels.

CONCLUSION

This study analyzed the effects of liquidity (LDR), operational efficiency (BOPO), credit quality (NPL), and capital (CAR) on the profitability (ROA) of PT BPR Kerta Raharja Perseroda during the 2021–2025 period based on 20 quarterly observations. Descriptively, LDR showed an increasing tendency, indicating a more active intermediation function. BOPO remained at a relatively high level, suggesting that operational efficiency required further improvement. NPL fluctuated, with an increasing tendency toward the end of the observation period. CAR remained relatively strong and stable above the minimum regulatory requirements, while ROA fluctuated with a declining trend compared with the beginning of the period. Partially, LDR was found to have a positive and significant effect on ROA, whereas BOPO had a negative and significant effect and was the most dominant factor. NPL and CAR were not found to have significant effects, although CAR showed a positive relationship direction. Simultaneously, the four variables had a significant effect on ROA, with a coefficient of determination of 95.1%, confirming that bank profitability resulted from the integrated interaction of intermediation activities, cost efficiency, credit quality, and capital adequacy. Based on these findings, the management of PT BPR Kerta Raharja is advised to optimize credit distribution selectively to ensure that the increase in LDR remains within a healthy range, prioritize operational efficiency through business process digitization and cost control to reduce BOPO, strengthen credit risk management through improved analysis, monitoring, and restructuring to maintain NPL levels, and preserve and utilize strong capital to support quality credit expansion. Thus, capital can function not only as a risk buffer but also as a driver of sustainable profit growth. Future researchers are encouraged to extend the observation period, employ panel data from multiple BPRs, and incorporate additional variables, such as NIM,

cash ratio, CKPN, bank size, and macroeconomic factors, to develop a more comprehensive research model.

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