Tri-Factor Analysis of Financial Sustainability: ROA, Firm Size, and NPL in Rural Banks in Riau Province

Analisis Tri-Faktor Keberlanjutan Keuangan: ROA, Ukuran Perusahaan, dan NPL pada Bank Perkreditan Rakyat di Provinsi Riau

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ABSTRACT
This research aims to identify the factors influencing Financial Sustainability in Rural Banks in Riau Province. The study assesses whether Return On Assets (ROA), Firm Size, and Non-Performing Loan (NPL) have an impact on Financial Sustainability in Rural Banks in Riau Province. The population of this study consists of 34 Rural Banks, with purposive sampling techniques selecting a total of 23 Rural Banks that meet the sample criteria. Data analysis is conducted using Ordinary Least Squares through EViews 12, utilizing panel data spanning from 2018 to 2022. The research findings indicate that Return On Assets (ROA), Firm Size, and Non-Performing Loan (NPL) significantly influence Financial Sustainability in Rural Banks in Riau Province.
Kata Kunci: ROA, NPL, SIZE, *Financial Sustainability* BPR

ABSTRAK
Penelitian ini bertujuan untuk mengidentifikasi faktor-faktor yang mempengaruhi Keberlanjutan Keuangan pada Bank Perkreditan Rakyat di Provinsi Riau. Penelitian ini menilai apakah Return On Assets (ROA), Firm Size, dan Non Performing Loan (NPL) berpengaruh terhadap Financial Sustainability pada Bank Perkreditan Rakyat di Provinsi Riau. Populasi penelitian ini terdiri dari 34 Bank Perkreditan Rakyat, dengan teknik purposive sampling terpilih sebanyak 23 Bank Perkreditan Rakyat yang memenuhi kriteria sampel. Analisis data dilakukan dengan menggunakan Ordinary Least Squares melalui EViews 12, dengan menggunakan data panel dari tahun 2018 sampai dengan tahun 2022. Temuan penelitian menunjukkan bahwa Return On Assets (ROA), Firm Size, dan Non Performing Loan (NPL) berpengaruh signifikan terhadap Financial Sustainability pada Bank Perkreditan Rakyat di Provinsi Riau.
Kata Kunci: ROA, NPL, SIZE, Keberlanjutan *Keuangan* BPR

1. Introduction

The role of banks is crucial in both micro and macroeconomic scales within a country. People's Credit Banks (Bank Pengkreditan Rakyat or BPR) specifically serve as key players in the microfinance sector, playing distinct roles within communities and small and medium-sized enterprises (MSMEs). According to Regulation PJOK.03/2014 on People's Credit Banks, BPR is instrumental in promoting national economic growth. To drive national economic development, it is imperative to have healthy, robust, productive, and competitive BPRs capable of serving the community, especially micro and small businesses. These institutions must possess the ability to maintain their existence in the long term by focusing on financial capacity. This involves maximizing internal resources and sustaining performance without relying on external financing. The ultimate goal is to contribute to the national economy's growth and stability, particularly by supporting micro and small businesses and ensuring the resilience of the banking sector in the long run.

The challenges faced by People's Credit Banks (Bank Pengkreditan Rakyat or BPR) as microfinance institutions are numerous, with poor management being a significant concern.

Ineffective management can lead to the bankruptcy of these banks. According to a cnbcindonesia, (2023), from 2022 to 2023, the number of People's Credit Banks decreased from 1,608 to 1,584. This decline is attributed to the volatile financial performance caused by inadequate management practices within these BPRs. Industry-wide, the quality of BPR assets continues to deteriorate, as evidenced by the increasing Non-Performing Loan (NPL) ratio. Banking statistics from the Indonesian Financial Services Authority (OJK) indicate that the gross NPL of People's Credit Banks rose to 10.15%, equivalent to Rp13.92 trillion, from a total loan disbursement of Rp137.48 trillion as of August 2023 (OJK, 2023) This suggests that the management of receivables by BPRs is not sufficiently effective, resulting in an annual increase in Non-Performing Loans (NPL) for People's Credit Banks as a whole. Parallel to the broader issue of poor management in Indonesian BPRs, the situation in Riau Province is not significantly different. The management of People's Credit Banks in Riau Province is considered inadequate, as evidenced by OJK, 2023 which shows a decrease in the number of operating banks from 34 to 23. This trend indicates that the management challenges faced by People's Credit Banks extend to the provincial level in Riau.

The decrease in the number of People's Credit Banks poses a challenge that needs to be addressed for these banks to withstand problematic conditions. The ability to manage a bank can be evaluated from both internal and external perspectives. According to banking statistics in Indonesia, the loan repayment rate in People's Credit Banks in Riau Province is relatively poor, with an annual increase in Non-Performing Loans (NPL). This situation results in a reduction in capital for these banks, indicating problematic conditions. Several studies have proven factors influencing financial sustainability. According to Muhammad Adil, (2022) financial sustainability is influenced by a company's Return on Assets (ROA). The better a company can generate profits from asset turnover, the more positive the impact on its financial sustainability. Other opinions, such as those from (Luciana Spica Almilia et al., 2009; Nurhikmah & Rahim, 2021) suggest that financial sustainability is influenced by the management of Non-Performing Loans (NPL). Effective management of bad loans impacts the company's assets and, consequently, its financial sustainability. On the other hand, research by (Leitão et al., 2023; Nurhikmah & Rahim, 2021) indicates that a factor influencing a company's financial sustainability is its size, referring to the magnitude of assets owned by the company. The larger a company's assets, the better it can balance liabilities in the face of business environment uncertainties (Ozili, 2021).

Grand Theory
Sustainable Finance

Sustainability refers to a company's capacity to maintain its existence over the long term, aiming to strengthen the financial capacity of the company through the optimal utilization of its resources. This is achieved by sustaining performance in providing services without overly relying on external financing. The hallmark of good financial well-being lies in the financial manager's ability to keep risks low, enabling the monitoring of the company's growth and financial development over the long term. Conversely, inadequate financial well-being can pose a threat to a company's financial ability to meet its obligations on time (Grundfos, 2022; Ozili, 2021).

Financial sustainability refers to an organization's ability to assess financial and operational costs relative to financial and operational income. Financial sustainability involves the analysis of expenditures and revenues, with the expectation that total costs incurred are less than total revenues generated. Typically interpreted as an indicator of long-term health, age, and financial performance, financial sustainability is often associated with risks and financial challenges. Factors that support financial sustainability indirectly act as inhibitors to its opposite (Muhammad Adil, 2022; Needles et al., 2016).

Financial Sustainability Ratio

Financial Sustainability Ratio is a metric used to measure the financial sustainability of a bank in terms of its financial capability, providing insights into the company's performance in generating and enhancing returns. This ratio serves as a tool to assess the growth rate in each period through both operational and financial efficiency. According to the (World Bank, 2022) *Financial Sustainability Ratio* the Financial Sustainability Ratio represents an organization's ability to compare all costs (financial costs, such as interest expenses on loans, and operational costs, such as employee salaries, equipment, and inventory) with the money or income received from its activities (e.g., interest income and income from bank deposits). Financial Sustainability consists of two components: expenses and income. It is considered good if its value is greater than 100%, meaning that total income must exceed total costs incurred. Financial Sustainability is the organization's ability to compare financial and operational costs against financial and operational income (Ozili, 2020; Puron-Cid et al., 2019). *A strong Financial Sustainability has a value above 100%, indicating that total costs are less than total income, as formulated by* Bank Indoenesia , (2015)dirumuskan*:*

$$Finansial\ sustainability\ = \frac{Total\ Financial\ Income}{Total\ Financial\ Expense\ Ratio}$$

Retun on Assets

Return on Assets (ROA) is a measure of a company's performance in generating profits. It represents the profitability derived from the assets of the issuer and is utilized for the issuer's operational activities. A higher ROA indicates better profitability for the issuer. ROA provides an overview of the company's ability to generate profits based on the total assets of the issuer. Assessing a company's ability to generate profits is crucial for investors contemplating stock transactions (Ang & Nagel, 2013; Schauten et al., 2010). When a company's profits increase, its stock price also rises. Return on Assets (ROA) is calculated by comparing the net margin available to shareholders with the total assets. ROA is a ratio used to measure a company's ability to generate profits from its investment activities. In other words, ROA serves as an indicator of a business unit's capability to earn profits relative to the amount of assets it possesses. This ratio is employed to assess management's ability to achieve overall profitability (Buallay, 2020). The larger the ROA, the higher the level of profitability achieved by the company, and the better the company's position in terms of asset utilization. Return On Assets (ROA) is also utilized to assess the extent to which investments made can yield returns in line with expectations (Ben Ali & Chouaibi, 2023). And this investment is essentially equivalent to the assets that the company has invested or allocated. The magnitude of the Return On Assets can be calculated using the following formula:

$$Return\ On\ Asset\ = \frac{Net\ Profit}{Total\ Assets}$$

According to Needles et al., (2016) it demonstrates efficiency in utilizing assets to generate profits, which positively contributes to the profitability of the company. In the context of financial sustainability, a high Return On Assets (ROA) can enhance the Financial Sustainability Ratio (FSR) by providing sufficient financial resources to cover operational costs and contribute to long-term growth. Therefore, the first hypothesis is proposed.

H1: Return on Assets (ROA) influences Financial Sustainability

Company Size

Company size is derived from the observation that larger companies will have a significant market capitalization, substantial book value, and high profits (Mahatma Dewi dan Wirajaya, 2013). In contrast, smaller companies will have a smaller market capitalization, lower book value, and lower profits. Company size has varying effects on a company's value. When considering company size based on the total assets owned, it reflects the resources available for the company's operational activities. If a company possesses a substantial total asset value, the management has more flexibility in utilizing the assets within the company. According to Khan et al., (2020) company size is a scale used to classify the company as either large or small, using various criteria such as total company assets, log size, stock market value, and others. Additionally, company size can be depicted through total assets, sales figures, average asset sales, and average total company assets, as outlined in (Putranto, 2018) A higher company size is closely associated with financing decisions that a company employs to optimize its value. This research adopts a scale where company size can be classified as either large or small using various criteria such as total assets, workforce size, stock market value, and others. Based on a study conducted by Aguilar-Fernández & Otegi-Olaso, (2018), Company Size is measured using the natural logarithm (Ln) of total assets:

$$Company\ Size = LN(Total\ Assets)$$

H2 : Company size has an impact on Financial Sustainability

Non-Performing Loan (NPL)

Non-Performing Loan (NPL) is a ratio that compares the total non-performing loans to the bank's loans, often associated with the likelihood of default or failure to pay off. A smaller NPL value indicates that the bank is more effective in managing its credit risks, as changes below 2% are considered healthy according to Bank Indonesia. A high NPL level poses serious challenges that can undermine financial stability. Firstly, the impact on profitability becomes evident as companies must allocate reserves to address potential losses due to problematic loans, ultimately reducing net income available to support operations and long-term growth, hindering financial sustainability. Additionally, the increased credit risk resulting from high NPL can diminish credibility in the eyes of investors and creditors, potentially raising borrowing costs or even impeding the ability to secure external financing (Saputra & Mayangsari, 2022). Moreover, the impact on liquidity can be a serious concern, as funds that should be received from defaulting borrowers may not be recovered in a timely manner, complicating the fulfillment of day-to-day financial obligations and threatening operational continuity. Impacts on capitalization and leverage also occur, as companies need to allocate additional capital to address NPL, limiting the ability to invest capital in more productive activities, and affecting leverage ratios that can worsen the financial image and impede access to capital markets (Nurhikmah & Rahim, 2021). A high level of NPL can also lead to credit rating downgrades by rating agencies, resulting in higher borrowing costs and additional financial difficulties that can harm overall financial sustainability. Therefore, effective management of NPL risk becomes crucial in maintaining and enhancing Financial Sustainability. The credit risk profile (non-performing, doubtful, and bad debt) of banks aligns with credit risk management measures in implementing and restructuring for debtors, applying transactional methods and portfolio management in risk management, as formulated by (Bank Indonesia, 2015):

$$NPL = \frac{Non - Performing\ Loans}{Total\ loans} x100$$

H3: Non-Performing Loan (NPL) has an impact on Financial Sustainability

Research Method
Data Source
        The research method employed in this study is the associative and descriptive research methods. The associative method aims to identify the relationships and influences between independent and dependent variables (Ghozali, 2011; Sekaran & Bougie, 2011; Sugiyono, 2019). The independent variables in this research include Return on Asset (ROA), Company Size (Size), and Non-Performing Loan (NPL) on Financial Sustainability (FSS).

Population and Sample
        The population in this study consists of rural credit banks in the Riau Province, totaling 34 rural credit banks using purposive sampling technique. Based on the purposive sampling technique, only 23 rural credit banks in the Riau Province meet the specified criteria.

Data Analysis Technique
        This research aims to examine the impact of green banking and capital adequacy ratio on the profitability growth of Islamic commercial banks in Indonesia. The data analysis technique in this study involves panel data regression using Eviews 12 software. Panel data refers to observations on several individuals or cross-sectional units, each observed over several consecutive time periods. Generally, two approaches are used to model panel data: the model without individual effects (common effect) and the model with individual effects, including fixed effects and random effects (Gujarati, 2011; IHS Global, 2020).
1. Panel Data Regression Test
a. Determination of Panel Data Regression Analysis Technique
        Panel data is the result of observations that combine cross-sectional and time-series data. There are three known approaches for panel data estimation: 1) Common Effect Model (CEM), 2) Fixed Effect Model (FEM), and 3) Random Effect Model (REM)
1) Chow Test
    Choosing between the Common Effect Model (CEM) and Fixed Effect Model (FEM) is done using the Chow test based on the following hypotheses:
    Ho = Common Effect Model (CEM)
    Ha = Fixed Effect Model (FEM)
    a) If the probability value of the F-statistic is smaller than the significance level (5%), reject Ho.
    b) If the probability value of the F-statistic is greater than the significance level (5%), reject Ha. When the selected model is the Fixed Effect Model, further testing is required, namely the Hausman test to determine whether to use the Fixed Effect Model or Random Effect Model.
2) Hausman Test
    The Hausman test is used to determine which panel data analysis model to use, whether Fixed Effect Model (FEM) or Random Effect Model (REM).
    a) If the probability value < 0.05, then the model used is the Fixed Effect Model (FEM)
    b) If the probability value > 0.05, then the model used is the Random Effect Model (REM)
3. Hypothesis Testing with t-test and F-test
4. Coefficient of Determination (R^2)

Results Of Research And Discussion
        After conducting panel data regression analysis using three methods, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), the next step is to select the best regression model that is suitable for the data used by conducting the Chow test and the Hausman test

1. Chow Test

Table 1 Chow Test Result

Redundant Fixed Effects Tests			
Equation: Untitled			
Test period fixed effects			
Effects Test	Statistic	d.f.	Prob.
Period F	1.817731	(4,112)	0.1303
Period Chi-square	7.547846	4	0.1096

Source: Processed data from Eviews 2023

Upon examining the output results above, where the chi-square value is smaller than alpha (0.1096 > 0.05), it indicates that the appropriate model is the Random Effect Model (REM). Therefore, the Hausman test needs to be conducted.

2. Hausman Test

This test is conducted to choose between the Fixed Effect Model (FEM) and Random Effect Model (REM). The Hausman test is performed if the results of the Chow test accept Ha, which is the Fixed Effect Model (FEM), and then it will be compared with the Random Effect Model (REM).

Table 2. Hausman Test Result

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test period random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	1.984793	3	0.5756

Source: Processed data from Eviews 2023

Based on the table above, the probability value is 0.5756. Therefore, the selected model is the Random Effect Model. This means that from the Hausman test, the better model for use in this panel data regression model is the Random Effect Model. The next test to determine the appropriate model for use in panel data regression is the Lagrange Multiplier (LM) Test.

Table 3. Model REM

Lagrange Multiplier Tests for Random Effects			
Null hypotheses: No effects			
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided			
(all others) alternatives			
	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	23.08481	0.461573	23.54639
	(0.0000)	(0.4969)	(0.0000)

Sumber; Data olahan eviews 2023

Based on the Lagrange multiplier test, the cross-section Breusch-Pagan results in 0.0000, which is less than 0.05. According to these results, the chosen model is the Random Effect Model compared to the Common Effect Model. Therefore, the appropriate regression analysis to use is the Random Effect Model.

Table 4. t Statistic Test Result

Dependent Variable: FSS				
Method: Panel EGLS (Period random effects)				
Date: 01/16/24 Time: 11:15				
Sample: 2018 2022				
Periods included: 5				
Cross-sections included: 24				
Total panel (balanced) observations: 120				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.148333	0.245928	0.603158	0.5476
ROA	3.952229	0.407056	9.709311	0.0000
SIZE	0.056768	0.014143	4.013778	0.0001
NPL	-0.848365	0.296356	-2.862652	0.0050

Source: Processed data from Eviews 2023

Based on the multiple linear regression analysis of panel data using Eviews 12 with the Random Effect Model, it can be explained that the t-value for Return On Asset (ROA) is greater than the t-table value, specifically 9.701 > 1.980. This implies that Return On Asset (ROA) has a significant effect on Financial Sustainability in Rural Credit Banks in the Riau Province. Additionally, the Size of the company (Size) has a significant effect on Financial Sustainability with a t-value greater than the table value, which is 4.014 > 1.980. Non-Performing Loan (NPL) has a negative impact on Financial Sustainability, with a t-value greater than the table value, specifically -2.863 > 1.980. This means that if Non-Performing Loan (NPL) increases, Financial Sustainability will decrease, and vice versa.

The result of this research utilize the Random Effect Model regression with the following equation:

FSS = 0.148333441282 + 3.95222900573*ROA + 0.0567681004698*SIZE - 0.848365209804*NPL

Furthermore, the F-test is intended to test the hypothesis of regression simultaneously; in other words, to ensure that the chosen model is suitable for interpreting the influence of independent variables on the dependent variable. The results of the F-test are presented as follows:

Table 5. F Test

Weighted Statistics			
Root MSE	0.125782	R-squared	0.632526
Mean dependent var	0.713239	Adjusted R-squared	0.623022
S.D. dependent var	0.208363	S.E. of regression	0.127932
Sum squared resid	1.898520	F-statistic	66.55611
Durbin-Watson stat	0.764566	Prob(F-statistic)	0.000000

Source: Processed data from Eviews 2023

From Table 5, it is evident that the probability value of F is 0.0000, indicating that the measurements for each variable in this study are appropriate, and each variable in this study meets the criteria for the simultaneous F-test.

Table 6. Uji R

R-squared	0.632526
Adjusted R-squared	0.623022

Source: Processed data from Eviews 2023

Table 6 explains that the Adjusted R-squared value of Financial Sustainability in people's credit banks in the Riau province is 0.623, or 62.3%. This means that the Financial Sustainability value is influenced by the variance of its independent variables, namely Return On Asset (ROA), Company Size, and Non-Performing Loan (NPL), at a strong level(Sarstedt et al., 2020).

Return On Asset (ROA) affects Financial Sustainability

The findings of this research confirm the theory that if a company's ROA is good, it provides an indication of the company's efficiency in using its assets to generate profits. Financial sustainability, involving a company's ability to sustain operations and growth in the long term, heavily relies on this efficiency. A high ROA indicates that the company can generate sufficient income to support its operations, investments, and financial obligations, which are key pillars of financial sustainability (Muhammad Adil, 2022). These results align with previous research with similar findings, stating that a stable or increasing ROA is often considered an indicator of good and promising financial performance, crucial for the company's financial sustainability (Lassala et al., 2017; Marwa & Aziakpono, 2015). Based on the data analysis, most People's Credit Banks throughout 2018-2022 have low ROA and tend to face issues with Financial Sustainability.

The Size (SIZE) influences Financial Sustainability

The findings of this research indicate that the Size of the company has an impact on Financial Sustainability in People's Credit Banks in the Riau Province. This aligns with the opinion of experts stating that larger companies often can operate their production more efficiently, generating lower average costs per unit. This occurs because fixed costs can be spread across a larger output, and larger companies have access to broader resources. Risk diversification, more easily achieved by larger companies, also aids in reducing income volatility and enhancing financial stability. Larger companies often can absorb economic and market shocks better than smaller ones (Babcock & Brandt, 2016). These findings support previous research stating that larger companies are often considered more stable and less risky by investors and creditors. They also tend to have a stronger reputation, playing a role in financial sustainability by increasing customer and investor trust (Aldieri & Vinci, 2019; Okwo et al., 2019).

Non-Performing Loan (NPL) has a negative impact on Financial Sustainability

The findings of this research indicate that Non-Performing Loan (NPL) affects Financial Sustainability. NPL signifies issues in loan repayments, which could be due to various reasons, including poor macroeconomic conditions, ineffective credit risk management, or financial difficulties faced by borrowers. A high NPL in a bank's portfolio indicates that a significant portion of assets is not generating income, directly impacting the bank's profitability and financial stability. These results confirm the theory stating that an increase in NPL reduces a bank's interest income, which is a primary source of revenue for most banks. This directly affects the bank's profitability, as measured by indicators like Return on Assets (ROA) and Return on Equity (ROE). Lower profitability can limit a bank's ability to reinvest in its operations and grow, eventually affecting long-term Financial Sustainability (Babcock & Brandt, 2016). These findings

align with previous research stating that a high NPL can impact a bank's liquidity. When loans go unpaid, the bank's cash flow becomes constrained, limiting its ability to meet short-term obligations and provide new loans, thus affecting business sustainability (Iqbal & Nosheen, 2023; Khan et al., 2020; Ozili, 2023)

Conclusion

This research highlights the crucial role of People's Credit Banks (BPR) in supporting the national economy, especially for the community and micro, small, and medium-sized enterprises (UMKM). However, BPR faces serious challenges in the form of poor management, reflected in the decline in the number of operational BPRs and an increase in Non-Performing Loans (NPL). The research findings affirm that factors such as Return on Assets (ROA), Company Size, and NPL significantly influence the Financial Sustainability (FSS) of BPRs. High ROA and larger company size contribute positively to the financial sustainability of BPRs, while high NPL has a negative impact. This underscores the importance of effective credit risk management and operational efficiency for the financial sustainability of BPRs in the Riau Province.

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