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The Effect of Outstanding Loan, Non-Performing Loan, and Loan Growth on Fintech P2P Lending Profitability

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ABSTRACT

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Introduction/Main Objectives: This study aims to analyze the effect of Outstanding Loans, Non-Performing Loans, and Loan Growth on profitability in the Fintech Peer-to-Peer (P2P) Lending industry in Indonesia. The fintech P2P lending industry in Indonesia has grown rapidly, but profitability performance has shown instability despite increasing loan disbursement, indicating an imbalance between loan growth and credit quality.

Novelty: This research offers originality through the use of monthly aggregate data from the Indonesian fintech P2P lending industry, analyzed within both short-term and long-term frameworks using the Autoregressive Distributed Lag (ARDL) approach, providing a more comprehensive understanding of the dynamics of financing, credit quality, and profitability.

Research Methods: This study employs a quantitative approach using 36 monthly aggregate time-series observations from January 2022 to December 2024, obtained from the Fintech Lending Statistics Report published by the Financial Services Authority (OJK). The analysis utilizes the Autoregressive Distributed Lag (ARDL) model to examine both short-run and long-run relationships among the variables. **Finding/Results:** The results indicate that in the short run, Outstanding Loans have a negative and significant effect only at lag 3, while Non-Performing Loans and Loan Growth show no significant effects. In the long run, Outstanding Loans and Non-Performing Loans have negative and significant effects on profitability, whereas Loan Growth has a positive but insignificant effect. **Conclusion:** Profitability depends more on effective loan management and credit quality than on loan growth alone, making sound credit risk management essential for sustainability.

1. Introduction

The fintech peer-to-peer lending industry in Indonesia is developing rapidly as part of the digital financial system transformation and increasingly plays a role in expanding public access to financing. In the context of financial institutions, profitability is an important indicator for assessing a company's ability to generate profits efficiently, especially because profitability demonstrates the effectiveness of resource management and serves as a basis for investor considerations in evaluating financial performance (Faizah et al., 2024; Nazar & Mawarni, 2023; Ringan & Pratama, 2024). However, rapid business growth is not always accompanied by stable profit performance. Kayani et al. (2025) Emphasize that fintech companies that grow aggressively can face liquidity pressures and financial risks if expansion is not balanced with adequate risk management. In this study, profitability is proxied by Return on Equity (ROE) because this ratio can illustrate the company's effectiveness in utilizing shareholder equity to generate net profit (Nazar & Mawarni, 2023).



Figure 1. Total Loan and Loan Growth (YoY)

Source: OJK (2024), processed by the author.

The Indonesian fintech peer-to-peer lending industry is one of the largest in Southeast Asia and has shown rapid loan disbursement growth, particularly during the 2022–2024 period. As presented in Figure 1, total loan disbursement increased from IDR 295.85 trillion at the end of 2021 to IDR 528.01 trillion at the end of 2022, recording a year-on-year (YoY) growth of 78.47%. It continued to rise to IDR 763.14 trillion in 2023, with a YoY growth of 44.53%, and reached IDR 1,048.64 trillion in 2024, although the growth rate moderated to 37.41% YoY.

This pattern indicates that the industry has consistently expanded its financing scale, but the deceleration in annual growth suggests that expansion momentum is slowing as the loan base becomes larger. Therefore, the rapid increase in loan disbursement needs to be assessed alongside credit quality and repayment performance, because strong disbursement growth does not necessarily guarantee stable profitability (OJK, 2024).

However, behind this high growth, the profitability performance of the P2P lending industry has not shown optimal stability. Over the past three years, industry profitability has experienced significant fluctuations, even suffering losses before recovering. Based on data obtained from the fintech peer-to-peer lending industry's financial reports, in 2022 the industry recorded a loss of IDR 1.28 trillion, then improved in 2023 with a net profit of IDR 4.43 trillion. However, in the first quarter of 2024, performance weakened again, recording a loss of IDR 260.49 billion. Subsequently, until December 2024, the industry recovered, posting a profit of IDR 6.65 trillion.

This condition indicates that increased loan disbursement is also accompanied by high credit risk. When viewed from the outstanding loan value, loans that have not yet been repaid by borrowers and have potential default risk show a consistent increasing trend during the 2022–2024 period. In 2022, it was recorded at IDR 518.91 billion, increasing in 2023 to IDR 648.70 billion, then rising sharply again in 2024 to IDR 819.40 billion. Additionally, the FinTech Peer-to-Peer Lending industry also experienced non-performing loan levels showing a tendency to approach the threshold set by OJK at 5%. The highest NPL was in 2022 at 3.075%, then in 2023 at 3.47%, and in 2024 at 2.95%. This phenomenon indicates an imbalance between loan growth and credit quality. This means that although growth is high, it does not always increase profitability if the loans provided are not balanced with good credit risk control.

Theoretically, this relationship can be explained through liquidity theory, agency theory, and

signaling theory. Keynes (1936), as discussed by Makarchuk et al. (2022), states that liquidity relates to a company's preference to maintain current assets to meet short-term obligations and face uncertainty. In the context of fintech P2P lending, a high outstanding loan can slow cash inflows and pressure the company's ability to maintain profits (Makarchuk et al., 2022; H. Sari et al., 2022). Furthermore, Jensen, M. C., & Meckling (1976) explain that the principal-agent relationship has the potential to create conflicts of interest and information asymmetry, so that an increase in non-performing loans can be understood as a result of weak credit risk supervision and control (Cheng et al., 2019; Panda & Leepsa, 2017; Reddy, 2023). The signaling theory proposed by Spence (1973) explains that company decisions signal external parties regarding the company's prospects and performance quality. In this study, loan growth can be viewed as a positive signal if the expansion of loan disbursement is conducted in a healthy and sustainable manner, because well-managed loan growth has the potential to increase revenue and profitability (Jaya et al., 2024; Tuanaya & Prasetya, 2024).

From an empirical perspective, previous research results have not shown consistent conclusions. Research by Wilasmi et al. (2020) found that outstanding loans have a positive effect on profitability, while Azhar et al. (2023) showed a negative and significant effect. For the non-performing loan variable, Alnabulsi et al. (2023) and Maulana et al. (2023) proved that non-performing loans tend to suppress profitability, but Zaid & Farooque Khan (2023) actually found a positive relationship under certain conditions. For loan growth, Wu et al. (2022) and Nguyen & Le (2022) showed that loan growth can increase profitability, while Jaya et al. (2024) emphasized that overly aggressive credit expansion can actually decrease performance if financing quality is not maintained. These differences in results indicate an empirical gap that still needs to be retested in the context of the fintech P2P lending industry in Indonesia.

Based on these theoretical and empirical gaps, this study examines the effect of outstanding loans, non-performing loans, and loan growth on profitability in the Indonesian fintech P2P lending industry during 2022–2024. The novelty of this research lies in combining monthly aggregate industry-level data with the ARDL approach to estimate short- and long-run relationships while jointly testing outstanding loans, NPL, and loan growth in the fintech P2P lending context. This study contributes theoretically by extending liquidity, agency, and signaling theories to fintech P2P lending; empirically by providing short- and long-run evidence that helps reconcile inconsistent prior findings; and practically by offering input for platform management, investors, and regulators such as OJK in balancing loan expansion, repayment performance, and credit risk control to support sustainable profitability. Accordingly, this research is expected to enrich the accounting and finance literature and support the sustainability of the fintech lending industry (Lee, 2025; OJK, 2024).

2. Literature Review

2.1 Liquidity Theory

Liquidity theory explains that companies tend to maintain a balance between current assets and short-term liabilities to sustain operational continuity and face future uncertainty (Makarchuk et al., 2022). In the context of fintech peer-to-peer lending, this theory is relevant for explaining the relationship between outstanding loans and profitability, because a high outstanding loan indicates that the company's funds are still tied up with borrowers and have not yet returned as cash (Saraswati et al., 2020; Yudha, 2021). This condition can pressure cash inflows, narrow the company's flexibility in meeting operational obligations, and ultimately potentially decrease profitability (Glazkova & Hanova, 2022; Hasna et al., 2024; H. Sari et al., 2022). Thus, outstanding loans that are not effectively managed can create liquidity pressures that negatively impact the company's profits (Kadyrzhanova et al., 2024).

2.2 Agency Theory

Agency theory, proposed by Jensen and Meckling, explains the contractual relationship between principals and agents that can create conflicts of interest and information asymmetry (Cheng et al., 2019; Panda & Leepsa, 2017). In this study, agency theory is used to explain the effect of non-performing loans on profitability, because increased non-performing loans can reflect weak management supervision and suboptimal credit risk control (Agustin, 2025; Chuesta et al., 2024). When agents are more oriented toward loan disbursement expansion with inadequate financing quality, the company will bear loss provision, collection costs, and loss of interest income, thereby reducing profits (Arthur-Sam, 2025; Sari, 2019). Therefore, non-performing loans can be understood as a consequence of agency problems that impact company profitability.

2.3 Signaling Theory

Signaling theory explains that company decisions can provide information to external parties regarding the company's condition and prospects (Aghamolla et al., 2021; Spence, 1973). In the context of fintech P2P lending, this theory is relevant for explaining the relationship between loan growth and profitability, because high and sustainable loan growth can be a positive signal regarding the quality of financing portfolio management and the company's revenue prospects (Tuanaya & Prasetya, 2024; Wu et al., 2022). Well-managed loan growth demonstrates the company's ability to balance credit expansion and risk control, thereby increasing lender and investor confidence (Jaya et al., 2024; Suroso et al., 2025). Conversely, overly aggressive loan growth without good distribution quality can become a negative signal for company profitability (Jaya et al., 2024).

2.4 Profitability

Profitability is a company's ability to generate profits during a certain period and is one of the main indicators of management effectiveness in managing company resources (Faizah et al., 2024;

Malasulastri & Rosa, 2023). In this study, profitability is measured using Return on Equity (ROE) because this ratio shows the rate of return obtained by capital owners on the equity invested (Hantono, 2018; Hery, 2015). A high ROE reflects the company's ability to efficiently utilize its own capital to create net profit, making this ratio important as a basis for assessing the company's financial performance (Brigham, E. F., & Houston, 2021; Wijaya et al., 2024). Thus, ROE is considered relevant for depicting profitability in the fintech P2P lending industry.

2.5 Outstanding Loan

Liquidity theory explains that the greater the funds tied up in unpaid loans, the lower the company's ability to meet short-term liquidity needs (Makarchuk et al., 2022). In the fintech peer-to-peer lending industry, an increase in outstanding loans reflects a greater balance of loans still outstanding and not yet returned to the company as cash (Yudha, 2021). If this increase is not balanced with effective collection and good financing quality, the company will face cash flow constraints, increased default risk, and reduced revenue, which can ultimately decrease profitability (Glazkova & Hanova, 2022; Kadyrzhanova et al., 2024). Therefore, the higher the outstanding loan, the lower the company's profitability.

H1: Outstanding loans have a negative effect on profitability.

2.6 Non-Performing Loan

Based on agency theory, conflicts of interest between management and company owners can encourage financing decisions that are more oriented toward increasing loan volume rather than credit quality (Jensen & Meckling, 1976; Panda & Leepsa, 2017). This condition increases the likelihood of non-performing loans, which are loans that experience default or payment delays. The higher the non-performing loans, the greater the credit loss provisioning costs, collection costs, and loss of interest income that the company must bear, thereby reducing the company's ability to generate profits (Alnabulsi et al., 2023; Arthur-Sam, 2025;

Reddy, 2023). Thus, an increase in non-performing loans is expected to decrease the profitability of fintech peer-to-peer lending companies.

H2: Non-performing loans have a negative effect on profitability.

2.7 Loan Growth

Signaling theory explains that company growth is information that can be used by investors and stakeholders to assess the company's future prospects (Spence, 1973). In the fintech peer-to-peer lending industry, increased loan growth demonstrates the company's success in expanding financing distribution to the public. Effectively managed loan growth will increase revenue from service fees and financing yields, thereby improving company profitability (Nguyen & Le, 2022; Wu et al., 2022). Additionally, sustainable loan growth also signals that the company has good capacity to develop its business and manage financing risk (Jaya et al., 2024). Therefore, the higher the loan growth, the higher the company's profitability.

H3: Loan growth has a positive effect on profitability.

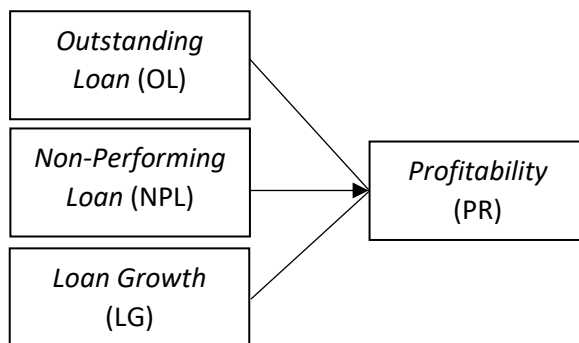


Figure 2. Conceptual Framework

3. Method, Data, and Analysis

This study uses a quantitative approach with the aim of analyzing the effect of outstanding loans, non-performing loans (NPL), and loan growth on profitability in the fintech peer-to-peer lending industry in Indonesia. The study population includes all aggregate monthly time-series data of the FinTech Peer-to-Peer (P2P) Lending industry in Indonesia, covering Outstanding Loan, Non-Performing Loan, and Loan Growth data, as well as profitability indicators available during the

observation period from January 2022 to December 2024. The research sample uses aggregate industry data in the form of monthly time-series data from January 2022 to December 2024, resulting in 36 observations. The use of aggregate data was chosen because it can depict the overall condition of the fintech peer-to-peer lending industry during the research period.

Table 1. Operational Variables

Variable	Indicator / Formula	Scale
Profitability (PR)	ROE = Net Profit After Tax / Total Equity × 100% (Goh et al., 2024).	Ratio
Outstanding Loan (LnOL)	Outstanding Loan = Remaining Loan Principal + Accrued Unpaid Interest (Chun & Ardaaragchaa, 2024). In this study, data is transformed into natural logarithm form (LnOL).	Ratio
Non-Performing Loan (NPL)	NPL = Total Loans with Arrears ≥ 90 days / Total Outstanding Loan × 100% (Kuncoro & Suhardjono, 2011).	Ratio
Loan Growth (LG)	Loan Growth = (Total Loan Disbursement t – Total Loan Disbursement t-1) / Total Loan Disbursement t-1 × 100% (Dwitama & Hasanudin, 2024).	Ratio

Source: Researcher's processed data, 2026

4. Results and Discussion

4.1 Stationarity Test

Prior to estimating the ARDL model, a stationarity test was conducted using the Augmented Dickey-Fuller (ADF) unit root test at both the level and the first difference. This preliminary step is essential to ensure that no variable is integrated of order two,

li(2), which would invalidate the ARDL approach. The test results are presented in Table 2 below.

Table 2. Unit Root Test Using Augmented Dickey-Fuller (ADF)

Variable	Unit Root	Augmented Dickey-Fuller Test Statistik	Critical Value (5%)	Prob PP	Result
PR	Level	-1.3121	-2.9484	0.6130	Not Stationary
	First Difference	-4.8458	-2.9511	0.0004	Stationary
LNOL	Level	-3.1457	-2.9484	0.0322	Stationary
	First Difference	-5.2979	-2.9511	0.0001	Stationary
NPL	level	-1.9227	-2.9484	0.3184	Not Stationary
	First Difference	-5.7055	-2.9511	0.0000	Stationary
LG	level	-1.8054	-2.9511	0.3717	Not Stationary
	First Difference	-10.259	-2.9511	0.0000	Stationary

Source: EVIEWS 12 processed by the author (2026)

The stationarity test results using the Augmented Dickey-Fuller (ADF) method show that the research variables have different integration levels. The Outstanding Loan variable was stationary at the level of $I(0)$, while the Profitability, Non-Performing Loan, and Loan Growth variables only reached stationarity after first differencing or $I(1)$. No variables were integrated at the second order ($I(2)$), so all variables meet the requirements for analysis using the ARDL approach.

4.2 Determination of Optimum Lag

Following the stationarity assessment, the optimal lag length for the ARDL model was selected based on the Akaike Information Criterion (AIC). The model with the smallest AIC value was chosen to ensure the most efficient parameter estimation. The selection results are illustrated in Figure 3.

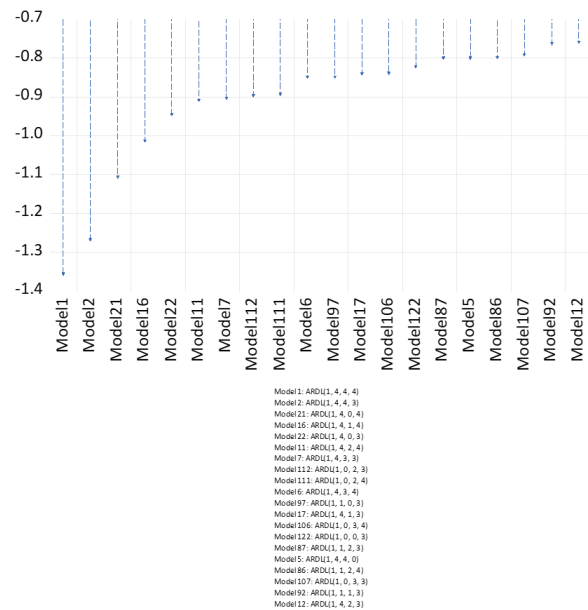


Figure 3. Optimal Model Selection Results Using Akaike Information Criterion (AIC)

The determination of the optimum lag was conducted using the Akaike Information Criterion (AIC). The selection results show that the best model is ARDL (1,4,4,4), indicating that the dependent variable uses one lag, while each independent variable uses four lags. This model was chosen because it has the smallest AIC value compared to other model combinations, making it most optimal in explaining the relationships between variables.

4.3 Cointegration Test

Table 3. Bounds Test Results

F-Bounds Test relationship		Null Hypothesis: No levels		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic : n=1000				
F-statistic	4.6157	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
Finite Sample : n=35				
Actual Sample Size	34			
		10%	2.618	3.532
		5%	3.164	4.194
		1%	4.428	5.816

Source: EVIEWS 12 processed by the author (2026)

To confirm the existence of a long-run equilibrium relationship among the variables, the Bounds cointegration test was employed. The null hypothesis of no cointegration is tested against the critical values provided by Pesaran et al. (2001). The detailed results of this test are reported in Table 3.

Furthermore, the Bounds Test results produced an F-statistic value of 4.6157, which is greater than the upper bound value at the 5% significance level. These results indicate a coincidence or long-term equilibrium relationship between Outstanding Loans, Non-Performing Loans, Loan Growth, and Profitability, so that the estimation of short-term and long-term relationships can be conducted through the ARDL model.

4.4 ARDL Model Estimation

Short-run Estimation

The short-run dynamics of the model are captured through the Error Correction Model (ECM). The coefficients explain the immediate impact of changes in the independent variables on profitability, along with the speed of adjustment back to long-run equilibrium via the error correction term. The short-run estimation results are summarized in Table 4.

Table 4. Short-term ARDL Estimation Results

ECM Regression Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN OL)	-0.4276	1.1812	-0.3620	0.7520
D(LN OL(-1))	-2.1743	1.1050	-1.9677	0.1880
D(LN OL(-2))	-1.0537	1.3956	-0.7549	0.5290
D(LN OL(-3))	-6.1896	1.1826	-5.2338	0.0346
D(NPL)	-0.7813	0.4101	-1.9050	0.1971
D(NPL(-1))	0.9060	0.4340	2.0876	0.1721
D(NPL(-2))	-0.3877	0.5725	-0.6772	0.5681
D(NPL(-3))	1.5769	0.4967	3.1746	0.0865
D(LG)	-0.2964	0.1424	-2.0820	0.1728
DLG(-1))	-0.1736	0.2042	-0.8501	0.4848
DLG(-2))	-0.0442	0.1898	-0.2331	0.8374
DLG(-3))	0.3512	0.1464	2.3982	0.1386
CointEq(-1)*	-0.2087	0.0250	-8.3207	0.0141

Source: EVIEWS 12 processed by the author (2026)

The short-term relationship estimation shows that Outstanding Loans in the current period, lag 1, and lag 2 have a negative direction of effect but are not yet significant on profitability, while at lag 3 the effect is negative and significant. The Non-Performing Loan variable shows fluctuating coefficient directions, but all coefficients are insignificant. Similarly, Loan Growth has not shown a significant effect on profitability at all observed lags. Additionally, the Error Correction Term (ECT) value of -0.2087 with a probability of 0.0141 indicates that the adjustment mechanism toward long-term equilibrium functions well, where approximately 20.87% of deviations from long-term equilibrium can be corrected in each period. Based on the table above, the short-term test results can be formulated as follows:

$$\begin{aligned} \Delta \text{PROF}_t = & -0.427631\Delta \text{LNOL}_t - 2.174316\Delta \text{LNOL}_{t-1} - \\ & 1.053710\Delta \text{LNOL}_{t-2} - 6.189638\Delta \text{LNOL}_{t-3} - \\ & 0.781349\Delta \text{NPL}_t + 0.906056\Delta \text{NPL}_{t-1} - \\ & 0.387774\Delta \text{NPL}_{t-2} + 1.576973\Delta \text{NPL}_{t-3} - \\ & 0.296492\Delta \text{LG}_t - 0.173605\Delta \text{LG}_{t-1} - \\ & 0.044260\Delta \text{LG}_{t-2} + 0.351225\Delta \text{LG}_{t-3} - \\ & 0.208752\text{ECT}_{t-1} + \varepsilon_t \end{aligned} \quad (1)$$

Short-run Estimation

Conversely, the long-run multipliers derived from the ARDL model reveal the sustained effects of the explanatory variables on profitability over an extended period. The estimated long-run coefficients are displayed in Table 5.

Table 5. Long-term ARDL Estimation Results

Levels Equation Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNOL	-0.1096	0.0460	-2.385	0.0238
NPL	-9.0409	3.6200	-2.497	0.0184
LG	0.6754	0.5000	1.351	0.1872
C	13.072	5.7200	2.285	0.0298

Source: EVIEWS 12 processed by the author (2026)

The long-term estimation results show that Outstanding Loans have a coefficient of -0.109692, indicating a negative and significant effect on

profitability. Non-Performing Loans also have a negative and significant effect, with a coefficient of -9.040943. Meanwhile, Loan Growth has a coefficient of 0.675435, indicating a positive but insignificant effect on profitability. Overall, these results indicate that increases in Outstanding Loans and Non-Performing Loans tend to reduce profitability, while Loan Growth has not significantly influenced profitability in the long term. Based on the table above, the long-term test results using the ARDL model in that table can be formulated as follows:

$$\text{PROF}_t = 13.07253 - 0.109692\text{LNOL}_t - 9.040943\text{NPL}_t + 0.675435\text{LG}_t + \varepsilon_t \quad (2)$$

4.5 Classical Assumption Tests

To ensure the reliability of the estimated model, a series of diagnostic checks were performed.

Autocorrelation Test

First, the presence of serial correlation in the residuals was examined using the Breusch-Godfrey Lagrange Multiplier (LM) test, with the outcomes shown in Table 6.

Table 6. Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.5683	Prob. F(2,26)	0.5733
Obs*R-squared	1.4242	Prob. Chi-Square(2)	0.4906

Source: EViews 12 processed by the author (2026)

The autocorrelation test was conducted using the Breusch-Godfrey Serial Correlation LM Test to determine whether there is correlation among residuals in the model. The test results show an Obs*R-squared probability value of 0.4906, greater than the significance level of 0.05. Thus, the null hypothesis is not rejected, so it can be concluded that the ARDL model does not contain autocorrelation. These results indicate that residuals are independent across periods, so the resulting parameter estimates can be considered consistent and suitable for further analyses.

Heteroscedasticity Test

Second, the homoscedasticity of the residuals was tested using the Breusch-Pagan-Godfrey test to

verify whether the variance of the error terms is constant across observations. The test results are presented in Table 7.

Table 7. Heteroscedasticity Test Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	0.3589	Prob. F(5,28)	0.8721
Obs*R-squared	2.0480	Prob. Chi-Square(5)	0.8425
Scaled explained SS	7.0871	Prob. Chi-Square(5)	0.2142

Source: EViews 12 processed by the author (2026)

The heteroscedasticity test was conducted using the Breusch-Pagan-Godfrey Test to examine the equality of residual variance in the model. The test results show an Obs*R-squared probability value of 0.8425, which is greater than the significance level of 0.05. Therefore, the null hypothesis is not rejected, so it can be concluded that the model does not experience heteroscedasticity problems. This indicates that residual variance is constant (homoscedastic), so the model meets one of the important assumptions in ARDL estimation.

Normality Test

Third, the normality of the residual distribution was assessed using the Jarque-Bera test, which checks whether the residuals follow a normal distribution. The test output is depicted in Figure 4.

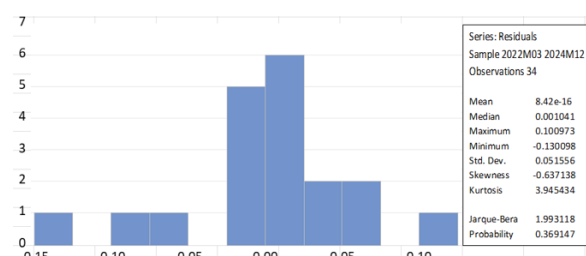


Figure 4. Jarque-Bera Normality Test Results

The Jarque-Bera normality test results show a statistic value of 1.993118 with a probability of 0.369147. Because this probability value exceeds the 5% significance level (0.05), the null hypothesis stating that residuals are normally distributed cannot be rejected. Thus, it can be concluded that the normality assumption of residuals in the ARDL model has been met. This condition strengthens the validity of the model, ensuring that the estimation

results and statistical inferences made are reliable and can be used in further analyses.

4.6 ARDL Model Stability Test

Finally, the structural stability of the estimated ARDL model was evaluated using the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests. These tests determine whether the coefficients are stable over the sample period, with the graphical results presented in Figures 4 and 5, respectively.

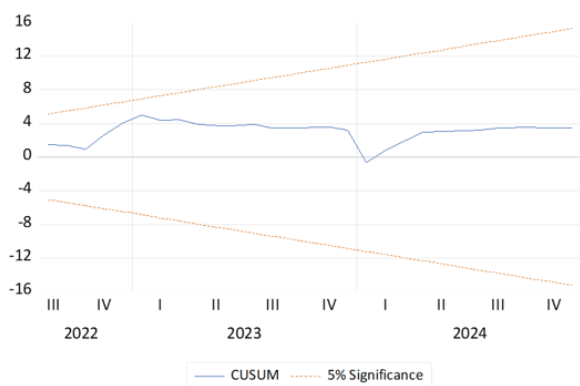


Figure 5. CUSUM Test Results

The model stability test was conducted to ensure that the parameters in the ARDL model are consistent throughout the observation period. This test uses two approaches, namely CUSUM and CUSUM of Squares (CUSUMSQ). The CUSUM graph results show that the test line remains within the 5% significance boundaries throughout the research period, so the model is declared stable and there are no significant regression parameter changes over time. This condition indicates that the relationships between variables in the model do not experience meaningful structural shifts during the observation period.

Furthermore, the CUSUM of Squares graph results also show that the test line remains within the 5% critical boundaries throughout the observation period. This finding indicates that the error term variance in the model is relatively stable and there are no symptoms of parameter instability. Thus, the ARDL model used is declared to pass the stability test, making it suitable for explaining the short-term and long-term dynamics of the

relationships between Outstanding Loans, Non-Performing Loans, Loan Growth, and Profitability.

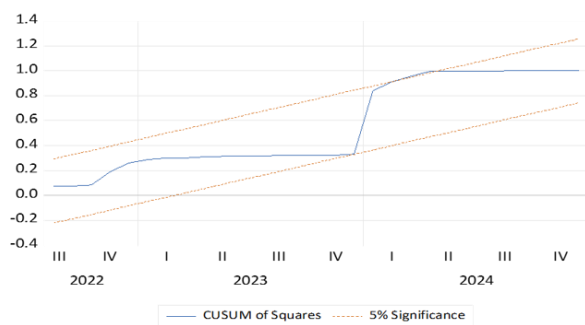


Figure 6. CUSUM of Squares Test Results

4.7 Discussion

The Effect of Outstanding Loan on Profitability

The research results show that outstanding loans have a negative effect on profitability in the long term. This condition can be understood because the greater the loans still outstanding, the greater the company's funds tied up before returning as cash. From the perspective of liquidity theory, longer fund retention will slow cash turnover, narrow liquidity space, and pressure the company's ability to generate optimal profits (Makarchuk et al., 2022; Yudha, 2021; Saraswati et al., 2020). In the fintech peer-to-peer lending industry, increased outstanding loans also reflect greater fund return risk, so funding burdens and pressure on profitability become stronger (Glazkova & Hanova, 2022; Hasna et al., 2024; Kadyrzhanova et al., 2024).

These findings align with research by Azhar et al. (2023), which shows that outstanding loans have a negative and significant effect on fintech lending profitability. This result is also consistent with Fairuz et al. (2023). The argument that loan completion delays can delay platform profit realization. However, this result differs from Wiilasmii et al. (2020), who found a positive effect of outstanding loans on profitability. This difference indicates that the impact of outstanding loans on profits greatly depends on collection effectiveness, financing quality, and the company's ability to maintain a

balance between credit expansion and fund return (Azhar et al., 2023; Wilasmi et al., 2020).

The Indonesian fintech P2P lending industry provides a clear illustration of this negative relationship. Outstanding loans rose consistently from IDR 518.91 trillion in 2022 to IDR 648.70 trillion in 2023 and IDR 819.40 trillion in 2024, equivalent to a cumulative growth of 57.91%. Over the same period, total loan disbursement also expanded from IDR 528.01 trillion to IDR 1,048.64 trillion, yet industry profitability remained unstable: it recorded a loss of IDR 1.28 trillion in 2022, recovered to a profit of IDR 4.43 trillion in 2023, fell back into a loss of IDR 260.49 billion in the first quarter of 2024, and only recovered to IDR 6.65 trillion by December 2024 (OJK, 2024). This pattern indicates that the growing stock of outstanding loans tied up platform funds in receivables and accrued interest, slowing cash turnover and limiting the ability to channel new financing. As a result, the industry experienced liquidity pressure and delayed profit realization, which is consistent with the long-run negative effect of outstanding loans on profitability.

The Effect of Non-Performing Loans on Profitability

The research results also show that non-performing loans (NPL) have a negative effect on profitability in the long term. Substantively, this finding shows that the higher the non-performing loans, the greater the burden the company must bear in the form of loss provisions, collection costs, and loss of interest income. Within the framework of agency theory, increased NPL reflects information asymmetry and misalignment of interests between management and fund owners, especially when financing decisions are more oriented toward volume expansion rather than credit quality (Agustin, 2025; Cheng et al., 2019; Jensen & Meckling, 1976; Panda & Leepsa, 2017). Therefore, high NPL is an indicator of weak credit risk control that ultimately suppresses profitability (Reddy, 2023; Sari, 2019).

These findings support the research results of Alnabulsi et al., 2023; Maulana et al. (2023), which both show that non-performing loans have a negative effect on profitability. This result is also in

line with Yuttama (2024), who emphasizes that NPL impacts the decline in return on assets, as well as Zuhroh et al. (2022), who positions NPL as an endogenous constraint in credit and growth. Conversely, these results differ from Zaid & Farooque Khan (2023), who found a positive effect of NPL on ROE profitability in certain contexts. This difference shows that the effect of NPL on profits is not universal but rather highly influenced by risk management quality, funding structure, and the company's ability to absorb non-performing financing risk (Alnabulsi et al., 2023; Maulana et al., 2023; Zaid & Farooque Khan, 2023).

The Indonesian fintech P2P lending industry also demonstrates how NPL risk can suppress profitability. Aggregate TWP90 remained close to OJK's 5% threshold, reaching 3.075% in 2022, 3.47% in 2023, and 2.95% in 2024 (OJK, 2024). However, this aggregate stability masks severe platform-level risks. In May 2024, TaniFund Madani Indonesia had its business license revoked after its TWP90 reached 63.93% (OJK, 2024). By the end of December 2024, 22 out of 97 licensed fintech lending platforms, about 22.68%, had TWP90 above 5% (Investortrust). These facts show that non-performing financing is not merely a statistical aggregate but a real operational problem that increases provisioning costs, collection expenses, and lost interest income. In line with agency theory, platforms that prioritize loan volume over credit quality tend to accumulate bad loans, which eventually erode profitability. This contextual evidence supports the finding that NPL has a negative and significant effect on profitability in the long run.

The Effect of Loan Growth on Profitability

The results show that Loan Growth has a positive but insignificant effect on profitability in the long run, with a probability value of 0.1872. This indicates that the increase in loan growth during the 2022–2024 period has not significantly increased profitability. From the perspective of signaling theory, loan growth can provide a positive signal when supported by good financing quality and effective risk management (Spence, 1973). However, increasing

loan volume does not automatically increase profitability because its benefits depend on loan quality, borrower repayment capacity, and financing management costs.

This finding is consistent with Jaya et al. (2024), who stated that loan growth does not necessarily improve financial performance when it is not accompanied by adequate risk management. The positive but insignificant result indicates that Loan Growth has not become a significant determinant of profitability in the Indonesian fintech P2P lending industry. Therefore, the finding does not support the hypothesis that Loan Growth has a positive and significant effect on profitability.

The Indonesian fintech P2P lending industry further shows that loan growth does not automatically translate into higher profitability. Loan disbursement grew rapidly from IDR 295.85 trillion at the end of 2021 to IDR 528.01 trillion in 2022 (78.47% YoY), IDR 763.14 trillion in 2023 (44.53% YoY), and IDR 1,048.64 trillion in 2024 (37.41% YoY) (OJK, 2024). Despite this sustained expansion, industry profitability remained volatile and even recorded losses in 2022 and the first quarter of 2024. Several platforms expanded lending aggressively without adequate risk management, as reflected in the case of TaniFund and the 22 platforms with TWP90 above 5% by December 2024 (Investortrust., 2025; OJK, 2024). These facts indicate that loan growth can signal business expansion, but it does not necessarily improve profitability when loan quality, repayment capacity, and risk control are weak. This supports the positive but insignificant effect of loan growth on profitability in the long run.

5. Conclusion

Based on the research results, Outstanding Loans have a negative and significant effect on profitability in the long run, while Non-Performing Loans also have a negative and significant effect on profitability. In contrast, Loan Growth has a positive but insignificant effect on profitability in the long run. In the short run, Outstanding Loans have a significant negative effect on profitability only at the third lag,

while Non-Performing Loans and Loan Growth do not have significant effects.

These findings indicate that the profitability of the Indonesian fintech P2P lending industry is influenced more strongly by the ability to manage outstanding financing and control credit risk than by loan growth alone. An increase in outstanding loans may place pressure on liquidity when funds remain tied up in borrowers, while higher non-performing loans increase the financial burden associated with problematic financing. Meanwhile, although loan growth has a positive direction, the effect is not statistically significant, indicating that financing expansion does not automatically generate higher profitability.

Therefore, fintech P2P lending providers need to maintain a balance between financing expansion, loan repayment, and credit risk management. Sustainable profitability cannot be achieved merely through increasing loan disbursement but also requires effective management of financing quality and risk exposure.

This study has several limitations. First, it uses only monthly aggregate data for the Indonesian fintech P2P lending industry from January 2022 to December 2024, consisting of 36 observations. Therefore, the findings describe industry-level conditions and cannot fully capture differences among individual fintech lending providers. Second, the model includes only Outstanding Loans, Non-Performing Loans, and Loan Growth as explanatory variables, while other factors such as operational efficiency, funding structure, interest rates, and macroeconomic conditions may also influence profitability.

Future research is encouraged to use firm-level data with a longer observation period and incorporate additional variables related to operational efficiency, liquidity, capital structure, corporate governance, and macroeconomic conditions. Such extensions may provide a more comprehensive understanding of the determinants of profitability in the fintech P2P lending industry.

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References

- Aghamolla, C., Corona, C., & Zheng, R. (2021). No reliance on guidance: counter-signaling in management forecasts. *The RAND Journal of Economics*, 52(1), 207–245. <https://doi.org/10.1111/1756-2171.12367>
- Agustin, A. (2025). Macroeconomic Determinants Of Non-Performing Loans In Indonesia's Peer-To-Peer Lending Sector. *Finansha: Journal of Sharia Financial Management*, 6(1), 66–78. <https://doi.org/10.15575/fjsfm.v6i1.45136>
- Alnabulsi, K., Kozarević, E., & Hakimi, A. (2023). Non-Performing Loans and Net Interest Margin in the MENA Region: Linear and Non-Linear Analyses. *International Journal of Financial Studies*, 11(2), 64. <https://doi.org/10.3390/ijfs11020064>
- Arthur-Sam, J. (2025). The Effect of Non-Performing Loans on the Profitability of Banks in Africa. *International Journal of Applied Research in Business and Management*, 6(1). <https://doi.org/10.51137/wrp.ijarbm.2025.jatt.45720>
- Azhar, N., Pambudi, A. N., Helmi, & Nurwanti. (2023). Analysis of Internal Factors Affecting Peer To Peer Lending Revenue (Case Study at PT.Pasar Dana Pinjaman in. *Issue Period*, 7(4), 2598–8700. <https://doi.org/10.52362/jisamar.v7i4.1265>
- Brigham, E. F., & Houston, J. F. (2021). Fundamentals of financial management (16th ed.). Cengage Learning.
- Cheng, Q., Wang, Y., & Song, X. (2019). *Study on Principal-agent Theory*. <https://doi.org/10.35532/JSS.V1.015>
- Chuesta, R. N. B., Sanga, K. P., & Gheta, A. P. . (2024). Peran Agency Theory Terkait Manajemen Risiko Kredit dalam Upaya Meminimalisir Kredit Bermasalah pada KSP Kopdit Obor Mas Kanca Pasar Alok. *BUDGETING: Journal of Business, Management and Accounting*, 5(2), 1354–1359. <https://doi.org/10.31539/budgeting.v5i2.9215>
- Chun, S.-H., & Ardaaragchaa, N. (2024). Analysis of Factors Affecting the Loan Growth of Banks with a Focus on Non-Performing Loans. *Journal of Risk and Financial Management*, 17(5), 203. <https://doi.org/10.3390/jrfm17050203>
- Dwitama, A., & Hasanudin, H. (2024). The Influence Of Loan Growth, Loan To Assets, And Size On Return On Assets Through Non-Performing Loans In Banking Companies. *Jurnal Apresiasi Ekonomi*, 12(3), 613–632. <https://doi.org/10.31846/jae.v12i3.837>
- Fairuz, A., Wibowo, H., Setyadi, E. J., & Mudjiyanti, R. (2023). Pengaruh Non-Performing Loans, Keputusan Investasi, dan Umur Perusahaan terhadap Tobin's Q pada Perusahaan Sub-Sektor Perbankan Konvensional. *Ekonika: Jurnal Ekonomi Universitas Kadiri*, 8(1), 163–179. <https://doi.org/10.30737/ekonika.v8i1.3785>
- Faizah, I., Ariyadi, A., Ella May Rina, D., & Yalil Rezkiyani, E. (2024). Profitability Ratio Analysis in Measuring Financial Performance in Islamic Banking Listed on the IDX (2021-2023). *Al-Mashrof: Islamic Banking and Finance*, 5(2), 166. <https://doi.org/10.24042/al-mashrof.v5i2.24788>
- Glazkova, G., & Hanova, L. (2022). Credit Risk Assessment During the Audit of Commercial Bank Statements. *Auditor*, 8(1), 42–48. <https://doi.org/10.12737/1998-0701-2022-8-1-42-48>
- Goh, T. S., Simanjuntak, A., & Henry, H. (2024). Pengaruh Profitabilitas dan Leverage terhadap Nilai Perusahaan dengan Kebijakan Dividen sebagai Variabel Moderasi pada Perusahaan Konstruksi yang Terdaftar di Bursa Efek Indonesia. *Jesya*, 7(1), 552–565. <https://doi.org/10.36778/jesya.v7i1.1379>

- Hantono. (2018). *Konsep Analisa Laporan Keuangan dengan Pendekatan Rasio dan SPSS*. Yogyakarta: Deepublish.
- Hasna, I. N., Suherman, A., & Indrawan, A. (2024). Analisis Kredit Bermasalah Dan Penyaluran Kredit Dalam Upaya Meningkatkan Pendapatan Perusahaan. *Jurnal Revenue : Jurnal Ilmiah Akuntansi*, 5(1), 1155–1166. <https://doi.org/10.46306/rev.v5i1.574>
- Hery. (2015). *Analisis Laporan Keuangan*. CAPS (Center for Academic Publishing Service).
- Investortrust. (2025). *OJK catat ada 22 fintech lending punya TWP 90 di atas 5%*.
- Jaya, B. J., Hefri, B. N. F., Suryanti, A., & Wulandari, T. R. (2024). The relationship between loan growth, risk, and bank performance: Evidence from Indonesia. *Sebelas Maret Business Review*, 9(2), 96. <https://doi.org/10.20961/smbr.v9i2.86560>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Kadyrzhanova, D., Pérez-Orive, A., & Singer, E. (2024). Stress Testing the Corporate Debt Servicing Capacity: A Scenario Analysis. *FEDS Notes*, 5/9/2024, None-None. <https://doi.org/10.17016/2380-7172.3481>
- Kayani, U., Dsouza, S., Husain, Z., Nawaz, F., & Hasan, F. (2025). Does the performance of financial technology (fintech) firms matter: evidence from North American and European fintech firms. *Cogent Economics and Finance*, 13(1). <https://doi.org/10.1080/23322039.2025.2451050>
- Keynes, J. M. (1936). *The general theory of employment, interest and money*. London: Macmillan.
- Kuncoro, M., & Suhardjono. (2011). *Manajemen Perbankan: Teori & Aplikasi*. Yogyakarta: BPFE.
- Lee, S. (2025). *Introduction to P2P Lending in Southeast Asia*. www.Numberanalytics.Com. <https://www.numberanalytics.com/blog/p2p-lending-southeast-asia-guide>
- Makarchuk, I., Perchuk, O., & Korkach, I. (2022). Liquidity: the genesis of the concept, structure and its role in the financial relations of economic entities. *University Economic Bulletin*, 52, 113–122. <https://doi.org/10.31470/2306-546X-2022-52-113-122>
- Malasulastri, S. I., & Rosa, T. (2023). Pengaruh Analisis Rasio Profitabilitas dan Solvabilitas untuk Menilai Kinerja Keuangan pada Suatu Perusahaan. *Journal of Accounting, Management, Economics, and Business (ANALYSIS)*, 1(2), 136–147. <https://doi.org/10.56855/analysis.v1i2.220>
- Maulana, Y., Harjadi, D., & Lismawati, L. (2023). Pengaruh Kredit Bermasalah Dan Penyaluran Kredit Terhadap Profitabilitas Bank Bumh Terdaftar Bei. *Equilibrium: Jurnal Penelitian Pendidikan Dan Ekonomi*, 20(01), 55–61. <https://doi.org/10.25134/equi.v20i01.6759>
- Nazar, M. R. N., & Mawarni, A. (2023). Return On Asset, Return On Equity, And Net Profit Margin: Influence Stock Price. *Jurnal E-Bis*, 7(2), 444–457. <https://doi.org/10.37339/e-bis.v7i2.1273>
- Nguyen, D. T., & Le, T. D. Q. (2022). The interrelationships between bank profitability, bank stability and loan growth in Southeast Asia. *Cogent Business and Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2084977>
- Otoritas Jasa Keuangan. (2024). *Financing Institutions, Venture Capital, Fintech P2P Lending and Micro-Finance Industry Update: December 2024*. <https://iru.ojk.go.id/iru/dataandstatistics/detaildataandstatistics/13379/>
- Panda, B., & Leepsa, N. M. (2017). Agency theory: Review of Theory and Evidence on Problems and Perspectives. *Indian Journal of Corporate Governance*, 10(1), 74–95. <https://doi.org/10.1177/0974686217701467>
- Reddy, M. G. D. (2023). *Banking With A Focus On Credit Risk* (pp. 59–64). <https://doi.org/10.58532/V3BFMA13P2CH2>
- Ringan, A. Y., & Pratama, M. F. (2024). Analisis Profitabilitas dalam Menilai Kinerja Keuangan Perusahaan Pertambangan pada PT. Bumi Adika Pratama. *Jurnal Economina*, 3(1), 74–86. <https://doi.org/10.55681/economina.v3i1.1132>
- Saraswati, E., Azzahra, A., & Sagitaputri, A. (2020). Corporate Governance Mechanisms and Voluntary Disclosure. *AKRUAL: Jurnal*

- Akuntansi*, 11(2), 82.
<https://doi.org/10.26740/jaj.v11n2.p82-94>
- Sari, H., Prapanca, D., Setiyono, V., & Wanti, F. (2022). Impact of Liquidity, Profitability, and Debt Policy Against The Value Of The Company. *Proceedings of the 3rd International Conference of Business, Accounting, and Economics, ICBAE 2022, 10-11 August 2022, Purwokerto, Central Java, Indonesia*. <https://doi.org/10.4108/eai.10-8-2022.2320883>
- Sari, P. B. (2019). Factors Affecting The Non Performing Loan. *Accounting and Business Journal*, 1(2), 24.
<https://doi.org/10.54248/abj.v1i2.971>
- Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), 355.
<https://doi.org/10.2307/1882010>
- Suroso, S. S., Afrah Junita, & Mayang Murni. (2025). Determinan Pertumbuhan Laba Pada Perusahaan Perbankan Yang Terdaftar Di Bursa Efek Indonesia. *Jurnal Mahasiswa Akuntansi Samudra*, 6(2), 117–129.
<https://doi.org/10.33059/jmas.v6i2.11108>
- Tuanaya, M. F., & Prasetya, B. P. (2024). Pengaruh Profitabilitas, Kepemilikan Manajerial dan Pertumbuhan Perusahaan Terhadap Kebijakan Utang. *Digital Bisnis: Jurnal Publikasi Ilmu Manajemen Dan E-Commerce*, 3(2), 243–252.
<https://doi.org/10.30640/digital.v3i2.2627>
- Wijaya, N., Fransiska, F., Butar-Butar, R. S., & Sirait, D. E. P. (2024). Analisis Rasio Profitabilitas Yang Dapat Berfungsi Menilai Kinerja Keuangan Pada Perusahaan Perbankan Yang Terdaftar Di Bursa Efek Indonesia Periode 2018 – 2021. *Journal of Economic, Bussines and Accounting (COSTING)*, 7(5), 1025–1035.
<https://doi.org/10.31539/costing.v7i5.11821>
- Wilasmi, N. K. S., Kepramareni, P., & Ardianti, P. N. H. (2020). Pengaruh Ukuran Perusahaan, Perputaran Kas, Perputaran Piutang, Dan Perputaran Persediaan Terhadap Profitabilitas. *Jurnal Kharisma*, 2(2716–2710), 96–115.
- Wu, S.-W., Nguyen, M.-T., & Nguyen, P.-H. (2022). Does loan growth impact on bank risk? *Heliyon*, 8(8), e10319.
<https://doi.org/10.1016/j.heliyon.2022.e10319>
- Wu, S. W., Nguyen, M. T., & Nguyen, P. H. (2022). Does loan growth impact on bank risk? *Heliyon*, 8(8), e10319.
<https://doi.org/10.1016/j.heliyon.2022.e10319>
- Yudha, A. T. R. C. (2021). *Fintech syariah dalam sistem industri halal: Teori dan praktik*. Syiah Kuala University Press.
- Yuttama, F. R. (2024). The Impact Of Non-Performing Loans And The Bi Rate On Return On Assets. *Jurnal EBI*, 6(1), 19–26.
<https://doi.org/10.52061/ebi.v6i1.237>
- Zaid, M., & Farooque Khan, M. (2023). Non-Performing Loans Effects on Profitability and Lending Behavior of Commercial Banks: Evidence from Yemeni Commercial Banks Sector. *Studies in Economics and Business Relations*, 3(2), 28–35.
<https://doi.org/10.48185/sebr.v3i2.737>
- Zuhroh, I., Rofik, M., & Suliswanto, M. S. W. (2022). Non-Performing Loans: Endogenous Constraint on the Credit–Growth Nexus. *Asian Economic and Financial Review*, 12(8), 659–672.
<https://doi.org/10.55493/5002.v12i8.4584>