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Determinants of Profitability in Digital Banking: The Moderating Role of CKPNs

Faktor Penentu Profitabilitas pada Perbankan Digital: Peran Moderasi CKPN

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Abstract - This research seeks to evaluate the determinants of the ROA ratio in connection to the financial ratios CAR, NPL, and LDR, while also investigating the moderating impact of CKPN on this connection. The researcher used secondary information from the financial statements of six digital banks listed on the BEI (Stock Exchange Indonesia) for the period spanning 2020 to 2024, utilizing SPSS version 27. The study findings indicated that CAR positively influences ROA; nevertheless, this effect lacks significance. Conversely, NPL has a beneficial influence on ROA, which opposes the prevailing idea that NPL should diminish profitability. The LDR ratio influences ROA; however, its effect is minimal. CKPN, in its capacity as a moderator, may just enhance the impact of CAR on ROA but is unable to modify the link between NPL and LDR with ROA. This study's originality is attributed to the incorporation of CKPN as a moderating variable within the framework of digital banking in Indonesia, with the finding that NPL positively influences ROA. This research highlights the need for flexible strategies in the management of CKPN to foster stability and innovation in digital finance.

Keywords: CAR, CKPN, LDR, NPL, ROA.

Abstrak *- Penelitian ini bermaksud untuk menganalisis determinan rasio ROA dari dampak rasio keuangan CAR, NPL, dan LDR serta menguji peran CKPN sebagai variabel moderasi dalam memperkuat hubungan tersebut. Peneliti mengadopsi data sekunder dari laporan tahunan keuangan enam bank digital yang terdaftar di Bursa Efek Indonesia dari jangka waktu 2020 sampai 2024. Data dianalisis memanfaatkan regresi linier berganda melalui program SPSS versi 27. Temuan ini mengungkapkan rasio CAR berdampak positif kepada ROA, namun pengaruh tersebut tidak signifikan. Sedangkan NPL berdampak positif terhadap ROA, yang bertentangan dengan teori umum bahwa NPL seharusnya menurunkan profitabilitas. Rasio LDR kemungkinan dampak terhadap ROA, namun tidak relevan. CKPN menjadi variabel moderasi hanya mampu menegakkan pengaruh CAR terhadap ROA, namun tidak dapat memoderasi hubungan NPL dan LDR kepada ROA. Kebaruan dari penelitian ini terletak pada penggunaan CKPN sebagai variabel moderasi dalam konteks bank digital di Indonesia, serta temuan bahwa NPL memiliki dampak positif kepada ROA. Implikasi penelitian ini adalah perlunya kebijakan adaptif dalam pengelolaan CKPN untuk mendukung stabilitas dan inovasi keuangan digital.*

Kata Kunci*: CAR, CKPN, LDR, NPL, ROA.*

INTRODUCTION

Numerous facets of human endeavour, including the banking industry, are experiencing transformations attributable to digital technology. Given the extensive use of the internet and smartphones in Indonesia, there is a growing societal interest in digital banking services. The transformation of digital banks is attributable to the rapid advancement of digital technologies that have infiltrated many aspects of life. Investors see the evolution of digital banking transformation as a novel and stimulating option for the future (Purwanto & Perkasa, 2024). In the banking sector, analysing various financial indicators is very important for measuring a bank's competencies. In evaluating the stability and efficiency cost of a bank, ratios such as the CAR (capital adequacy ratio), the level of NPL (non-performing loan), and the LDR (loan-to-deposit ratio) are of paramount importance. Also, the digital banking sector in terms of cost structure, business model, and exposure to digital risks. Therefore, it is important to assess whether financial indicators in digital banking, such as CAR, NPL, and LDR, remain relevant in explaining ROA

performance Gunarso, (2023) and how CKPN's capability influences the correlation between these variables and ROA's performance. The issue addressed in this study is the examination of profitability, especially the link with ROA. The efficacy of ROA may be influenced by factors such as CAR, NPL, and LDR, with CKPN serving as an interaction variable. that affects the interplay of CAR, NPL, and LDR regarding ROA's performance. Previous research to evidence that the concurrent effects of the markers CAR, LDR, and NPL significantly enhance ROA. It demonstrates that banking institutions possess substantial capital; nonetheless, their equity is insufficient to mitigate the risks of losses from operational activity in pursuit of profit (Abdurrohman et al., 2020). Additional studies concerning the CAR index demonstrate a substantial beneficial effect on ROA. A rise in the bank's CAR ratio will consequence in a corresponding improvement in the bank's by ROA. Septiasa & Zuhri, (2020) prior research on the NPL ratio indicates little effect on profitability (ROA) with fluctuations in the NPL variable (IKPIA Perbanas & IKPIA Perbanas, 2022). Prior research, similar to this study, indicates that the LDR ratio does not influence ROA (Widyastuti & Aini, 2021). Previous studies show that the Allowance for Impairment Losses (CKPN) can reduce the impact of NPL (non-performing loans) and LDR (loan-to-deposit ratio) on ROA (return on assets), while also increasing the effect of CAR (capital adequacy ratio) on ROA (Nikmah et al., 2023). This research poses the question: does the CAR (capital adequacy ratio) favourably affect the return on assets (ROA) in digital banking. Does the presence of NPL (non performing loan) exert a favourable consequence on ROA (returns on asset) in digital banking. Does the LDR (loan deposit ratio) have a favourable impact on the ROA (return on assets) in digital banking. Does the credit loss provision (CKPN) amplify the impact of the CAR (capital adequacy ratio) on ROA (return on assets) in digital banking. Does the credit loss provision (CKPN) reinforce the impact of non-performing loans (NPL) on ROA (return on assets) in digital banking. Additionally, does the loss provision reserve (CKPN) enhance the impact of the LDR (loan to deposit ratio) on ROA (return on assets) in digital banking. This study's update employs the quantitative analysis approach using SPSS 27, in contrast to the prior usage of e-views 11. The prior research used a purposive sampling strategy for subjects in the conventional banking industry, but this study utilises subjects in the digital banking sector. This reschearch introduces the reserve for losses (CKPN) as a moderating variable, which has been inadequately explored within the framework of digital banking in Indonesia. This research establishes a novel framework for scholarly discussion concerning the influence of CKPN on the relationship between financial coefficients and profitability, which may be employed for evaluating strategic decisions in the assessment of digital banks' performance and for managing CKPN to reduce risk and improve efficiency.

LITERATURE REVIEW

Theory of Financial Intermediation

This research primarily uses the notion of financial intermediation. Throughout this era, many established financial markets evolved, and new markets appeared. The cost of transactions has decreased, while information has become more affordable and readily available. Nevertheless, these alterations do not correspond with a reduction in the quantity of intermediaries. Conversely, the opposite has occurred. Intermediaries have gained increased significance in established markets and represent a substantial component of trading in emerging markets, including the derivatives market. Aligning the principles of intermediate theory, which are based on transaction costs and asymmetric information, with the recent developments that have occurred is challenging. I contended that participation costs are essential for comprehending the present operations of intermediaries, particularly their emphasis on risk management, which elucidates why banks function effectively as intermediaries in the management of money and hazards (Hester, 1994). The efficiency of a bank, measured by profitability (ROA), is greatly as result by how well it manages its financial relationships, such as CAR (capital adequacy ratio), NPL (non-performing loans), and LDR (loan to deposit ratio). In this case, the reserve for impairment of assets (CKPN) acts as a tool to manage risk, which can either improve or reduce the consequence of these factors on ROA. Therefore, this idea forms the basis for studying how ROA is determined in Indonesian digital banks. In this context, the reserve for impairment of assets (CKPN) serves as a risk mitigation tool that may either enhance or diminish the influence of these factors on

ROA. Consequently, this theory serves as the conceptual foundation for analysing ROA determinations in Indonesian digital banks.

ROA (Return on Assets)

ROA is a report that reflects all operational assets. It illustrates the company's profitability mechanism for creating post-tax profit using all available assets. It indicates the extent to which the firm earns profit from its assets (Silalahi & Setiana Manik, 2019). The net profitability factor before taxation is the ratio of total assets to net profitability. The rise in ROA signifies the extent of growth in the company's net profitability derived from all recorded assets (Maulani & Riani, 2021).

CAR (Capital Adequacy Ratio)

The CAR (capital adequacy ratio), expressed to as the minimum capital provision obligation (KPMM), is a financial metric that indicates a bank's capacity to allocate money for business continuity while considering the possibility of potential losses by its efforts. Heningtyas et al., (2021) according to Bank Indonesia laws concerning the Bank for International Settlements (BIS), banks must maintain a capital adequacy ratio (CAR) of no less than 8% to safeguard their financial stability. The bank is required to maintain a core capital (Tier 1) of a minimum of 6% of risk-weighted assets (RWAs) risk-weighted assets (RWAs) and tier 1 capital below 4.5% of RWAs, both on an individual basis and in conjunction with its subsidiaries. Risk-weighted assets (ATMR) denote the capital risk linked to investments in low-risk vs high-risk assets relative to others. The CAR value signifies the bank's solvency; hence, a rating falling below the minimum criteria may jeopardise clients' money.

NPL (Non-Performing Loan)

The NPL (non-performing loans) is a bank metric that signifies the proportion of distressed loans relative to the entire loan portfolio. Problematic loans include illiquid, questionable, and uncollectible debts. During its operations, the bank sometimes assumes the risk of borrower bankruptcy, which may result from a downturn in company activity, the unsuccessful completion of a project, or other factors that hinder the borrower's ability to meet their commitments. NPL assesses the bank's powered to manage the possibility impact of borrower loan defaults (Mustafa & Sulistyowati, 2022). According to Bank of Indonesia regulation by number 15/2/PBI/2013, the NPL (non-performing loan) of banks must not surpass 5% to mitigate the risk of insolvency.

LDR (Loan to Deposit Ratio)

The LDR (loan deposit ratio) quantifies the proportion of loans extended to the community relative to the community's deposits. The bank receives incoming money via savings products, deposits, and checking accounts, together referred to as third-party funds (DPK). The more capital the bank attracts, the more options it has to provide loans, which increases the bank's profit (Putranto et al., 2017). The loan-to-deposit ratio (LDR) quantitatively indicates the degree to which banks use externally sourced money for lending purposes.

Allowance for Impairment Losses (CKPN)

The reserve for loss reduction, or CKPN, pertains to Bank Indonesia (BI) regulation number of 14/15/PBI/2012 and is a reserve resulting from the impairment of verified financial assets whose value is less than the originally recorded amount. CKPN is used as a mechanism to mitigate excessive risk-taking by managers to attain capital management objectives. The adoption of PSAK 71, effective January 2020, would elevate the CKPN on loans, thus influencing the company's capital and incurring supplementary expenses associated with preparatory measures for its execution (Prabu Rizal & R. Shauki, 2019). Mandates that CKPN be computed using the anticipated loss methodology, which is prospective. The IIA (Indonesian Institute of Accountants) stipulates that the improvement loss method mandates banks to evaluate the risk of financial instruments from the date of initial recognition, utilising predictive data including economic growth projections, inflation estimates, unemployment rates, and commodity price indices provided by the chief economist for each reporting period.

Framework

The author created a theoretical framework by looking at existing studies to explain how the CAR ratio, NPL ratio, and LDR ratio are connected to the ROA ratio, while also considering the effect of CKPN in these relationships.

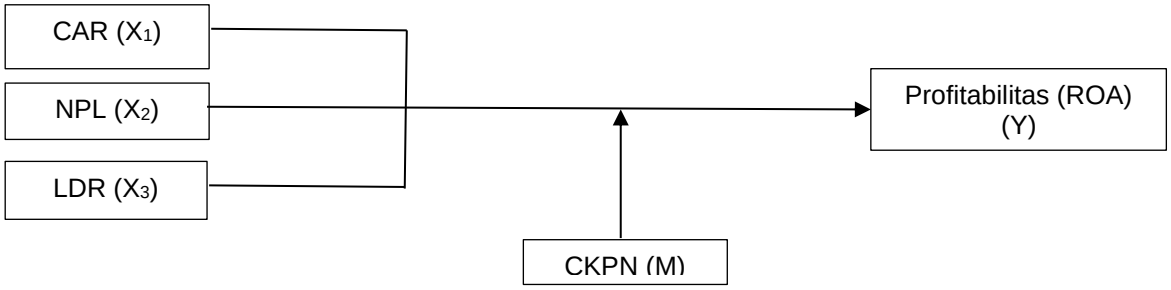

Figure 1. Research Framework

Capital Adequacy Ratio (CAR) in Relation to Return on Assets (ROA)

The bank is obligated to preserve a minimum capital of 8% as stipulated by financial supervision regulation number 11/PJOK.03/2016. In banking, capital or equity is quantifiable by a ratio known as the CAR. The results of the authors' research Alfianda & Widianto, (2020) the display of the CAR coefficient positively influences ROA. As per Dini & Manda, (2020) the CAR ratio does not influence ROA.

NPL (Non-Performing Loan) in relation to ROA (Return on Asset)

NPL denotes the proportion of NPL (non performing loan) relative to the total amount of loans issued. Delinquent loans signify a risk that the bank must mitigate. The proliferation of NPL (non-performing loan) hinders the bank's capacity to produce income. The primary concern is that the bank must incur losses resulting from emerging credit issues. Based on a study Warsa & Mustanda, (2016) a reduced level of NPL (non-performing loans) correlates with increased bank profitability; conversely, elevated NPL levels result in financial losses owing to the recovery of uncollectable debts.

LDR (Loan to Deposit Ratio) in relation to ROA (Return on Asset)

The LDR (loan to deposit ratio) as per Bank Indonesia's standards is preferably between 80% and 90%. An elevated LDR signifies a riskier and perhaps more lucrative lending strategy for the bank, whilst a diminished LDR indicates a safer approach. Based on a study Kurniawan et al., (2020) indicates that LDR affects ROA.

CKPN (Allowance for Impairment Losses) in Mitigating the Impact of CAR (Capital Adequacy Ratio) on ROA (Return on Assets)

The CAR is an indication of the company's equity. The bank may use its substantial cash for investments without restriction. A higher CAR number indicates that the bank has more capital, which may be used to produce money via lending activities. Nonetheless, the bank must anticipate excessive loan expansion, this might threaten the stability of the financial program by acquiring extra money. The study's findings indicate that CKPN enhances CAR's effect on ROA; nevertheless, these results lack statistical significance (Nikmah et al., 2023).

CKPN (Allowance for Impairment Losses) in Mitigating the Impact of NPL (Non-Performing Loan) on ROA (Return on Asset)

In accordance with PSAK 71, the corporation is obligated to establish reserves for credit impairment (CKPN) across all classifications of loans or credits, including those that are performing, underperforming, or non-performing. The corporation must establish reserves for anticipated credit losses (CKPN) for existing loans, calculated on the basis of credit losses projected during the next 12 months. Consequently, the corporation is establishing larger loan or bad debt reserves than before, with the increase in reserves ranging from 25% to 35%. Increased reserves may alleviate the effects of NPL (non-performing loans) on ROA (return on assets), since the bank is seen more equipped to handle credit risks. Investigative results Nugraha, (2022) indicates that CKPN may substantially mitigate the possibility of NPL on ROA.

CKPN (Allowance for Impairment Losses) dalain Mitigating the Impact of LDR (Loan to Deposit Ratio) on ROA (Return on Asset)

An rise in the LDR coefficient may enhance the bank's income by augmenting the volume of approved loans. An increase in loan disbursement correlates with an elevated credit risk that the bank must oversee. To mitigate the existence of such a danger, every escalation in risk is counterbalanced by a

rise in CKPN. Findings of the authors' research Nikmah et al., (2023) the presence of CKPN diminishes the impact of LDR on ROA, albeit it is not statistically significant.

This research presents the following hypothesis:

H_1: The CAR (capital adequacy ratio) positively impact the return on assets (ROA) in digital banking.

H_2: The presence of NPL (non performing loan) adversely impact ROA (return on asset) in digital banking.

H_3: The LDR (loan deposit ratio) positively influences the ROA (return on assets) in digital banking.

H_4: Impairment loss reserves (CKPN) enhance the impact of the CAR (capital adequacy ratio) on the ROA (return on assets) in digital banking.

H_5: CKPN (allowance for impairment losses) amplifies the impact of NPL (non-performing loan) on ROA (return on assets) in digital banking.

H_6: CKPN (allowance for impairment losses) amplifies the impact of LDR (loan deposit ratio) on ROA (return on asset) inside digital banking.

RESEARCH METHOD

Population and Sample

Population

Sugiyono, (2016) the examined population comprises a diverse array of items or persons chosen for study due to shared qualities and attributes. This study examines six digital banks go public on the BEI (Indonesia Stock Exchange). The digital banks includes are PT. Bank Seabank Indonesia Tbk, PT. Bank Jago Tbk, PT. Bank Neo Commerce Tbk, PT. Bank Hibank Indonesia, PT. Bank BCA Digital Tbk, and PT. Bank Allo Bank Indonesia Tbk, which provided financial data spanning from 2020 to 2024.

Sample

As Sugiyono, (2017) the research sample was chosen from the population to provide a precise general representation. This quantitative research employs secondary data for all variables, namely financial ratios that act as indicators for the assessment of ROA levels. The study employs an approach utilising the CAR (capital adequacy ratio), NPL (non-performing loan ratio), LDR (loan-to-deposit ratio), and CKPN (allowance for impairment losses) as moderators, analysing the metrics of each digital bank go public the BEI (Indonesian Stock Exchange) by 2019 to 2023. Data is gathered from the official company websites of the BEI (Indonesian Stock Exchange), the OJK's, and the respective firms' websites. This research used a purposive sample methodology, including 30 observational data points based on predetermined criteria.

Table 1. Operastional Variable

Reasearch Variable	Definition	Indicators	Size	Source
Profitabilitas (ROA) (Y)	As per Sartono, (2010) the profitability ratio is the capacity of a corporation to earn income in proportion to sales, total assets, or equity. Consequently, this profitability study will be very significant for long-term investors.	$ROA = \frac{Laba\ Bersih}{Total\ Aset} \times 100\%$	%	Financial report
CAR (capital adequacy ratio) (X_1)	The ratio is used to evaluate the bank's capacity to keep enough capital in order to reduce the risks associated with the situation.	$CAR = \frac{Modal}{Aset\ Tertimbang} \times 100\%$	%	Financial report/OJK
NPL (non-performing loan) (X_2)	The ratio indicating the proportion of non-performing loans relative to the total credit provided by the bank.	$NPL = \frac{Kredit\ Bermasalah}{Total\ Kredit} \times 100\%$	%	Financial report/OJK
LDR (loan to deposit ratio) (X_3)	The ratio that assesses a bank's liquidity by comparing total credit given to total third-party funds.	$LDR = \frac{Total\ Kredit}{Dana\ Pihak\ Ketiga} \times 100\%$	%	Financial report/OJK
CKPN (allowance for impairment losses) (M)	Provisions established by the bank to mitigate possible losses arising from the depreciation of financial assets.	CKPN is determined based on the projected anticipated credit loss in accordance with PSAK 71.	Value in Rupiah (Rp)	Notes to the financial statements

Analytical Methods

This research uses panel data. This aim study employs a descriptive statistical analysis of data processing, followed by a model selection test to choose the best appropriate regression model by multiple linear regression. Upon selecting the suitable regression model, an evaluation of the classical assumptions is performed via tests such as normality, multicollinearity, and heteroscedasticity. Subsequent to the data satisfying the traditional assumptions test, a panel data regression analysis is performed using moderated regression analysis (MRA). Ghozali, (2016) it is noted that the interaction test, referred to as MRA, is a specialist program of multiple linear regression, whereby the methods of regression include an interaction term (the subject of several independent variables). A hypothesis test is performed, including a t- evaluate, an F-test, and an evaluation of the coefficient of determination, and this research uses SPSS 27 software.

FINDINGS AND DISCUSSION

Findings

Descriptive Data Analysis

This research employs descriptive statistical analysis, using tests such as CAR, LDR, NPL, ROA, and CKPN ratios for characteristic evaluation. This is an elucidation of the typical analysis.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CAR	30	19.61	820.88	92.0800	146.02384
NPL	30	0.00	2.67	0.5777	0.78443
LDR	30	0.00	163.19	84.0853	34.48147
ROA	30	-14.11	4.76	-0.7370	4.79516
CKPN	30	0.00	12.10	2.4827	2.93313
Valid N (listwise)	30				

Source: SPSS 27 output results processed in 2025.

Table 2 displays the descriptive statistics for the analyzed variables. The capital adequacy ratio (CAR) has a mean of 92.08 and a standard deviation of 146.02. The CAR's smallest value is 19.61, while the highest is 820.88, indicating considerable variability among the recorded units. The mean of the non-performing loans (NPL) variable is 0.5777, accompanied by a standard deviation of 0.7844. The NPL's smallest value is 0.00, and the largest value is 2.67, indicating variations in credit quality among the observations. The mean loan-to-deposit ratio (LDR) is 84.0853, with a standard deviation of 34.4815, a low of 0.00, and a high of 163.19. This number indicates that the liquidity coefficient exhibits considerable variation among the examined units. The return on assets (ROA), the dependent variable, has a mean of -0.7370 and a standard deviation of 4.7952. The smallest ROA is -14.11, while the greatest is 4.76, indicating considerable variability in profitability across the analyzed units. The controlled variable, loss reserve (RPUS), has a minimum value of 0.00, a mean of 2.4827, a standard deviation of 2.9331, and a maximum value of 12.10. The elevated standard deviation of several variables, including CAR, LDR, and CKPN, indicates a substantial data dispersion.

Classic Assumption Test

Table 3. Output Results of the One-Sample Kolmogorov-Smirnov Normality Test

			Unstandardized Residual
N			30
Normal parametersa, b	Mean		0
	Std. Deviation		4.10377603
Most extreme differences	Absolute		0.159
	Positive		0.118
	Negative		-0.159
Test statistic			0.159
Asymp. Sig. (2-tailed) c			0.051
Monte carlo sig. (2-tailed) d	Sig.		0.051
	99% confidence interval	Lower bound	0.045
		Upper bound	0.056

a. Test distribution is Normal
b. Calculated from data

Source: SPSS 27 output results processed in 2025.

Normality Test

Table 3 indicates that the simulated data in this investigation may conform to a normal distribution. The normality analysis findings indicate a relevance value of 0.051, above the highest relevance threshold of 0.05. The result signifies that the regression model has regularly distributed constants.

Multicollinearity Test

The multicollinearity test assesses the correlation among independent variables in a regression formula. A correlation value of the independent variables below α 10 indicates a multicollinearity issue.

Table 4. Output Result of the Multicollinearity

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-0.412	3.368			0.904		
	CAR	0.002	0.007	0.070	-0.122	0.740	0.678	1.475
	NPL	-0.468	1.174	-0.076	0.336	0.694	0.794	1.259
	LDR	0.020	0.028	0.141	-0.398	0.483	0.741	1.349
	CKPN	-0.773	0.296	-0.473	0.711	0.015	0.895	1.117

a. Dependent variable: ROA

Source: SPSS 27 output results processed in 2025.

Table 4 demonstrates that SPSS 27 analyses provide tolerance values of CAR 0.678, NPL 0.794, LDR 0.741, and CKPN 0.895. The VIF (variance inflation factor) values are as follows: CAR is 1.475, NPL is 1.259, LDR is 1.349, and CKPN is 1.117, indicating that each variable's VIF is below 10. The multicollinearity test for the dependent variable ROA indicates that the existence of multicollinearity cannot be established.

Heteroskedasticity Test

Multiple Linear Regression Analysis

This table illustrates the procedure for computing multiple linear regression using the SPSS 27 software. The examination of multivariate linear regression offers a comprehensive understanding of the connection between independent and dependent variables.

Table 5. Multiple Linear Regression Test Results

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-4.147	3.376		-1.228	0.230
	CAR	0.008	0.007	0.243	1.113	0.276
	NPL	0.083	1.278	0.014	0.065	0.949
	LDR	0.031	0.030	0.225	1.035	0.310

a. Dependent variable: ROA

Source: SPSS 27 output results processed in 2025.

The table below presents the results of the multiple regression analysis: the constant value is -4.147, with coefficients for the independent variables X_1 at 0.008, X_2 at 0.083, and X_3 at 0.031; so, the resultant regression formula is:

$$Y=-4.147+0.008x1+0.083x2+0.031x3+e \quad (1)$$

The constant (Y) -4.147 signifies the return on assets (ROA). The regression coefficient for CAR (X_1) is positive at 0.008, indicating that a one percent change in CAR, with NPL and LDR held constant, would result in a change in ROA, particularly a gain of 0.008. The regression coefficient for NPL (X_2) is 0.083, indicating that a one percent change in NPL, with CAR and LDR held constant, would result in an increase of 0.083 in ROA. The regression coefficient for LDR (X_3) is 0.031, indicating that a one percent change in LDR, with CAR held constant, would result in an increase of 0.031 in ROA.

Glejser Test

The heteroscedasticity test is performed to ascertain the existence or nonexistence of variances in the model's regression analysis. This research used the Glejser test to evaluate heteroscedasticity, concluding that a statistically significant result at α (5%) suggests the existence of homoscedasticity.

Table 6. Output Result of the Heteroskedasticity Test Coefficient[a]

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.175	1.960		0.600	0.554
	CAR	0.002	0.004	0.086	0.417	0.680
	NPL	0.255	0.683	0.071	0.374	0.712
	LDR	0.002	0.016	0.025	0.125	0.902
	CKPN	0.523	0.172	0.546	3.038	0.006

a. Dependent variable: ABS_RES

Source: SPSS 27 output results processed in 2025.

Table 6 demonstrates that the SPSS 27 analysis results reveal all variables surpass a significance value of 0.05. The CAR (capital adequacy ratio) is 0.680, the NPL (non-performing loan) ratio is 0.712, the LDR (loan-to-deposit ratio) is 0.741, and the CKPN (credit risk provisioning ratio) is 0.902. Therefore, it can be stated that the Gleason test for the dependent variable ABS_RES indicates the absence of heteroscedasticity.

Hypothesis Testing

T-Test

The original hypothesis, or research hypothesis, is the hypothesis made by the expert. Moreover, there exists a substantial likelihood that an expert may arrive at an erroneous conclusion if there is an interruption in the formulation of the statistical hypothesis (Zaki & Saiman, 2021).

Table 7. Output Result of Parsial Test (t-Test)

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-4.147	3.376		-1.228	0.230
	CAR	0.008	0.007	0.243	1.113	0.276
	NPL	0.083	1.278	0.014	0.065	0.949
	LDR	0.031	0.030	0.225	1.035	0.310

a. Dependent variable: ROA

Source: SPSS 27 output results processed in 2025.

The variable CAR yielded a t-statistic of 1.113, which is less than the t-table value of 1.706, with a relevance level above 0.05, namely 0.276. Consequently, the hypothesis H"1" is deemed invalid or rejected, indicating that CAR does not have a major influence on ROA. For the variable NPL, a t-statistic of 0.065 is less than the t-table value of 1.706 at a significance level above 0.05, namely 0.0949; hence, hypothesis H"2" is rejected or deemed invalid. This indicates that NPL does not substantially affect ROA. The variable LDR has a t-statistic of 1.035, which is less than the t-table value of 1.706 at a relevance level beyond 0.05, namely 0.310. Consequently, hypothesis H"3" is rejected, indicating that LDR does not relevance impact of ROA.

Simultaneous Test (F-Test)

The f-statistic is used to determine if each independent variable in a model affects the dependent variable or its correlation (Ghozali Imam, 2013). The f relevance value in this study is computed at a relevance level of 0.05. A relevance value below 0.05 signifies that the regression model satisfies the goodness of fit criteria, but a relevance value over 0.05 shows that the unconditional regression method fulfils the goodness of fit standards. The findings of the f-test in this research are:

Table 8. Output Result of Simultaneous (F Test)

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	44.821	3	14.940	0.625	.606[b]
	Residual	621.993	26	23.923		
	Total	666.814	29			

a. Dependent variable: ROA

b. Predictors: (Constant), LDR, NPL, CAR

Source: SPSS 27 output results processed in 2025.

Table 8 shows that the analysis gives an f-value of 0.625, even though the f-table value is 2.690. This means that the f-value is less than the f-table value and the significance threshold is more than or equal to 0.05, which is 0.606 > 0.05. This shows that the parameters CAR, NPL, and LDR do not have an effect on ROA at the same time in this study.

Coefficient of Determination Test (R2)

The method is measures the extent to which variation in the dependent variable is explained by the independent variable. The following image shows the notation of the calculated coefficient of determination and the modified rectangle number:

Table 9. Output Result of Coefficient of Determination Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.259[a]	.067	-.040	4.89110

a. Predictors: (Constant), LDR, NPL, CAR

Source: SPSS 27 output results processed in 2025.

The regression analysis yields an adjusted value (R^2) of -0.040, indicating that the variables CAR, LDR, and NPL contribute -4% to the variable ROA. Additional factors not analysed in this research account for 104%.

MRA Test (Moderated Regression Analysis)

The formula is a specific program of multiple linear regression that incorporates interaction factors, which are the products of two or more independent variables, influencing the equation's amplification or attenuation (Liana, 2009). The findings of the moderated multiple regression analysis are shown in table 10. The regression computations yielded the following equation results.

Table 10. Output Result of MRA Test (Moderated Regression Analysis)

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-0.455	4.263		-0.107	0.916
	CAR	0.005	0.007	0.151	0.749	0.462
	NPL	0.908	1.868	0.149	0.486	0.632
	LDR	0.031	0.033	0.225	0.942	0.356
	CKPN	-0.334	2.184	-0.204	-0.153	0.880
	CAR*CKPN	-0.055	0.015	-1.568	-3.652	0.001
	NPL*CKPN	-1.010	0.768	-0.403	-1.314	0.202
	LDR*CKPN	0.024	0.028	1.311	0.841	0.410

b. Dependent variable: ROA

Source: SPSS 27 output results processed in 2025.

The results of the moderated multiple regression analysis are shown in Table 10. The regression computations yielded the following equation results.

$$Y = -0.455 + 0.005x1 + 0.908x2 + 0.031x3 - 0.334x4 - 0.055x1 \times x4 - 1.010x2 \times x4 + 0.024x3 \times x4 + e \quad (2)$$

The constant value (Y) of -0.455 signifies the degree of ROA (return on assets). The significance value of the CAR variable is 0.462, above 0.05, and the regression coefficient is 0.005. This result indicates that CAR has no substantial impact on ROA. The relevance value of the NPL variable was 0.632, above 0.05, while the regression value was 0.908, possibility that the NPL variable does not have a relevant impact on ROA. The significance value of the LDR variable is 0.356, above 0.05, while the regression value is 0.301, suggesting that the NPL variable does not significantly affect ROA. The significance value of CKPN as a moderating variable is 0.880, beyond 0.05, with a coefficient of -0.334. This signifies that CKPN is unable to regulate the influence of the independent variable on the dependent variable. The findings vary and indicate a moderating effect of significance 0.001, equivalent to 0.05, along with a regression coefficient of -0.055. The finding indicates that CKPN enhances the impact of CAR on ROA, therefore validating hypothesis H_4. Additional values: The moderation significance level is 0.202, above 0.05, and the regression coefficient is -0.010. This suggests that CKPN does not adequately

enhance the impact of NPL on ROA, leading to the rejection of hypothesis H_5. The moderation value, Sig. 0.410, surpasses 0.05, whereas the regression value is 0.024. The analysis demonstrated that CKPN cannot enhance the impact of LDR on ROA. Therefore, hypothesis H_6 is rejected.

Discussions

This study seeks to examine the impacts of CAR, NPL, LDR, and CKPN ratios as moderating variables on ROA in digital banks go public the BEI (Indonesia Stock Exchange) by 2019 to 2023, employing SPSS 27 for analysis and utilising the appropriate statistical formula to assess the hypothesis regarding the average population size through a one-sample T-test (Waluyo edy, 2024). The result is as follows:

The impact of CAR (Capital Adequacy Ratio) on ROA (Return on Assets)

The research indicates that the CAR variable has a positive influence but lacks significance for ROA (return on assets), shown by an estimated t-value of 1.113 and a relevance figure of 0.276; hence, the first hypothesis is rejected. This aligns with the studies undertaken by Warsa & Mustanda, (2016) find that CAR has a favourable albeit statistically insignificant effect on ROA. Nevertheless, as per Alfianda & Widianto, (2020) indicating that CAR has a favourable and substantial effect on ROA.

The impact of NPL (Non-Performing Loan) on ROA (Return on Assets)

The research indicates that the NPL variable has a positive, although negligible, effect on ROA, shown by a t-value of 0.065, a significance level of 0.949, and a threshold significance level of 0.05. Prior research contradicts this, indicating that NPL adversely affects profitability (ROA) (Fauziah, 2021). As per Setyarini, (2020) NPL adversely affects ROA, although insignificantly.

The impact of LDR (Loan Deposit Ratio) on ROA (Return on Assets)

The study findings indicate that the statistical test for the LDR variable produced a t-value of 1.035 and a significance level of 0.310. The LDR variable has a favourable effect; nonetheless, it does not impact ROA, since its significance level exceeds 0.05. This research is articulated in a similar manner Muhammad Alfian, (2021) the LDR is well regarded but lacks substantial influence. Investigations from To & Ratio, (2021) articulating an alternative perspective that LDR adversely affects ROA.

The Function of CKPN (Allowance for Impairment Losses) in Mitigating the Effect of LDR (Loan Deposit Ratio) on ROA (Return on Assets)

The research indicates that CKPN has a positive value and does not moderate the effect of LDR on ROA, shown by a t-value of -1.314 for the CKPN moderation variable, a significance level of 0.410, and a significantly threshold beyond 0.05. Previous studies indicate that the influence of LDR on ROA is negligible, since the issuance of substantial loans by banks does not inherently guarantee optimal profitability (Grilseda & Riyadi, 2021).

A comparison of how the NPL, LDR, and CAR coefficients affect ROA and how CKPN functions as a middleman

Previous research on traditional banking assets has shown that the NPL, LDR, and CAR coefficients have a substantially favorable influence on ROA. Conversely, the moderating effect of CKPN demonstrates its capacity to impact NPL concerning ROA; nevertheless, this moderating effect is negative, indicating that CKPN's existence diminishes the influence of NPL on ROA. Likewise, the involvement of CKPN diminishes the impact of LDR on ROA, although insignificantly. Other data, on the other hand, demonstrate that the involvement of CPKN strengthens the effect of CAR on ROA, although these results are not significant (Nikmah et al., 2023). The study aims the result indicate that the metrics of digital banks, including CAR, NPL, and LDR ratios, have a favorable although statistically insignificant impact on ROA. CKPN's capacity to regulate the CAR and NPL ratios concerning ROA reveals a negative, albeit statistically insignificant, result, indicating that CKPN does not affect the CAR ratio in connection to ROA. The CKPN positively affects the LDR ratio concerning ROA, indicating that CKPN does not moderate the connection among the LDR ratio and ROA. Consequently, we can ascertain that the CAR, NPL, and LDR ratios in digital banks have a favorable although insignificant effect on the ROA. CKPN, as a moderating model, did not improve the connection between CAR and NPL with ROA, even though it showed a slight negative effect. Conversely, CKPN has a favorable influence in moderating LDR concerning ROA, but it remains statistically insignificant. This result indicates that CKPN now does not serve as an effective moderating variable in the realm of digital banks, in contrast to the results seen in conventional banks.

CONCLUSION

This study investigates the influence of financial ratios, namely CAR, NPL, and LDR, on the profitability (ROA) of publicly listed digital banks in Indonesia during the 2020–2024 period, while also examining the moderating role of CKPN. The findings indicate that CAR, NPL, and LDR each have a positive but statistically insignificant effect on ROA. Additionally, CKPN appears to moderately strengthen the relationship between CAR and ROA, while weakening the influence of NPL and LDR on ROA. However, these moderating effects are not statistically significant, suggesting that CKPN does not currently serve as an effective moderating variable in the digital banking context, differing from results often found in studies of traditional banks. The study contributes to the ongoing development of financial management practices in digital banking and enriches the existing literature on profitability determinants in this sector. It highlights the need for further exploration of other financial indicators that may better explain variations in ROA. Future research is encouraged to broaden the scope by incorporating additional financial ratios and extending the observation period to better understand evolving trends in the digital banking industry. Nonetheless, the results should be interpreted with caution due to the limited sample size and the restricted focus on only six digital banks and three financial variables.

REFERENCE

Abdurrohman, A., Fitrianingsih, D., Salam, A. F., & Putri, Y. (2020). Pengaruh Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR) dan Non-Performing Loan (NPL) Terhadap Return on Asset (ROA) Pada Sektor Perbankan di Bursa Efek Indonesia. Jurnal Revenue: Jurnal Ilmiah Akuntansi, 1(1), 125-132. https://doi.org/10.46306/rev.v1i1.12

Alfianda, V., & Widianto, T. (2020). Pengaruh CAR, NPF, FDR dan BOPO Terhadap ROA Effect of CAR, NPF, FDR and BOPO on ROA. AKTUAL: Jurnal Akuntansi dan Keuangan, *5*(2), 137–146.

Dini, N., & Manda, G. S. (2020). Pengaruh CAR, NPL, NIM, BOPO, LDR dan Suku Bunga SBI Terhadap Roa Bank Bumn Periode Tahun 2009-2018. E-Jurnal Ekonomi Dan Bisnis Universitas Udayana, 9, 899. https://doi.org/10.24843/eeb.2020.v09.i09.p05

Fauziah, H. (2021). Pengaruh NPL, CAR, dan BI Rate terhadap ROA pada Bank Badan Usaha Milik Negara. Indonesian Journal of Economics and Management, 1(2), 352–365. https://doi.org/10.35313/ijem.v1i2.2503

Ghozali Imam. (2013). Aplikasi Analisis Multivariate Dengan Program IBM SPSS 21 Update PLS Regresi. Badan Penerbit Universitas Diponegoro.

Ghozali, I. (2016). Aplikasi Analisis Multivariate dengan Program SPSS. Badan Penerbit UNDIP.

Grilseda, N., & Riyadi, S. (2021). Pengaruh CAR, LDR, KAP dan NPL terhadap ROA Bank Go Public yang terdaftar di BEI. Jurnal Ilmu Manajemen, 11(1), 53. https://doi.org/10.32502/jimn.v11i1.3252

Gunarso, P. (2023). Pengaruh CAR, NPL dan LDR Terhadap ROA Pada Bank BUMN yang Go Public di Indonesia. Madani Accounting and Management Journal, 9(1), 39–53. https://doi.org/10.51882/jamm.v9i1.65

Heningtyas, O. S., Isniawati, A., & Astuti, V. T. (2021). the Effect of Non Performing Loan, Capital Adequacy Ratio and Income Smoothing on Loan Loss Provision With Restructuring Policy As Moderate Variables. Financial: Jurnal Akuntansi, 7(2), 207-223. https://doi.org/10.37403/financial.v7i2.289

Hester, D. D. (1994). On the theory of financial intermediation. De Economist, 142(2), 133–149. https://doi.org/10.1007/BF01388162

IKPIA Perbanas, H. L., & IKPIA Perbanas, M. Z. (2022). Implikasi Dana Pihak Ketiga, Kredit, dan Non Performing Loan Terhadap Profitabilitas Bank IV. Jurnal Manajemen dan Perbankan (JUMPA), 9(1), 1-17. https://doi.org/10.55963/jumpa.v9i1.418

Kurniawan, M., Munawar, A., & Amwila, A. Y. (2020). Analisis Pengaruh CAR, NPL, dan LDR Terhadap ROA. Jurnal Ilmiah Manajemen Kesatuan, 8(2), 149-158. https://doi.org/10.37641/jimkes.v8i2.351

Liana, L. (2009). Using MRA with SPSS to Test the Effect of Moderating Variables on the Relationship between Independent Variables and Dependent Variables. Jurnal Teknologi Informasi Dinamik, 14(2), 90–97.

Maulani, D., & Riani, D. (2021). Pengaruh Inflasi, Suku Bunga dan Rasio Keuangan terhadap Harga Saham. Oikonomia: Jurnal Manajemen, 17(2), 84. https://doi.org/10.47313/oikonomia.v17i2.1244

Muhammad Alfian, A. P. (2021). Pengaruh CAR, BOPO, NPL dan LDR terhadap ROA pada PT. Bank Rakyat Indonesia (Persero) TBK. Jurnal Ekonomi dan Bisnis, 23(2), 299–307.

Mustafa, A. N., & Sulistyowati, E. (2022). Pengaruh Capital Adequacy Ratio, Non-Performing Loan, Loan To Deposit Ratio, Dan Firm Size Terhadap Profitabilitas BUMN Sektor Perbankan. Jurnal Proaksi, 9(1), 84–96. https://doi.org/10.32534/jpk.v9i1.2511

Nikmah, B. N., Gurendrawati, E., & Susanti, S. (2023). Pengaruh NPL, LDR, dan CAR terhadap Profitabilitas dengan CKPN sebagai Variabel Moderasi. Jurnal Akuntansi, Perpajakan dan Auditing, 4(1), 84–105. https://doi.org/10.21009/japa.0401.06

Nugraha, A. (2022). The Moderation Effect of Allowance for Impairment of Credit Losses Toward Credit Growth and Profitability. Journal of Applied Business, Taxation and Economics Research, 2(1), 29–44. https://doi.org/10.54408/jabter.v2i1.109

Prabu Rizal, A., & R. Shauki, E. (2019). Motif dan Kendala Bank Melakukan Implementasi Dini PSAK No. 71 Terhadap CKPN Kredit. Jurnal Akuntansi dan Keuangan Indonesia, 16(1), 83–107. https://doi.org/10.21002/jaki.2019.05

Purwanto, S., & Perkasa, D. H. (2024). Analisis Transformasi Bank Digital yang Terdaftar di Bursa Efek Indonesia Periode 2018-2022. Jurnal Revenue Jurnal Akuntansi, 4(2), 622–633.

Putranto, A. A., Kristanti, F. T., & Mahardika, D. (2017). Capital Adequacy Ratio, Loan Deposit Ratio, dan Non-Performing Loan Terhadap Profitabilitas. Jurnal Riset Akuntansi Kontemporer, 9(2), 88–93. https://doi.org/10.23969/jrak.v9i2.583

Sartono, A. (2010). Manajemen Keuangan teori dan Aplikasi edisi 4. *Yogyakarta: Bpfe*.

Septiasa, M. V., & Zuhri, M. (2020). Analisis Pengaruh Spesifik Bank dan Makro Ekonomi Terhadap Profitabilitas Bank Analysis of The Specific Influence of Bank and Macroeconomics On Bank Profitability. Jurnal Manajemen dan Perbankan, 7(2), 61–77.

Setyarini, A. (2020). Analisis Pengaruh CAR, NPL, NIM, BOPO, LDR Terhadap ROA (Studi Pada Bank Pembangunan Daerah di Indonesia Periode 2015-2018). Research Fair Unisri, 4(1), 282–290. https://doi.org/10.33061/rsfu.v4i1.3409

Silalahi, E., & Setiana Manik, E. (2019). Pengaruh Dividen Payout Ratio, Debt Ratio, dan Return on Asset Terhadap Harga Saham pada Perusahaan Manufaktur yang Terdaftar di BEI Tahun 2013-2016. Jurnal Riset Akuntansi Dan Keuangan, 5(1), 49–70.

Sugiyono. (2016). Metode Penelitian Kuantitatif, Kualitatif, dan R&D: Kuantitatif, Kualitatif, dan R&D. Alfabeta.

Sugiyono. (2017). Metode penelitian kuantitatif, kualitatif, dan R&D. Alfabeta. https://elibrary.bsi.ac.id/readbook/206060/metode-penelitian-kuantitatif-kualitatif-dan-r-d

To, L., & Ratio, D. (2021). Mediasi Pada PT BPR Dana Mandiri Bogor Nana Arisma.

Waluyo edy, S. A. J. E. (2024). Analisis Data Sampel Menggunakan Uji Hipotesis Penelitian Perbandingan Pendapatan Menggunakan Uji Anova dan Uji T. Ekonomi Dan Bisnis, 2(30218365), 775–785.

Warsa, N. M. I. U. P., & Mustanda, I. K. (2016). Pengaruh CAR, LDR dan NPL Terhadap ROA pada Sektor Perbankan di Indonesia. E-Jurnal Manajemen Unud, 5(5), 2842–2870.

Widyastuti, P. F., & Aini, N. (2021). Pengaruh CAR, NPL, LDR Terhadap Profitabilitas Bank (ROA) Tahun 2017-2019. Jurnal Ilmiah Mahasiswa Akuntansi) Universitas Pendidikan Ganesha, 12(03), 2614–1930.

Zaki, M., & Saiman, S. (2021). Kajian tentang Perumusan Hipotesis Statistik Dalam Pengujian Hipotesis Penelitian. JIIP - Jurnal Ilmiah Ilmu Pendidikan, 4(2), 115–118. https://doi.org/10.54371/jiip.v4i2.216