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The Influence of Internal and External Factors of Banks on the Profitability of Regional Development Banks in Indonesia

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Abstract: Banking is a crucial component of the financial sector, serving as the backbone of a country's economy. It functions as an intermediary institution that gathers funds from surplus parties and distributes them to those in need. As a business entity, banks inherently aim to generate profits while fulfilling their roles as financial intermediaries and development agents (Garr & Awadzie, 2021). This study aims to analyze the impact of internal factors—such as credit distribution, capital participation, liquidity, fee-based income, and bank size—as well as external factors like GDP on the profitability (ROA) of conventional Regional Development Banks (BPD) in Indonesia from 2013 to 2023. Utilizing panel data analysis with 23 samples, the findings reveal that credit distribution, fee-based income, and GDP do not significantly affect profitability. In contrast, capital participation and liquidity have a significant positive impact, whereas bank size has a significantly negative effect on profitability.

Keyword: Bank Size, Capital, Fee-Based Income, GDP Liquidity and Profitability

INTRODUCTION

The banking sector is a vital component of the financial system, acting as the backbone of a country's economy (Simatupang, 2019). Its crucial role in driving economic growth is evident in its function as an intermediary institution that gathers funds from surplus entities and distributes them to those in need of financing (Freimanis & Senfelde, 2019). As business entities, banks inherently aim to generate profits while fulfilling their roles as financial intermediaries and agents of economic development (Garr & Awadzie, 2021). According to the Financial Services Authority of Indonesia (2015), Regional Development Banks (BPD) require transformation due to their relatively low contribution to regional economic growth.

This is reflected in their limited share of productive credit, which accounts for only 26 percent, as well as shortcomings in human resource management, risk management, and infrastructure, leading to an increase in non-performing loans in the productive segment. Additionally, BPDs face low competitiveness due to their limited range of products and inadequate service quality. Their constrained role in regional development is further highlighted by their relatively small share of productive credit, which remains at just 26 percent. Compared to the broader national banking sector, BPDs have a smaller market share, making them less competitive despite their strategic role in supporting regional economies.

Profitability refers to a bank's capability to generate profit and is used to evaluate its effectiveness and efficiency in earning income (Financial Services Authority, 2016). Figure 1.1 illustrates the profitability performance of conventional commercial banks in Indonesia from 2018 to November 2023, showing that BPDs have the weakest profitability, as measured by return on assets, compared to the average performance of conventional commercial banks in Indonesia. Their profitability is even lower than that of state-owned conventional banks.

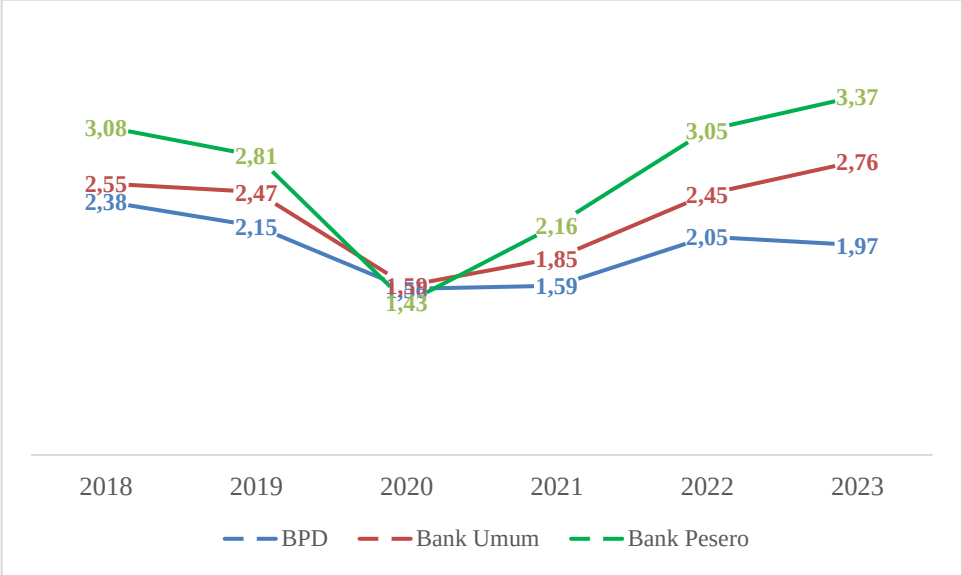

Figure 1
Indonesia's Bank Return on Assets Performance (Financial Services Authority, 2023)

Given the relatively low profitability of BPDs in Indonesia, this study seeks to analyze the internal and external factors influencing their profitability. Internal factors pertain to aspects directly affected by bank management decisions, while external factors are shaped by broader economic conditions. Several indicators can be used to measure bank profitability, including return on assets (ROA), return on equity (ROE), and net interest margin (NIM) (Jadah et al., 2020). Among these, ROA is the most widely used metric for assessing bank profitability (Alzoubi, 2018). Internal factors that may influence profitability include credit distribution, capital, liquidity, fee-based income, and bank size, while economic growth serves as an external factor.

A bank's primary source of revenue comes from interest income on loans and non-interest income generated through fee-based services. Research by Arif Hidayat & Irvan (2021) suggests that loan distribution significantly impacts bank profitability. Similarly, Evi Dwi & Farahiyah (2021) found that loan disbursement has a positive and significant effect on profitability, meaning that an increase in credit distribution enhances profitability.

However, capital was found to have an insignificant negative effect, indicating that greater capital adequacy may lead to lower profitability. In contrast, Dini Arifian and Juliansyah Noor (2022) argue that bank profitability is influenced by both bank-specific factors and industry characteristics, leading to varying relationships across different profitability measures. Their regression analysis shows that bank size (SIZE) negatively affects ROA, while capital adequacy (CAR) plays a role in shaping profitability.

Beyond credit distribution, liquidity is another crucial element for banks, as it ensures public confidence in their ability to safeguard deposits. Ni Putu & Aminatuzuhro (2024) found that liquidity does not impact profitability, nor does capital, while bank size also shows no significant influence. This suggests that capital alone does not necessarily drive profitability;

rather, its utilization in generating returns and maintaining an optimal liquidity level plays a key role in maximizing profitability. In addition to interest income, banks earn revenue from fee-based services. Although fee-based income contributes a smaller portion compared to interest income, it has become an increasingly attractive means for banks to enhance profitability. Ridwan et al. (2021) found that fee-based income has a direct negative and significant impact on profitability. Meanwhile, Josofiene & Muhammad (2018) examined banking companies listed on the Indonesia Stock Exchange from 2012 to 2016 and concluded that fee-based income positively influences profitability (ROA), indicating that higher fee-based income leads to increased returns for these banks.

Literature Review

Business Cycle

The business cycle theory describes the recurring fluctuations in a country's or region's economic activity over a specific period. It consists of four main phases: expansion, peak, contraction, and trough, each of which has distinct characteristics that influence key economic factors such as production, employment, investment, and consumption (Sloman et al., 2023: 506). Below is an overview of each phase:

- Expansion (Growth): The economy experiences significant growth, leading to increased production and employment. Consumption and investment also rise, often accompanied by higher interest rates due to increased demand.
- Peak (Growth Peak): Economic activity reaches its highest point, with production and employment at maximum capacity. However, early signs of economic instability may begin to emerge.
- Contraction (Recession or Depression): Economic activity slows down, causing a decline in production, employment, and investment. Reduced demand often leads to lower prices and wages, and interest rates may be lowered to stimulate growth.
- Trough (Recovery Growth): After hitting its lowest point, the economy starts to recover. Governments or institutions may implement policies to boost economic growth, leading to a resurgence in investment and consumption, potentially restarting the expansion phase.

The business cycle plays a crucial role in shaping bank performance, as fluctuations in economic activity impact various operational and financial aspects of banking institutions (Bertay et al., 2015). Different phases of the cycle influence banks in the following ways (Bandyopadhyay & Barua, 2016): During the contraction phase, rising unemployment and financial difficulties among businesses and individuals can increase credit risk, as borrowers may struggle to repay their loans (Ibrahim, 2016).

Additionally, lower interest rates aimed at stimulating the economy can reduce banks' profit margins. On the other hand, during the expansion phase, the demand for loans typically increases as businesses and individuals seek to capitalize on economic growth (Gambetti & Musso, 2017). In contrast, during economic downturns, loan demand may decline due to heightened uncertainty and weakened confidence in the economy.

Economies of Scale & Diseconomies of Scale

Economies of scale refer to the cost advantages that businesses experience as they expand in size. When a company increases its production volume while reducing the average input cost per unit, it achieves economies of scale (Baumers et al., 2016). As a business grows and produces more units, it gains opportunities to lower costs, ultimately contributing to economic growth. Economies of scale can play a crucial role in enhancing bank profitability. When banks operate on a larger scale, the average cost per service or product decreases, leading to higher

profit margins. Additionally, economies of scale improve operational efficiency by reducing the cost per transaction as the volume of transactions increases (Beccalli et al., 2015). Banks that successfully expand their operations can diversify their product and service offerings, fostering innovation and strengthening their competitive position in the market. This diversification ultimately contributes to increased revenue and profitability (Duho et al., 2020).

On the other hand, diseconomies of scale occur when the cost per unit rises as production volume increases. Several factors contribute to this inefficiency, including poor management practices, organizational complexity, excessive bureaucracy, and weakened communication structures (Canback et al., 2006). Large banks, in particular, may face challenges in managing extensive credit portfolios, making them more susceptible to significant losses if credit quality deteriorates during economic downturns (Beccalli et al., 2015).

Bank Profitability

Profitability, also known as rentability, represents a bank's capability to generate earnings over a given period. It serves as a key indicator of whether business activities are being conducted efficiently to achieve strategic objectives, minimize inefficiencies, and facilitate continuous improvement through timely decision-making. Profitability is essential for evaluating a bank's performance, as it demonstrates its effectiveness in managing productive assets (Andrianto et al., 2019). A bank's long-term sustainability, as well as its short-term viability, heavily depends on its ability to remain profitable.

As outlined by the Financial Services Authority (Otoritas Jasa Keuangan, 2016), bank profitability is commonly assessed using three key indicators: Return on Equity (ROE), Return on Assets (ROA), and Net Interest Margin (NIM). Return on Assets (ROA) measures a bank's efficiency in generating profits from its total assets, while Return on Equity (ROE) evaluates the returns earned from shareholders' investments. Net Interest Margin (NIM), on the other hand, assesses a bank's ability to generate net interest income from its productive assets (Andrianto et al., 2019). According to the Financial Services Authority (2017), bank profitability is calculated using the following formula.

$$ROA = \frac{Pre - Tax - Profit}{Average\ Total\ Assets}$$

$$ROE = \frac{After - Tax - Profit}{Average\ Total\ Equity}$$

$$NIM = \frac{Net\ Interest\ Income}{Average\ Total\ Productive\ Assets}$$

The Impact of Credit on Bank Profitability

Credit serves as a primary revenue source for banks, with approximately 90% of bank assets allocated in the form of loans (Financial Services Authority, 2023). As financial intermediaries, banks collect funds from surplus entities and distribute them as credit to borrowers (Yakubu & Abokor, 2020). Effective credit risk assessment enables banks to extend loans to creditworthy borrowers, thereby enhancing profitability.

Proper loan distribution minimizes credit risk and potential financial losses, ensuring a high-quality portfolio with lower default rates, which in turn boosts interest income. Several studies have demonstrated that increased credit distribution positively correlates with higher bank profitability (Alzoubi, 2018; Azad et al., 2019; Jadah et al., 2020). However, poor credit management can adversely affect both profitability and financial stability (Bouheni & Tewari,

2022). Consequently, banks must implement robust credit risk policies and establish efficient monitoring systems to manage their loan portfolios effectively.

H_1: Credit positively influences the profitability of BPD banks.

The Impact of Capital on Bank Profitability

Capital adequacy refers to a bank's capability to utilize its capital to absorb potential losses from lending activities or securities trading (Andrianto et al., 2019: 367). In the banking sector, capital plays a crucial role in driving business growth (Fang et al., 2022). Higher capital adequacy enhances a bank's capacity to expand its operations and generate higher profits. Sufficient capital allows banks to allocate funds into profitable investment opportunities, increasing their ability to provide credit (Dursun-de Neef & Schandlbauer, 2022) and offer value-added services such as digital banking (Nguyen et al., 2023). A well-capitalized bank also fosters public confidence, encouraging customers to deposit funds, particularly in low-cost savings or current accounts (Dursun-de Neef & Schandlbauer, 2022; Ibrahim & Rizvi, 2018). This, in turn, strengthens the bank's financial position and enhances profitability. Several studies have confirmed that higher capital levels contribute to increased bank profitability (Alzoubi, 2018; Garcia & Guerreiro, 2016; Jadah et al., 2020).

H_2: Bank capital positively influences the profitability of BPD banks.

The Impact of Liquidity on Bank Profitability

Liquidity represents a bank's ability to fulfill its financial obligations on time without facing significant losses or financial difficulties (Andrianto et al., 2019: 378). It serves as a key indicator of a bank's financial stability (Financial Services Authority, 2017). A bank's liquidity position can be assessed based on fund placements in cash, deposits at Bank Indonesia, accounts in other banks, and government securities (Lutfi et al., 2020). Higher liquidity enables banks to meet their obligations to depositors and other fund providers, reflecting a stronger financial position. This stability can enhance customer and investor confidence, fostering asset growth, revenue generation, and increased profitability. Additionally, allocating funds to liquid assets such as government securities allows banks to earn steady income without default risks, thereby improving profitability (Alzoubi, 2018). However, excessive liquidity without proper utilization can negatively impact profitability, as idle assets do not generate optimal returns (Adelopo et al., 2018). A high liquidity level may also indicate a lack of profitable lending or investment opportunities, which can hinder revenue growth (Ghosh, 2016).

H_3: Liquidity influences the profitability of BPD banks.

The Impact of Fee-Based Income on Bank Profitability

Fee-based income refers to bank earnings derived from service fees and commissions rather than interest from loans (Andrianto et al., 2019: 27). This revenue stream has become increasingly vital, particularly in environments where low interest rates reduce traditional banking margins. Sources of fee-based income include transaction fees, credit card charges, asset management fees, trading and investment services, and other banking-related fees (Financial Services Authority, 2019). One key advantage of fee-based income is that it diversifies a bank's revenue sources, reducing dependence on net interest income. Additionally, it contributes to income stability, especially in periods of fluctuating interest rates. As a result, an increase in fee-based income generally leads to higher profitability (Azad et al., 2019; Malhotra et al., 2019).

H_4: Fee-based income positively affects the profitability of BPD banks.

The Effect of Bank Size on Profitability

Bank size is typically assessed based on the total assets it holds. According to the economies of scale theory, as a bank expands in terms of assets and operations, the average

cost per unit of service or product tends to decrease, which can enhance profit margins and overall profitability. Increasing transaction and service volumes allows banks to lower the average cost per transaction (Beccalli et al., 2015). Larger banks that achieve economies of scale can also more effectively diversify their products and services. This diversification, along with product innovation, can drive revenue growth and strengthen a bank's competitive position in the market, ultimately boosting profitability (Duho et al., 2020). Larger banks tend to generate higher profits because they have better opportunities for investment diversification, access to low-cost funding, and a broader range of financial services, enabling them to capitalize on economies of scale (Ali & Puah, 2019; Jadah et al., 2020; Saona, 2016). However, an increase in bank size may not always lead to greater profitability. If expansion results in bureaucratic inefficiencies and communication difficulties, it can cause diseconomies of scale. Additionally, large banks often have complex credit portfolios, making them more vulnerable to significant losses if loan quality deteriorates during economic downturns (Beccalli et al., 2015). Research by Alzoubi (2018) also suggests that asset size can have a negative impact on profitability.

H_5: Bank size influences the profitability of BPD banks.

The Effect of Regional GDP on Profitability

Regional Gross Domestic Product (RGDP) serves as an important metric for evaluating the economic performance of a region or province (Sloman et al., 2023: 240). When GDP increases, both household and corporate incomes tend to rise, leading to greater demand for bank credit (Dursun-de Neef & Schandlbauer, 2022; Ibrahim & Rizvi, 2018). Higher income levels also enhance loan repayment capacity, reducing the risk of non-performing loans and thereby improving bank profitability. As a result, GDP growth is generally associated with increased bank profitability (Jadah et al., 2020; Sinha & Sharma, 2016).

H_6: Regional GDP growth positively affects the profitability of BPD banks.

METHOD

Based on its purpose, this research is classified as causal research, as it seeks to analyze the impact of one variable on changes in another, particularly the relationship between independent and dependent variables. In this study, profitability serves as the dependent variable, measured using Return on Assets (ROA), while the independent variables include credit, capital, liquidity, fee-based income, bank size, and RGDP growth. The research sample consists exclusively of Regional Development Banks (BPD) in Indonesia that are registered on the Financial Services Authority (OJK) website, with financial data spanning the years 2013 to 2023. The dependent variable in this study, profitability, is quantified using ROA. Meanwhile, the independent variables that influence profitability include Credit (LOANTA), Capital (ETA), Liquidity (LQTA), Fee-Based Income (FBITA), and RGDP Growth. The measurement of these variables is as follows:

a. Profitability reflects a bank's capability to generate earnings by efficiently utilizing its assets. A widely used metric for assessing profitability is Return on Assets (ROA), which is calculated using the following formula (Lutfi et al., 2020; Saona, 2016; Sinha & Sharma, 2016).

$$ROA = \frac{Net\ Profit\ Before\ Tax}{Average\ Total\ Assets}\ x100\%$$

b. Credit refers to the proportion of loans distributed relative to the bank's total assets (LOANTA). This credit ratio is calculated using the following formula (Ali & Puah, 2019; Lutfi, 2023).

$$LOANTA = \frac{Loans\ Disbursed}{Total\ Assets}\ x100\%$$

c. Capital represents the proportion of a bank's equity capital in relation to its total assets (ETA). This capital ratio is determined using the following formula (Adelopo et al., 2018; Hasanah & Lutfi, 2024).

$$ETA = \frac{Equity\ Capital}{Total\ Assets}\ x100\%$$

d. Liquidity refers to the proportion of a bank's total liquid assets—including cash, placements with Bank Indonesia, and securities valued at fair value and available for sale—relative to its total assets (LQTA). This liquidity ratio is calculated using the following formula (Ali & Puah, 2019; Lutfi, 2023).

$$LQTA = \frac{Liquid\ Assets}{Total\ Assets}\ x100\%$$

e. Fee-Based Income is the ratio of non-interest income generated by the bank (commissions/provisions/fees from banking services such as mobile banking, internet banking, SMS banking, and administration) to the total income of the bank (FBITA). The size of this fee-based income is measured by the following formula (Saona, 2016).

$$FBITA = \frac{Fee\ Based\ Income}{Total\ \ Assets}\ x100\%$$

f. The size of a bank is reflected through the total assets owned by the bank. The size of the bank is measured using the natural logarithm of the total assets (LNTA), with the following formula (Adelopo et al., 2018; Al-Harbi, 2019).

$$LNTA = Ln(Total\ Assets)$$

g. The growth of GRDP (Gross Regional Domestic Product) reflects the growth of income levels in a province achieved in a specific year and its changes from year to year. When a regional development bank (BPD) is owned by more than one province, the GRDP used is the sum of the GRDPs from all the provinces that own the BPD. The growth of GRDP (PDRBg) is calculated using the formula (Selian & Lutfi, 2024).

$$PDRBg = \frac{PDRB_t - PDRB_{t-1}}{PDRB_{t-1}} x100\%$$

Descriptive analysis provides an overview or description of the data variables being studied. This analysis explains the statistical values of each variable using the mean, maximum, minimum, and standard deviation. It is used to obtain a general picture of the research variables, including profitability, credit, capital, liquidity, fee-based income, bank size, and GRDP growth. The data analysis method used is panel data analysis, where the data is obtained by combining time-series and cross-sectional data over a specific period. Panel data techniques integrate cross-sectional and time-series data (Gujarati, 2021: 591). The tools used in this research include Econometric Views (EViews) version 12 and Microsoft Excel to organize the collected data. The panel data regression equation in this study can be formulated as follows:
Explanation:

- **ROA** = Profitability

- **α** = Constant
- **β1 – β8** = Regression Coefficients
- **LOANTA** = Credit
- **ETA** = Capital
- **LQTA** = Liquidity
- **FBITR** = Fee-Based Income
- **LNTA** = Bank Size
- **PDRBg** = RGDP Growth
- **e** = Error

RESULTS AND DISCUSSION

This study uses a sample of conventional BPD banks in Indonesia with a research period spanning from 2013 to 2023. The sample consists of 23 conventional BPD banks in Indonesia that were established between 2013 and 2023 and are registered with the Financial Services Authority (Otoritas Jasa Keuangan).

Descriptive Analysis

Descriptive analysis is used to provide an overview or description of the data for the variables being studied. This analysis explains the statistical values for each variable, using measures such as mean, maximum, minimum, and standard deviation. The analysis is used in this study to provide an overview of the variables. The descriptive statistics results are presented in the table below:

Table 1: Descriptive Analysis Table

Description	ROA	LOANTA	ETA	LQTA	FBITA	ASET (million)	PDRBG
Mean	2.574625	64.14703	13.42615	27.94437	0.356483	26.252.182	4.821858
Median	2.600000	65.20576	13.37357	27.86847	0.341403	16.850.899	5.180000
Maximum	4.960000	80.30076	22.34423	52.96362	1.212467	176.477.958	20.60000
Minimum	0.010000	36.00618	8.013243	10.77755	0.008930	1.797.346	-15.74000
Std. Dev.	0.833537	8.005712	2.626593	6.842912	0.256328	28.284.078	3.225167

The table shows the following:

Profitability (ROA - Return on Assets)

ROA reflects the bank's ability to generate profit from its total assets. Based on the descriptive table, the maximum ROA value is 4.96%, achieved by Bank Sulawesi Selatan and Sulawesi Barat (Sulselbar) in 2015, indicating very good profitability performance. On the other hand, the minimum value of 0.01% was recorded by Bank Maluku and Maluku Utara in 2014, reflecting very low profitability and poor bank performance. The average ROA value of 2.57% shows that, generally, the profitability level of the banks is still below average, as it is lower than the average ROA of commercial banks, which is 2.74%. The standard deviation of 0.83% indicates that the variation in profitability across BPD banks in Indonesia is not very large.

Credit (LOANTA - Loan to Total Assets)

Credit (LOANTA) reflects the proportion of funds distributed as loans compared to the total assets of the bank. The maximum credit-to-total-assets ratio is 80.30%, achieved by Bank Sulawesi Utara and Gorontalo (Sulutgo) in 2019, showing the bank's strong focus on credit distribution. Conversely, the minimum value of 36.01% was held by Bank Kaltimur and Kalimantan Utara (Kaltimtara) in 2023, indicating that the credit distributed was not maximized. The average LOANTA value is 64.14%, showing that more than half of the bank's total assets are allocated to credit. The standard deviation of 8% indicates a relatively consistent pattern of credit distribution across the BPD banks.

Liquidity (LQTA - Liquidity to Total Assets)

Liquidity (LQTA) indicates the ratio of liquid assets (cash, placements at Bank Indonesia, and marketable securities) to total assets. The maximum LQTA value is 52.96%, held by Bank Jawa Timur (Jatim) in 2021, indicating high liquidity reserves. However, this may also mean that a significant portion of the funds is not allocated to credit. The minimum value of 10.78% was achieved by Bank Sulawesi Utara and Gorontalo (Sulutgo) in 2020, reflecting lower liquidity or the bank's high credit distribution. Low liquidity may pose risks for a bank's ability to meet its short-term obligations. The average LQTA value is 27.94%, indicating that, generally, banks have insufficient liquidity to meet short-term obligations, although around 74% of their assets are allocated to financing, which is beneficial for supporting the real sector and the national economy. The standard deviation of 0.25% indicates relatively low liquidity variation across the banks.

Fee-Based Income (FBITA - Fee-Based Income to Total Assets)

Fee-Based Income (FBITA) reflects the bank's operational income aside from credit. The maximum FBITA value is 1.21%, achieved by Bank Sulselbar in 2019, indicating a significant contribution from fee-based income to total revenue. The minimum value of 0.01% was held by Bank Sulut in 2021, reflecting a low contribution from non-interest income. The average FBITA value of 0.35% indicates that the contribution of non-interest income to total income of the BPD banks is very low.

Bank Size (LNTA - Logarithm of Total Assets)

Bank size (LNTA) is measured based on the total assets of the bank. The maximum LNTA value is 176,477,958 million, achieved by Bank Jawa Barat and Banten in 2023, indicating large assets. Conversely, the minimum value of 1,797,345 million was held by Bank Sulawesi Tengah in 2013, reflecting smaller assets. The average LNTA value is 26,252,182 million, and the standard deviation of total assets is 28,284,078 million, which is higher than the average value, indicating significant variation in total assets among the banks.

PDRB Growth (PDRBg - Gross Regional Domestic Product Growth)

PDRB growth (PDRBg) measures regional economic growth. The maximum value of 20.60% was achieved by Bank Sulteng in 2013, indicating very high economic growth. The minimum value of -15.74% was held by Bank Sumbar in 2020, reflecting a decline in real income, rising unemployment, or reduced production. The average value of 4.82% indicates relatively stable regional economic growth, which is not too high. The standard deviation value of 3.22% indicates that there is not much variation in economic growth across the regions.

Model Selection Test Results

To choose the most appropriate model for managing panel data, several tests can be conducted. First, the Chow test, which is used to determine which model is more suitable between the Common Effect Model or the Fixed Effect Model. Second, the Hausman test,

which is used to determine which model is more appropriate between the Random Effect Model and the Fixed Effect Model. Third, the Lagrange Multiplier test, which is used to determine which model is more suitable between the Common Effect Model or the Random Effect Model. The following are the results of the model selection tests in this study:

Table 2 Model Selection Test Results

Test Name	Hypothesis	Value	Result
Chow Test (Common Effect Model vs Fixed Effect Model)	H0: Accepted if Cross Section F probability > 0.05 (Choose CE) H1: Accepted if Cross Section F probability < 0.05 (Choose H0:	0,0000	FEM
Hausman Test (Random Effect Model vs Fixed Effect Model)	H0: Accepted if probability > 0.05 H1: Accepted if probability < 0.05 (Choose FEM)	0.0042	FEM

Source: Appendix 3

Based on the test results in the table, it can be concluded that the most appropriate model to use is the Fixed Effect Model. Therefore, the subsequent model testing and discussion are based on the Fixed Effect Model.

Panel Data Regression Analysis

Based on the panel data regression model approach using Eviews and the tests conducted, the appropriate regression model for this study is the Fixed Effect Model as the most suitable regression model. The results are presented in the table below:

Table 3 Panel Data Regression Analysis Table

Variable	Coefficient	t-Statistic	t-Table	Conclusion
Konstanta	24,10945	5,227116		
LOANTA	0,008675	0,782994	1,6525	Not Accepted
ETA	0,036247	1,836694	1,6525	Accepted
LQTA	0,019470	1,927068	+/-1,9179	Accepted
FBITA	-0,129351	-0,590645	1,6525	Not Accepted
LNTA	-0,759284	-5,792424	+/-1,9179	Accepted
PDRBG	0,016157	1,425472	1,6525	Not Accepted
R-squared F-Statistic Prob.		0,69168 17,94718 0,00000		

Based on the regression results in Table 4.5 using the fixed effect model approach, the following regression equation is obtained:

ROA = 24.10945 + 0.008675 LOANTA + 0.036247 ETA + 0.019470 LQTA – 0.129351 FBITA – 0.759284 LNTA + 0.016157 PDRBG

The interpretation of the panel data regression equation above can be explained as follows:

1. The constant value (α) of 24.10945 indicates the level of profitability (ROA) when all independent variables, such as credit, equity, liquidity, fee-based income, bank size, and regional GDP growth, are equal to zero.

2. The credit coefficient (LOANTA) of 0.008675 shows that for every 1% increase in credit, ROA will increase by 0.008675%, assuming other independent variables remain constant.
3. The ETA coefficient of 0.036247 indicates that for every 1% increase in Equity to Total Assets (ETA), ROA will increase by 0.036247%, assuming other variables remain constant.
4. The LQTA coefficient of 0.019470 suggests that for every 1% increase in Liquidity to Total Assets (LQTA), ROA will increase by 0.019470%, assuming other variables remain constant.
5. The FBITA coefficient of -0.129351 shows that for every 1% decrease in Fee-Based Income, ROA will decrease by 0.129351%, assuming other variables remain constant.
6. The LNTA coefficient of -0.759284 indicates that for every 1% increase in assets, ROA will decrease by 0.759284%, assuming other variables remain constant.
7. The PDRBG coefficient of 0.016157 shows that for every 1% increase in regional GDP growth (PDRBG), ROA will increase by 0.016157%, assuming other variables remain constant.

Hypothesis Testing

Hypothesis testing consists of the t-test (Partial Test) to determine how significant the influence of independent variables is on the dependent variable partially, and the F-test (Simultaneous Test) to determine how significant the influence of independent variables is on the dependent variable simultaneously.

t-Test (Partial Test)

This test is used to determine the effect of each independent variable on the dependent variable (ROA) partially. Below are the interpretations for each variable:

1. LOANTA (Loan to Total Assets) Variable
   The test for the LOANTA variable shows a t-statistic of 0.782994 and a t-table value of 1.6525. Since the t-statistic (0.782994) < t-table (1.6525), H0 is accepted and H1 is rejected. This indicates that the credit variable (LOANTA) has no significant partial effect on ROA.
2. ETA (Equity to Total Assets) Variable
   The t-test for the ETA variable shows a t-statistic of 1.836694, while the t-table value is 1.6525. Since the t-statistic (1.836694) > t-table (1.6525), H0 is rejected and H1 is accepted. This means that the capital variable (ETA) has a significant partial effect on ROA.
3. LQTA (Liquidity to Total Assets) Variable
   The t-test for the LQTA variable shows a t-statistic of 1.927068 and a t-table value of ±1.9179. Since the t-statistic (1.927068) > t-table (±1.9179), H0 is rejected and H1 is accepted. This indicates that the liquidity variable (LQTA) has a significant partial effect on ROA.
4. FBITA (Fee-Based Income to Total Assets) Variable
   The t-test for the FBITA variable shows a t-statistic of -0.590645 and a t-table value of 1.6525. Since the t-statistic (0.590645) < t-table (1.6525), H0 is accepted and H1 is rejected. This indicates that the FBITA variable has no significant partial effect on ROA.
5. LNTA (Logarithm of Total Assets) Variable
   The test for the LNTA variable shows a t-statistic of -5.792424 and a t-table value of ±1.9179. Since the t-statistic (-5.792424) < t-table (-1.9179), H0 is rejected and H1 is accepted. This indicates that LNTA has a significant negative partial effect on ROA.
6. PDRBG (Gross Regional Domestic Product Growth) Variable

The t-test for the PDRBG variable shows a t-statistic of 1.425472 and a t-table value of 1.6525. Since the t-statistic (1.425472) < t-table (1.6525), H0 is accepted and H1 is rejected. This indicates that the PDRBG variable has no significant partial effect on ROA.

Test (Simultaneous Test)

The F-test is conducted to determine if all independent variables simultaneously have a significant effect on the dependent variable (ROA). The results show an F-statistic of 17.94718 and a Prob (F-Statistic) of 0.0000. Since Prob (F-Statistic) < 0.05, it indicates that the variables of credit, capital, liquidity, fee-based income, bank size, and regional GDP growth have a significant simultaneous effect on ROA.

CONCLUSION

This study examines the impact of Credit (LOANTA), Capital (ETA), Liquidity (LQTA), Fee-Based Income (FBITA), Bank Size (LNTA), and Regional Gross Domestic Product Growth (PDRBg) on the profitability (ROA) of conventional Regional Development Banks (BPD) in Indonesia over the period from 2013 to 2023. Using secondary panel data from financial reports published by BPDs and accessible via the Financial Services Authority (OJK) website, the study employs purposive sampling with outlier removal to ensure data validity.

The findings reveal that Credit (LOANTA) does not significantly impact profitability, indicating that increasing the credit-to-asset ratio alone is not enough to enhance bank profits due to potential credit quality and risk management concerns. Capital (ETA), on the other hand, has a significant positive effect, suggesting that well-capitalized banks are better positioned to expand their business, manage risks, and improve profitability. Liquidity (LQTA) negatively affects profitability, implying that excessive liquidity might reduce earnings potential if not efficiently allocated. Fee-Based Income (FBITA) does not significantly contribute to profitability, possibly due to the lower reliance of BPDs on fee-based services compared to larger commercial banks. Bank Size (LNTA) negatively impacts profitability, highlighting the challenges of increased operational complexity and bureaucracy as banks grow. Lastly, Regional GDP Growth (PDRBg) does not significantly influence profitability, suggesting that regional economic fluctuations may not directly translate into financial performance improvements for BPDs.

Despite its contributions, this study has limitations. The use of annual secondary data restricts the ability to capture short-term financial dynamics. Additionally, the model explains only about 69% of profitability variations, indicating that other factors such as non-performing loans, inflation, and interest rates may play a role. Furthermore, significant economic and regulatory events, such as the COVID-19 pandemic, could have affected data stability during the study period. Future research should consider incorporating more frequent data analysis and additional influencing variables to provide a more comprehensive understanding of bank profitability determinants.

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