



Third-Party Funds and Credit Risk Exposure: A Quantitative Assessment of Risk Adjustment in Indonesian Rural Banks

Klara Paskarena Dahliani¹

¹ Universitas Diponegoro, Semarang, Indonesia

Abstract

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This study examines the relationship between Third-Party Funds (DPK) and credit risk exposure, proxied by Non-Performing Loans (NPL), in Indonesian Rural Banks (*Bank Perkreditan Rakyat*, BPR). Using a quantitative approach, the study employs monthly time-series data covering January 2019 to January 2022, obtained from the Statistik Perbankan Indonesia published by the Financial Services Authority. A linear regression model is applied to assess whether changes in third-party funds are associated with variations in credit risk. Given the time-series nature of the data, the estimation results are evaluated using both ordinary least squares and Newey–West standard errors to address potential autocorrelation. The findings indicate that although third-party funds exhibit a positive coefficient with respect to non-performing loans, the relationship is not statistically significant. This suggests that increases in third-party funds do not necessarily translate into higher credit risk exposure in rural banks. The results imply that factors beyond funding growth, including credit management practices and post-pandemic restructuring policies, may play a more important role in shaping credit risk dynamics.



1. Introduction

The banking sector plays a central role in the financial system as an intermediary institution that channels funds from surplus units to deficit units. The stability of the banking sector is a fundamental prerequisite for maintaining the sustainability of the financial system, particularly in developing countries that remain heavily dependent on bank-based financing. Within this context, credit risk management becomes a crucial issue, as an increase in credit risk can disrupt a bank's performance and reduce public confidence in the banking system as a whole.

In banking, credit risk is generally reflected through the Non-Performing Loan (NPL) ratio, which shows the proportion of problem loans to total loans disbursed. The NPL ratio is regarded as a primary indicator of a bank's asset quality and is widely used to assess the level of credit risk exposure. A higher NPL ratio indicates a decline in borrowers' ability to fulfill repayment obligations and may potentially undermine the operational stability of banks—particularly those focused on financing micro and small business sectors.

On the other hand, Third-Party Funds (Dana Pihak Ketiga – DPK) represent the main source of bank funding and reflect the institution's capacity to mobilize funds from the public. Growth in DPK enhances a bank's ability to extend loans and expand its financing activities. Theoretically, an increase in available funds may stimulate credit expansion, which, under certain circumstances, can lead to higher credit risk exposure if not accompanied by adequate risk management practices.

The relationship between bank funding and credit risk has been widely discussed in banking literature. Several studies suggest that loan expansion driven by funding growth can increase credit risk, while others indicate that strengthening funding capacity does not always result in higher risk if banks maintain prudent lending policies. These divergent findings suggest that the relationship between Third-Party Funds and credit risk is contextual, influenced by institutional characteristics and the prevailing economic environment within the banking sector.

This issue is especially relevant in the context of Indonesian Rural Banks (*Bank Perkreditan Rakyat* – BPR). BPRs have distinct characteristics compared to commercial banks, particularly in terms of operational scale, funding structure, and borrower segments. Their focus on micro and small business financing makes loan quality more sensitive to changes in economic conditions and regulatory policies. Furthermore, the post-COVID-19 period introduced new dynamics in deposit mobilization, credit restructuring, and risk management for BPRs.

Although studies on credit risk are relatively extensive, research specifically examining the relationship between Third-Party Funds and Non-Performing Loans in BPRs, using monthly time-series data, remains limited. Therefore, this study aims to analyze the relationship between Third-Party Funds and credit risk exposure in Indonesian Rural Banks during the period 2019–2022. The study is expected to contribute empirical evidence toward understanding the dynamics between funding and credit risk in the rural banking sector, as well as provide insights for bank managers and policymakers in maintaining banking stability..

2. Literature Review

2.1. Third-Party Funds as a Source of Bank Funding

Third-Party Funds (Dana Pihak Ketiga, DPK) serve as the main funding source for banking operations and reflect a bank's ability to mobilize funds from the public. In financial intermediation theory, DPK functions as the liquidity foundation that enables banks to perform their primary role—providing credit to the real sector. The greater the volume of funds collected, the greater the bank's capacity to expand lending and strengthen its financial intermediation function.

The banking literature indicates that the growth of Third-Party Funds has strategic implications for a bank's risk-taking behavior. Abundant liquidity can encourage banks to expand their lending volume to optimize fund utilization. However, credit expansion driven by rapid funding growth can exert pressure on loan quality if not supported by adequate risk management and prudent credit assessment (Trinugroho et al., 2020).

In developing countries, DPK is also associated with depositors' trust and bank stability. According to Alamsyah et al. (2020), the dynamics of deposit collection reflect the level of public confidence in the banking system, which subsequently influences banks' lending strategies and risk profiles. Therefore, Third-Party Funds not only serve as an input for funding but also play a role in shaping a bank's lending policies and credit risk management framework.

2.2. Credit Risk and Non-Performing Loans

Credit risk represents one of the main risks faced by banks and is generally measured by the Non-Performing Loan (NPL) ratio. NPL indicates the proportion

of impaired loans to total loans and is widely used as an indicator of asset quality and bank soundness. A high NPL level reflects borrowers' declining repayment capacity and has the potential to weaken the stability of the banking sector (Khan, 2020).

Empirical studies reveal that credit risk is influenced by a combination of internal and external factors. Internal factors include lending policies, risk management quality, and funding structure, while external factors consist of macroeconomic conditions and the business environment. Several studies have linked aggressive credit expansion to higher NPLs, particularly when credit growth is not accompanied by strengthened loan screening and monitoring processes (Prasetyowatie & Hariadi, 2022).

In the case of Rural Banks (BPRs), credit risk demonstrates distinct characteristics because these institutions focus on micro and small enterprises (MSEs), which are more vulnerable to economic shocks. Previous research has noted that although BPRs play a vital role in promoting financial inclusion, their loan portfolio structure makes them more sensitive to changes in credit quality and fluctuations in risk (Supeno, 2022). Hence, analyzing credit risk in BPRs is crucial to understanding the resilience of the rural banking sector amid changing economic environments.

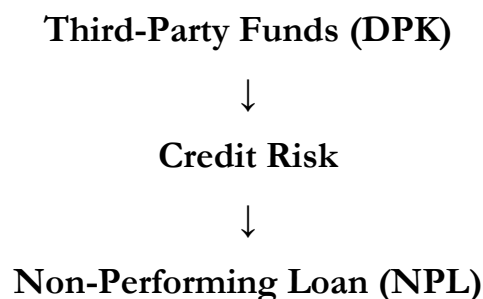
2.3. Conceptual Framework of the Study

The conceptual framework of this research is designed to explain the relationship between Third-Party Funds (DPK) and credit risk in Indonesian Rural Banks (BPRs). Third-Party Funds are positioned as the independent variable,

representing a bank's funding capacity, while credit risk is represented by the Non-Performing Loan (NPL) ratio as the dependent variable. Growth in Third-Party Funds is assumed to increase a bank's lending capacity, which conceptually could influence the level of credit risk.

However, the relationship between DPK and credit risk is not always direct or strong. Increases in funding can be offset by tighter risk management and more prudent lending policies, meaning that credit expansion does not necessarily lead to higher NPLs. Therefore, DPK is considered a potential factor affecting credit risk, but its influence depends heavily on a bank's governance, credit policies, and risk management practices.

Conceptual Framework Diagram:



Description:

- Variable X: Third-Party Funds (DPK)
- Conceptual mechanism: Credit risk serves as the underlying process linking DPK to NPL.

- Variable Y: Non-Performing Loan (NPL)

Based on the conceptual framework and previous literature, the research hypotheses are formulated as follows:

- H_0 : There is no significant relationship between Third-Party Funds and Non-Performing Loans in Indonesian Rural Banks.
- H_1 : Third-Party Funds are positively associated with Non-Performing Loans in Indonesian Rural Banks.

3. Methods

This study uses a quantitative approach with the aim of examining the empirical relationship between Third-Party Funds and credit risk exposure in Rural Banks (*Bank Perkreditan Rakyat* – BPR) in Indonesia. The quantitative approach was chosen because this research focuses on testing relationships between variables expressed in numerical form and analyzed using inferential statistical methods, thus allowing conclusions to be drawn based on the results of the estimated regression model.

The data used in this study are secondary data obtained from the *Indonesian Banking Statistics* published by the Financial Services Authority (Otoritas Jasa Keuangan – OJK). The data are monthly time-series data covering the observation period from January 2019 to January 2022. The selection of time-series data is

intended to capture the dynamics of changes in public fund collection and credit risk in BPRs continuously during the post-pandemic period.

The dependent variable in this study is Non-Performing Loans (NPL), which represent the level of credit risk exposure and are measured as the ratio of non-performing loans to total loans disbursed by BPRs. The main independent variable is Third-Party Funds (DPK), which reflect the total amount of public funds successfully collected by BPRs. The measurement of variables is carried out in accordance with the definitions and standards used by the banking authority to ensure consistency and comparability of data across periods.

To examine the relationship between Third-Party Funds and credit risk exposure, this study uses a simple linear regression model. The empirical model used is formulated as follows:

$$NPL_t = \alpha + \beta DPK_t + \varepsilon_t$$

where NPL_t is the level of Non-Performing Loans at period t , DPK_t is the Third-Party Funds at period t , α is a constant, β is the coefficient indicating the effect of Third-Party Funds on credit risk, and ε_t is the error term.

Data analysis was carried out using the R statistical software. The stages of analysis begin with the presentation of descriptive statistics to describe the characteristics of the research data, followed by the estimation of the linear

regression model. Considering that the data used are time-series in nature, autocorrelation testing was conducted to ensure the validity of the estimation. If indications of autocorrelation were found, the standard errors were corrected using the Newey–West approach. The significance of the regression coefficient was tested using the t-test to assess the direction and strength of the relationship between Third-Party Funds and Non-Performing Loans.

4. Results

4.1. Descriptive Statistics

Descriptive statistical analysis was carried out to provide an initial overview of the characteristics of the research data before conducting empirical testing.

The data used are monthly time-series data from Rural Banks (*Bank Perkreditan Rakyat* – BPR) in Indonesia during the period January 2019 to January 2022, which include the variables Third-Party Funds (DPK) and Non-Performing Loans (NPL).

Table 1. Descriptive Statistics of Research Variables

Variable	N	Mean	Std. Dev.	Min	Max
Third-Party Funds (DPK)	37	103,722	–	92,553	117,079
Non-Performing Loan (NPL)	37	7.514	–	6.720	8.630

*Source: Indonesian Banking Statistics (SPI), Financial Services Authority (OJK),
monthly data January 2019 – January 2022*

Note: DPK in billion rupiahs; NPL in percentage (%).

Table 1 shows that during the observation period, the Third-Party Funds of BPRs experienced an increasing trend with relatively moderate variation. Meanwhile, the Non-Performing Loan ratio remained relatively stable, although fluctuations were observed across periods. This descriptive overview indicates that the growth of funding is not always followed by a proportional increase in credit risk..

4.2. Regression Estimation Results

To test the relationship between Third-Party Funds (DPK) and credit risk exposure, this study employs a simple linear regression model with Non-Performing Loans (NPL) as the dependent variable and Third-Party Funds (DPK) as the independent variable. Considering that the data are time-series in nature, autocorrelation testing was carried out using the Durbin–Watson test.

The results of the Durbin–Watson test indicate the presence of significant positive autocorrelation. Therefore, in addition to the Ordinary Least Squares (OLS) estimation, this study also applies the Newey–West correction to obtain more robust standard errors.

Table 2. Regression Estimation Results of the Effect of DPK on NPL

Variable	Coefficient	Std. Error (NW)	t-statistic	p-value
Constant	7.368	2.652	2.778	0.009
Third-Party Funds (DPK)	0.000001406	0.00002398	0.059	0.954
R ²	0.0004			
Observations	37			

*Source: Indonesian Banking Statistics (SPI), Financial Services Authority (OJK),
monthly data January 2019 – January 2022; regression estimation processed by the author using
R with Newey–West standard errors*

Note: *Standard errors are reported using the Newey–West correction.*

Table 2 shows that Third-Party Funds have a positive coefficient with respect to Non-Performing Loans. However, the coefficient is not statistically significant, both under the OLS estimation and after the Newey–West correction. The very small R^2 value indicates that variations in Non-Performing Loans are almost not explained by changes in Third-Party Funds during the observation period.

5. Discussion

The results of the study show that Third-Party Funds (DPK) do not have a significant effect on Non-Performing Loans (NPL) in Rural Banks (*Bank Perkreditan Rakyat* – BPR) in Indonesia during the period January 2019 to January 2022. This finding indicates that the increase in funding capacity through public fund mobilization does not automatically lead to higher credit risk exposure. In other words, the growth of funds is not necessarily translated into a deterioration of credit quality.

The absence of a significant relationship between Third-Party Funds and Non-Performing Loans can be explained by the characteristics of risk management practices in BPRs. In practice, BPRs tend to implement prudential principles in lending, especially in the micro and small business segment, which is relatively more

prone to risk. In addition, during the post-pandemic period, credit restructuring policies and prudential supervision may have helped to restrain the increase in NPLs despite the growth in Third-Party Funds.

This finding also suggests that credit risk in BPRs is more influenced by other factors beyond funding, such as the quality of credit analysis, borrower capacity, and economic conditions affecting the micro and small business sectors. Therefore, Third-Party Funds function as an operational prerequisite for lending but not as the main determinant of credit risk levels in the short term.

From a policy perspective, the results of this study imply that efforts to increase public fund mobilization do not necessarily need to be associated with a direct deterioration in BPR credit quality, as long as they are accompanied by improvements in governance and risk management. This highlights the importance of focusing policies on strengthening credit appraisal and risk supervision quality rather than solely controlling the growth of funding.

6. Conclusion

This study aims to analyze the relationship between Third-Party Funds (DPK) and credit risk (Non-Performing Loans – NPL) in Rural Banks (*Bank Perkreditan Rakyat* – BPR) in Indonesia by using monthly time-series data from January 2019 to January 2022.

The regression analysis results show that Third-Party Funds have a positive coefficient on Non-Performing Loans, but the relationship is not statistically

significant. This finding indicates that the increase in Third-Party Funds does not necessarily result in an increase in credit risk.

Thus, the growth in public funds mobilized by BPRs is not directly proportional to the deterioration in credit quality. This suggests that the dynamics of credit risk in BPRs are more strongly influenced by other factors such as credit management quality, loan restructuring policies, and macroeconomic conditions, rather than by funding growth alone.

From a practical standpoint, this finding implies that BPRs can continue to pursue strategies for expanding public fund collection to strengthen intermediation functions without directly increasing credit risk exposure, as long as risk management is consistently maintained. Meanwhile, for the regulator, the results of this study highlight the importance of focusing policies on credit quality monitoring rather than solely restricting the growth of Third-Party Funds.

This study has limitations because it only includes two variables—Third-Party Funds and Non-Performing Loans—and uses a simple regression approach. Future research is expected to include other variables that may affect credit risk, such as capital adequacy, operational efficiency, or macroeconomic factors, and to use multivariate time-series analysis for more comprehensive results..

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