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DETERMINATION OF SME FINANCING RISK IN SHARIA BANKING IN INDONESIA 2010-2024 PERIOD

Irfan Firmanto[1], Tatik Mariyanti [2]
Trisakti University[12]
irfanfirmanto333@gmail.com

ABSTRACT

This study aims to analyze the effects of outstanding Micro, Small, and Medium Enterprise (MSME) financing, MSME financing growth, inflation, and the BI Rate on the Non-Performing Financing (NPF) of MSME financing in the Indonesian Sharia banking industry. The study employs a quantitative approach using quarterly time-series secondary data covering the period from 2010 to 2024, obtained from publications of the Financial Services Authority (OJK), Bank Indonesia (BI), and Statistics Indonesia (BPS). The Error Correction Model (ECM) is employed to examine both the short-run and long-run relationships between the independent variables and MSME financing NPF. Data were processed using EViews software through a series of analytical procedures, including stationarity testing, cointegration testing, long-run equation estimation, ECM estimation, and classical assumption testing. The results indicate that, in the short run, outstanding MSME financing has a significant negative effect on MSME financing NPF, whereas MSME financing growth, inflation, and the BI Rate have no significant effect. In the long run, outstanding MSME financing, MSME financing growth, and the BI Rate have significant negative effects on MSME financing NPF, while inflation has no significant effect. Simultaneously, all independent variables significantly affect MSME financing NPF. The findings suggest that MSME financing risk in the Indonesian Sharia banking industry is influenced more by financing dynamics and interest rate policy in the long run than by inflationary pressures. The study highlights the importance of strengthening financing analysis, enhancing financing quality monitoring, and implementing prudential principles to maintain the stability of MSME financing and support the sustainability of the Indonesian Sharia banking industry.

Keywords: *BI Rate; Error Correction Model (ECM); inflation; Non-Performing Financing (NPF); outstanding MSME financing; Sharia banking; MSME financing growth.*

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are a key pillar of the Indonesian economy. This role is evident in their contribution to national added value, job creation, and economic activity in various regions. According to data from the Indonesian Ministry of Finance, the MSME sector contributes approximately 61.07% to the national Gross Domestic Product (GDP) and employs approximately 97% of the Indonesian workforce (Ministry of Finance of the Republic of Indonesia, 2024). The strategic role of MSMEs is also reflected in their ability to survive economic pressures. During various crises, MSMEs have functioned as a relatively resilient sector and continued to contribute to domestic economic activity (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2023). However, this resilience does not mean that MSMEs are free from risk when facing economic shocks. The COVID-19 pandemic has put pressure on MSMEs through restrictions on community activities, reduced demand, and disruptions to production and distribution, causing many MSMEs to experience reduced income and struggle to maintain their business continuity (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2022).

One of the main challenges still faced by MSMEs is limited access to financing from formal financial institutions. These obstacles relate to administrative requirements, limited collateral, inadequate credit history, and a relatively stringent business feasibility

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assessment process. *The International Monetary Fund* (IMF, 2024) lists access to financing as one of the main challenges to the development of MSMEs in Indonesia. Similarly, *the International Finance Corporation* (IFC, 2025) estimates that the financing gap for MSMEs in Indonesia remains very large, while the Financial Services Authority (OJK, 2023) indicates that access to formal financing is not yet evenly distributed. Financing plays a crucial role in supporting the sustainability and development of MSMEs by providing a source of funds for businesses to undertake productive activities. In Islamic banking, financing is channeled based on Islamic principles through various contracts, including profit-sharing contracts such as *mudharabah* and *musyarakah* (Hermawan & Kurniasih, 2026). Limited access to financing can be explained through the concept of *credit rationing* . Stiglitz and Weiss (1981) explain that imperfect information in the credit market can encourage financial institutions to limit credit distribution due to uncertainty regarding the risk level of potential debtors.

Efforts to expand financing access to the productive business sector are also supported by macroprudential policies. Bank Indonesia has implemented the Macroprudential Inclusive Financing Ratio (RPIM) for Islamic Commercial Banks and Islamic Business Units, with a target of achieving this ratio gradually, reaching at least 30% by June 2024 (Bank Indonesia, 2022). However, increased financing must be accompanied by adequate risk management to ensure that financing expansion does not degrade bank asset quality. The development of MSME financing disbursed by the Indonesian Islamic banking industry during the study period shows quite dynamic changes. This development is presented in Figure 1.

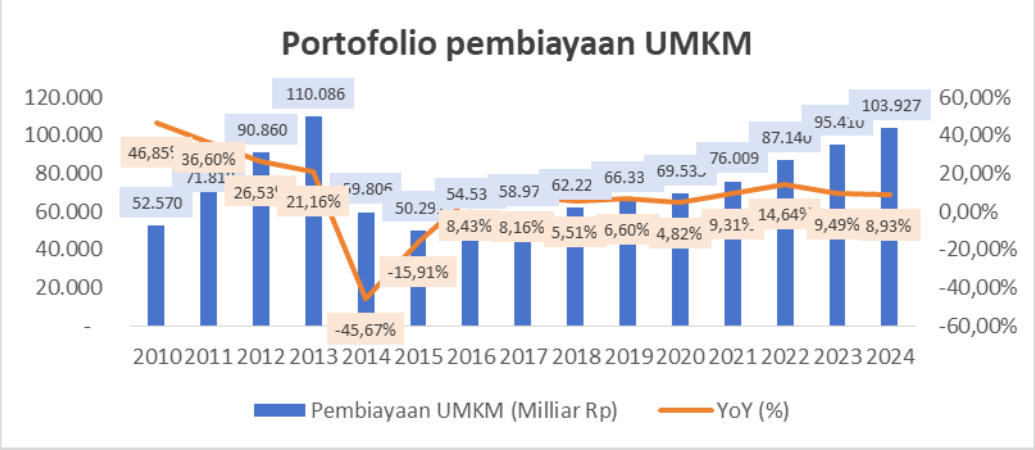


Figure 1. Development of MSME Financing Distribution by Indonesian Islamic Banking. Source: OJK (2024)

Based on Figure 1, *outstanding* MSME financing in the Indonesian Islamic banking industry shows a long-term upward trend, despite fluctuations in some periods. In 2010, *outstanding* MSME financing was recorded at approximately IDR 52.57 trillion, increasing to approximately IDR 110.09 trillion in 2013. This value then declined in the 2014-2015 period before rising again to approximately IDR 103.93 trillion in 2024 (Financial Services Authority, 2024). The increase in *outstanding* financing indicates an increase in funds distributed to the MSME sector. From the perspective of financial intermediation theory, this distribution reflects the bank's function in connecting parties with excess funds with

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those in need for economic activities (Mishkin, 2022). However, the amount of financing disbursed does not automatically reflect an increase in financing quality. The larger the financing portfolio, the greater the risk exposure that must be managed by the bank.

outstanding amount , financing growth can be used to illustrate changes in financing distribution intensity from one period to the next. Sari et al. (2023) showed that financing growth is influenced by various factors related to Islamic banking's fund distribution and intermediation activities. Too rapid financing expansion can increase risk exposure if not accompanied by adequate analysis, monitoring, and control processes. Arhinful et al. (2025) emphasized the importance of risk management through the financing approval process and debtor risk assessment. Similarly, Setiawan et al. (2024) showed that abnormal credit growth has a positive and significant effect on credit risk in commercial banks in Indonesia. In this study, financing risk is proxied using the Non-Performing Loan (NPF) ratio. This ratio indicates the proportion of non-performing financing in the Islamic banking financing portfolio (Financial Services Authority, 2024). The development of the NPF ratio for MSME financing in the Indonesian Islamic banking industry during the study period showed fluctuations. This condition is presented in Figure 2.

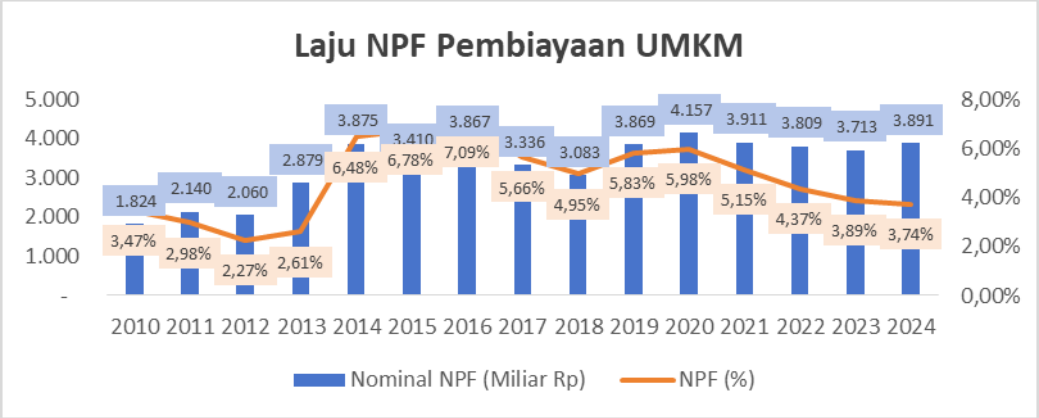


Figure 2. Development of the NPF Ratio of MSME Financing in the Indonesian Islamic Banking Industry. Source: OJK (2024)

Based on Figure 2 , the NPF ratio of MSME financing changed during the 2010–2024 period. At the beginning of the observation period, the NPF ratio declined until it reached its lowest point in 2012. The ratio then increased in the 2014–2016 period and reached a level indicating the need for attention to financing quality. After experiencing changes during the COVID-19 pandemic, the NPF ratio again showed improvement, although it still fluctuated. These changes in financing risk indicate that the size of the financing portfolio and macroeconomic conditions need to be considered together. Hartanto and Samputra (2023) showed that the NPF level in Indonesian Islamic banking is influenced by both internal bank factors and macroeconomic conditions. Based on these considerations, this study focuses on the analysis of *outstanding* MSME financing, MSME financing growth, inflation, and the BI Rate as factors suspected of influencing MSME financing risk.

From a bank's internal perspective, *outstanding* financing reflects the size of the financing portfolio that must be managed. Raddatz et al. (2024) show that credit expansion is related to asset quality and banking sector resilience. This relationship can also be

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explained through *the Disaster Myopia Theory* proposed by Guttentag and Herring (1986), which states that periods of stability can encourage financial institutions to underestimate risks and expand financing excessively. In addition to internal factors, financing risk can also be influenced by macroeconomic conditions. Mai et al. (2024) show that macroeconomic factors play a role in explaining variations in NPF at Islamic Commercial Banks in Indonesia.

Inflation can impact the business conditions of MSMEs through changes in production costs, consumer purchasing power, and business margins. Thoyyibah and Amir (2024) found that inflation had a positive effect on NPF at Islamic Commercial Banks in Indonesia. Conversely, Devi and Juniwati (2024) showed that inflation had a negative effect in the short term and was insignificant in the long term. These differing findings indicate that the relationship between inflation and financing risk has not yet yielded consistent empirical conclusions. The development of national inflation during the 2010–2024 period shows significant changes between periods. This development is presented in Figure 1. 3.

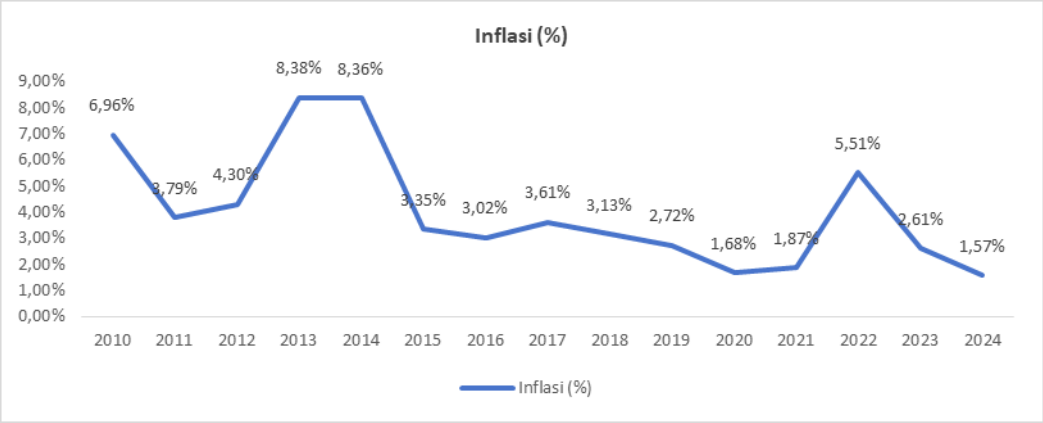


Figure 3. Inflation. Source: BPS Central Statistics Agency (2024)

Figure 3 shows that national inflation fluctuated throughout the study period. Inflation increased to relatively high levels in 2013 and 2014, then declined in the following years before rising again in 2022 (Bank Indonesia, 2022). These changes indicate that MSMEs faced different cost and demand conditions throughout the study period. In addition to inflation, monetary conditions are an external factor that can influence financing activities. In this study, Bank Indonesia's policy interest rate is represented by the BI Rate variable. Although Islamic banking uses different operational principles than conventional banks, changes in the policy interest rate can still influence market conditions and bank decisions (Bank Indonesia, 2024). The development of Bank Indonesia's policy interest rate during the study period is presented in Figure 4.

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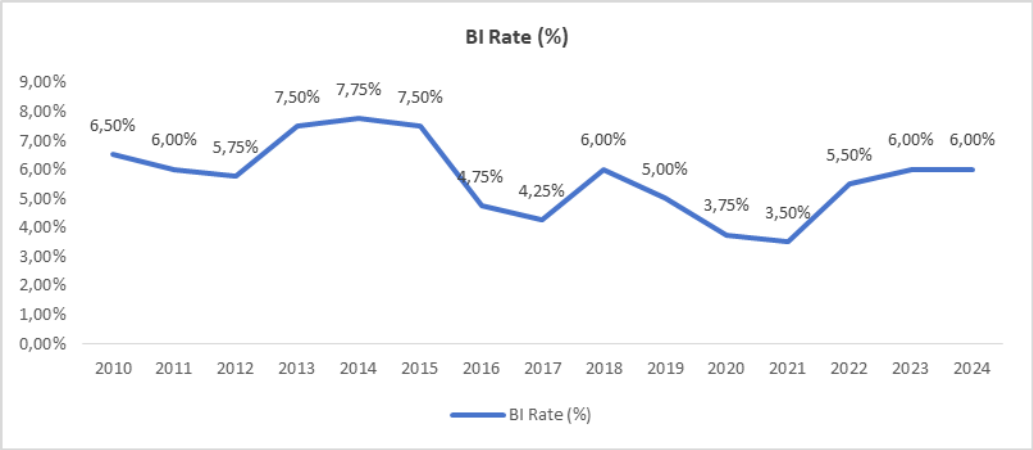


Figure 4. BI Rate. Source: Bank Indonesia (2024)

Figure 4 shows changes in Bank Indonesia's policy interest rate throughout the observation period. From 2016–2021, Bank Indonesia implemented a relatively low interest rate policy to support economic activity and recovery during the COVID-19 pandemic. Subsequently, the policy interest rate increased in 2022–2024 in line with changes in global inflationary pressures and economic conditions. Aswad et al. (2024) demonstrated a reciprocal relationship between the BI *7-Day Reverse Repo Rate* and the ratio level in Islamic banks in Indonesia. Regarding financing risk, Lusiana (2024) and Lestari and Khoiriyah (2024) demonstrated that the BI Rate is one of the factors influencing changes in the NPF in Indonesian Islamic banking.

In Islamic economics, financing risk management is related to the application of the principle of prudence and efforts to safeguard assets (*hifzh al-mal*). The normative basis for recording debt transactions is found in QS. Al-Baqarah verse 282: *"O you who believe! When you undertake a debt for a specified period, write it down"* (QS. Al-Baqarah [2]: 282). From the perspective of *maqashid al-shariah* , this principle is related to *hifzh al-mal* , namely the protection of assets from loss and use that is not in accordance with sharia provisions (Auda, 2008).

Research on the effect of inflation on NPF in Indonesian Islamic banking continues to show inconsistencies. Asmara (2019), Sukiyat and Anwar (2021), and Thoyyibah and Amir (2024) found that inflation had a positive effect on NPF. Conversely, Lestari and Khoiriyah (2024) found a negative effect of inflation on NPF, while Devi and Juniwati (2024) showed a negative effect in the short term and an insignificant effect in the long term. The differences in research findings may also be related to the observation period used. Some studies used data from before the COVID-19 pandemic, thus not fully reflecting changes in financing conditions during and after the pandemic. The Financial Services Authority (OJK) implemented a restructuring policy for debtors affected by the pandemic as part of its efforts to maintain financial system stability (OJK, 2020). Using the 2010-2024 period provides a more comprehensive view of financing risk dynamics in the pre-pandemic, pandemic, and post-pandemic phases.

Based on the above description, there are several reasons underlying the need for this research. First, *outstanding* MSME financing and growth show dynamic developments, while increases in financing disbursement are not always accompanied by changes in

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financing quality in the same direction. Second, previous research findings on the influence of internal and macroeconomic factors on NPF still show differences in direction and level of significance. Third, some previous studies used NPF in aggregate or observation periods that did not fully cover the pre-pandemic, pandemic, and post-pandemic phases. Based on these phenomena and research gaps, this study analyzes the influence of *outstanding* MSME financing, MSME financing growth, inflation, and the BI Rate on MSME financing risk, proxied by the NPF ratio in Islamic banking in Indonesia during the period 2010-2024. This research is expected to provide empirical evidence regarding the factors influencing MSME financing risk and contribute to the development of studies on risk management and the intermediation function of Islamic banking in Indonesia.

Based on the empirical phenomena and research gaps that have been described, the problem formulation in this study is as follows: (1) Does *outstanding* MSME financing affect the NPF ratio of MSME financing in Islamic banking in Indonesia? (2) Does the growth of MSME financing affect the NPF ratio of MSME financing in Islamic banking in Indonesia? (3) Does inflation affect the NPF ratio of MSME financing in Islamic banking in Indonesia? (4) Does the BI Rate affect the NPF ratio of MSME financing in Islamic banking in Indonesia? (5) Do *outstanding* MSME financing, growth of MSME financing, inflation, and the BI Rate simultaneously affect the NPF ratio of MSME financing in Islamic banking in Indonesia?

METHODS

This study uses a quantitative approach with secondary data in the form of quarterly *time series* for the period 2010–2024 obtained from publications of the Financial Services Authority (OJK), Bank Indonesia (BI), and the Central Statistics Agency (BPS). The quantitative approach was chosen because the study focuses on analyzing changes in variables through statistical analysis techniques. The research design includes descriptive analysis and verification analysis. Descriptive analysis is used to describe the development of each research variable during the observation period, while verification analysis is used to test the relationship between variables and assess the influence of factors suspected to be related to changes in MSME financing risk (Sugiyono, 2017). The dependent variable in this study is *Non-Performing Financing* (NPF) of MSME financing, while the independent variables include *outstanding* MSME financing, MSME financing growth, inflation, and the BI Rate.

Table 1. Operational Definition of Variables

Variables	Symbol	Operational Definition	Unit	Source
NPF MSME Financing	NPF	Ratio of problematic financing to total MSME financing	Percentage (%)	OJK
Outstanding MSME Financing	OS_PUMKM	Total outstanding MSME financing disbursed	Billion Rupiah	OJK
Growth of MSME	GROWTH	Percentage change	Percentage	OJK

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Variables	Symbol	Operational Definition	Unit	Source
Financing	_PUMKM	in MSME financing between quarters	(%)	
Inflation	INFLATIO N	The general rate of change in prices of goods and services	Percentage (%)	BPS
BI Rate	BI_RATE	Bank Indonesia's policy interest rate	Percentage (%)	BI

Source: Data processed by the author (2026)

Empirical testing was conducted using the *Error Correction Model* (ECM) approach because the research data is in time series form and all variables were analyzed to identify short-term relationships, long-term relationships, and adjustment mechanisms towards long-term equilibrium (Gujarati & Porter, 2009). ECM was chosen because it can identify short-term relationships as well as long-term equilibrium relationships and the adjustment process towards that equilibrium (Engle & Granger, 1987). All data processing and estimation processes were carried out using EViews software. The analysis stage began with descriptive statistics to provide an overview of the data characteristics of each variable. Next, a stationarity test was conducted using *Augmented Dickey-Fuller* (ADF) at the *level* and *first difference levels* to determine the level of integration of each variable (Dickey & Fuller, 1979). Non-stationary data can produce spurious *regression* , so the estimation results have the potential to provide conclusions that do not reflect the true relationship between variables (Gujarati & Porter, 2009). The *outstanding MSME financing* variable was transformed into the natural logarithm (ln) to reduce differences in value scales, while the growth of MSME financing was calculated based on changes *in outstanding* between quarters. After the level of integration of the variables was known, the study continued with cointegration testing using the Engle-Granger approach to identify the existence of a long-term equilibrium relationship between variables (Engle & Granger, 1987). If the research variables have a cointegration relationship, ECM estimation is carried out to analyze the short-term relationship and the adjustment process towards long-term equilibrium as indicated by the *Error Correction Term* (ECT) coefficient. The next stage is diagnostic testing of the ECM model to assess the feasibility of the model econometrically, including the residual normality test using *the Jarque-Bera test* (Jarque & Bera, 1980), the heteroscedasticity test using *the White Test* (White, 1980), and the autocorrelation test using *the Breusch-Godfrey Serial Correlation LM Test* (Breusch, 1978; Godfrey, 1978). The test results are used to assess whether the model residuals meet the necessary assumptions so that the estimation results can be interpreted adequately. The final stage is hypothesis testing based on the ECM estimation results through partial tests (t-test), simultaneous tests (F-test), and the coefficient of determination (*Adjusted* R^2) with a significance level of 5% (Gujarati & Porter, 2009).

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RESULTS AND DISCUSSION

First, the research results contain the objective conditions of the research. This section contains research data that can be presented in several forms, for example: tables or graphs. Tables or graphs are only related to the research results. The caption of the table or graph is written above it, with Cambria typeface, font size 11, spacing 1.15 with the provisions of line spacing after and before 0. If there are subheadings in the results or in other sections, write the first, second and so on letters in bold. No other numbers, letters, or bullets are given. This section is written in Cambria type, font size 11, spacing 1.15 with line spacing after and before 0. Foreign languages, regional languages, and nonstandard terms are printed in italics, except for proper names.

Descriptive Statistics

This study uses secondary data in the form of time series data *with* a quarterly frequency for the period 2010–2024. Data were obtained from official publications of the Financial Services Authority (OJK), Bank Indonesia (BI), and the Central Statistics Agency (BPS). The variables analyzed consist of *Non-Performing Financing* (NPF) of MSME financing as the dependent variable and *outstanding MSME financing, MSME financing growth, inflation, and the BI Rate as independent variables. The observation period includes 60 quarterly observations, while after the first difference* process , the number of observations in the ECM estimation becomes 59 observations.

Table 2. Descriptive Statistics of Research Variables

Variables	Mean	Maximum	Minimum	Std. Dev
NPF	0.046250	0.084000	0.012000	0.022013
OS_PUMKM	82.51985	184,9640	46,42500	35.06139
GROWTH_PUMKM	0.108083	0.523000	-0.698000	0.274269
INFLATION	0.041233	0.084000	0.013000	0.018961
BI RATE	0.057100	0.078000	0.035000	0.012537

Source: EViews 13 output, processed by the author (2026)

Table 2 shows that the variable *outstanding* financing of MSMEs (OS_PUMKM) has an average value of 82.51985, with a maximum value of 184.9640 and a minimum of 46.4250. The standard deviation of 35.06139 indicates a relatively large data spread, which indicates that *outstanding* financing of MSMEs experienced quite significant changes during the period 2010–2024. The variable growth of MSME financing (GROWTH_PUMKM) has an average value of 0.108083 (10.81%), with a maximum value of 0.523000 (52.30%) and a minimum of -0.698000 (-69.80%), which indicates the existence of periods of expansion and contraction during the study period. The inflation variable has an average value of 0.041233 (4.12%) with a maximum value of 0.084000 (8.40%) and a minimum of 0.013000

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(1.30%), while the BI Rate has an average value of 0.057100 (5.71%) with a maximum value of 0.078000 (7.80%) and a minimum of 0.035000 (3.50%). Descriptive statistics show that the MSME financing variable has a larger data variation, while inflation and the BI Rate have a relatively lower spread during the observation period.

Data Development

Outstanding MSME financing showed dynamic development during 2010–2024. At the beginning of the period, the *outstanding value* was recorded at IDR 50,206 billion in March 2010 and continued to increase to reach IDR 184,964 billion in March 2014. After reaching that value, there was a sharp decline in June 2014 to IDR 63,835 billion and continued to reach IDR 46,425 billion in September 2015. After this period of decline, *outstanding* MSME financing began to show a gradual recovery, increasing to IDR 49,410 billion in March 2016, IDR 62,229 billion in December 2018, and IDR 75,188 billion in March 2020. Although it had decreased to IDR 68,556 billion in June 2020, *the outstanding* increased again to reach IDR 103,927 billion in December 2024.

The growth of MSME financing showed positive and relatively high growth at the beginning of the period, recorded at 27.7% in March 2010 and increased to 52.3% in September 2011. The most prominent change occurred starting in June 2014 when financing growth turned negative at -62.7%, continuing until 2015 with the lowest growth of -69.1% in March 2015. After the contraction period, financing growth began to improve and returned to positive since 2016, showing more stable growth although still fluctuating, and ending at 8.9% in December 2024.

Inflation during 2010–2024 exhibited mixed changes. At the beginning of the period, inflation was recorded at 3.4% in March 2010 and increased to 7.0% in December 2010. Inflation reached 8.4% in September and December 2013. Inflation tended to be lower in the subsequent period, ranging from 2% to 4% for most of 2016–2019. In 2020–2021, inflation remained at a relatively low level, reaching 1.3% in June 2021. Inflation then increased in 2022, reaching 6.0% in September 2022, before declining again and ending at 1.6% in December 2024.

The BI Rate shows changes in monetary policy during 2010–2024. Initially at 6.5%, it increased to 6.8% in March 2011 and remained there until September 2011. After declining in late 2011 and 2012, the BI Rate increased again in 2013 to reach 7.5% in September and December 2013. After reaching a relatively high level in 2013–2015, the BI Rate decreased gradually to 4.8% in December 2016 and fell to 4.3% in September and December 2017. In 2018, the BI Rate increased to 6.0% in December 2018, then decreased gradually to 3.5% in March 2020 and remained there throughout 2021. Starting in 2022, the BI Rate increases again, reaching 5.5% in December 2022 and 6.0% in December 2023, before ending at 6.0% in December 2024.

The NPF of MSME financing shows changes in financing quality during 2010–2024. At the beginning of the period, the NPF was recorded at 2.1% in March 2010 and remained relatively stable at around 1.2% to 2.0% until the end of 2013. A sharp change occurred in 2014, with the NPF increasing from 1.8% in March 2014 to 6.4% in June 2014 and reaching 6.9% in September 2014. The NPF remained relatively high until 2016, reaching a high of 8.4% in June 2015, September 2015, and June 2016. After that period, the NPF showed a downward trend, falling to 5.3% in June 2017 and moving in the range of 5% to 6% during

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2018–2019. In 2020–2021, the NPF remained in the range of 5.1% to 6.4%, before gradually declining again from 2022 and ending at 3.7% in December 2024.

Data Stationarity Test

Stationarity testing is performed using the *Augmented Dickey-Fuller* (ADF) method to determine the stationarity characteristics of time series data before ECM estimation. Testing is performed at the *level level* and continued with *the first difference* if the data is not yet stationary. Data is considered stationary if the ADF probability value is less than the 5% significance level.

Table 3. ADF Test Results at Level Level

Variables	Probability (ADF)	Information
NPF	0.4673	Non-Stationary
OS_PUMKM	0.3146	Non-Stationary
GROWTH_PUMKM	0.1278	Non-Stationary
INFLATION	0.2187	Non-Stationary
BI_RATE	0.2791	Non-Stationary

Source: EViews 13 output, processed by the author (2026)

Based on Table 3 , all variables have ADF probability values greater than 0.05, so all variables are not stationary at the level . Therefore, the test is continued at the *first difference level* . Before the first differentiation, the *outstanding* MSME financing variable (OS_PUMKM) is transformed into the natural logarithm (LOGOS_PUMKM) to adjust the data scale. The ADF test results on the LOGOS_PUMKM level *show* a probability of 0.3898 (not stationary), so the first differentiation is carried out on all variables.

Table 4. ADF Test Results on First Difference

Variables	Probability (ADF)	Information
D(NPF)	0.0000	Stationary
D(LOGOS_PUMKM)	0.0000	Stationary
D(GROWTH_PUMKM)	0.0000	Stationary
D(INFLATION)	0.0000	Stationary
D(BI_RATE)	0.0001	Stationary

Source: EViews 13 output, processed by the author (2026)

Based on Table 4 , all variables have ADF probability values below 0.05, so the null hypothesis stating the presence of *a unit root* can be rejected. Thus, all research variables are stationary at *the first difference level* and are categorized as integrated at the first order or I(1), which meets the requirements for continuing cointegration testing and ECM estimation.

Cointegration Test

Cointegration testing uses the Engle-Granger approach by estimating the long-run equation, then testing the stationarity of the residuals (RESID_ECM) using ADF at the *level* .

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Table 5. Engle-Granger Cointegration Test Results

Variables	ADF Statistics	Probability	Criteria	Information
RESID_ECM	-3.848922	0.0002	Prob < 0.05	Stationery

Source: EViews 13 output, processed by the author (2026)

Based on Table 4, RESID_ECM has an ADF Statistic value of -3.848922 with a probability of 0.0002 (<0.05), so the null hypothesis is rejected and the residual is declared stationary. These results indicate a cointegration relationship between NPF, LOGOS_PUMKM, GROWTH_PUMKM, INFLATION, and BI_RATE, which means there is a long-term equilibrium relationship between the variables in the model.

Error Correction Model (ECM) Estimation

After cointegration is proven, ECM estimation is carried out to analyze short-term relationships and the adjustment process towards long-term equilibrium.

Table 6. Error Correction Model (ECM) Estimation Results

Variables	Coefficient	t-Statistic	Prob.	Information
C	0.000754	1.143216	0.2581	Not Significant
D(LOGOS_PUMKM)	-0.040576	-6.640313	0.0000	Significant Negative
D(GROWTH_PUMKM)	-0.001804	-0.256133	0.7988	Not Significant
D(INFLATION)	-0.024993	-0.393223	0.6957	Not Significant
D(BI_RATE)	-0.214500	-1.303523	0.1980	Not Significant
ECT(-1)	-0.251319	-3.477652	0.0010	Significant Negative

Source: EViews 13 output, processed by the author (2026)

Note: R-squared = 0.649869; Adjusted R-squared = 0.616837; F-statistic = 19.67436; Prob(F-statistic) = 0.000000; Durbin-Watson = 2.236301

The ECM estimation results show that D(LOGOS_PUMKM) has a negative and significant effect on changes in NPF in the short term (coefficient -0.040576; prob. 0.0000). Meanwhile, D(GROWTH_PUMKM), D(INFLATION), and D(BI_RATE) do not have a significant effect in the short term with probability values of 0.7988, 0.6957, and 0.1980, respectively. The ECT(-1) coefficient of -0.251319 with a probability of 0.0010 indicates a significant error correction mechanism, where approximately 25.13% of deviations from long-term equilibrium are corrected every quarter.

ECM Model Diagnostic Test

Diagnostic testing was conducted to assess the feasibility of the ECM model through normality, heteroscedasticity, and autocorrelation tests.

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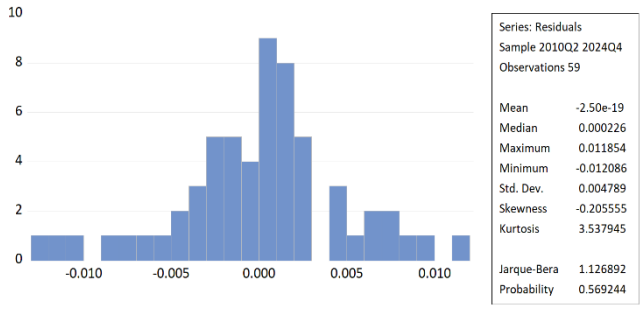


Figure 5. Results of the ECM Model Residual Normality Test

Source: EViews 13 Output (2026)

Based on Figure 1, the Jarque-Bera value is 1.126892 with a probability of 0.569244 (> 0.05), so the residual of the ECM model is stated to be normally distributed.

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	0.132220	Prob. F(5,53)	0.9843
Obs*R-squared	0.726877	Prob. Chi-Square(5)	0.9815
Scaled explained SS	0.744322	Prob. Chi-Square(5)	0.9804

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/27/26 Time: 17:27
Sample: 2010Q2 2024Q4
Included observations: 59

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.18E-05	6.29E-06	3.459345	0.0011
D(LOGOS_PUMKM)^2	8.11E-06	8.18E-05	0.099199	0.9214
D(GROWTH_PUMKM)^2	-4.56E-05	0.000142	-0.321813	0.7489
D(INFLASI)^2	0.003683	0.020235	0.182027	0.8563
D(BI_RATE)^2	-0.025138	0.117890	-0.213230	0.8320
RESID_ECM(-1)^2	0.014884	0.035817	0.415561	0.6794

R-squared	0.012320	Mean dependent var	2.25E-05
Adjusted R-squared	-0.080857	S.D. dependent var	3.62E-05
S.E. of regression	3.77E-05	Akaike info criterion	-17.43943
Sum squared resid	7.52E-08	Schwarz criterion	-17.22816
Log likelihood	520.4632	Hannan-Quinn criter.	-17.35696
F-statistic	0.132220	Durbin-Watson stat	1.892162
Prob(F-statistic)	0.984292		

Figure 6. Results of the White Test Heteroscedasticity Test

Source: EViews 13 Output (2026)

Based on Figure 2, the Obs*R-squared value is 0.726877 with a Chi-Square(5) Prob. of 0.9815 (> 0.05), so there is no heteroscedasticity in the residual model.

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Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.170910	Prob. F(2,51)	0.3183
Obs*R-squared	2.590227	Prob. Chi-Square(2)	0.2739

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 07/27/26 Time: 17:32
Sample: 2010Q2 2024Q4
Included observations: 59
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.69E-05	0.000657	0.025775	0.9795
D(LOGOS_PUMKM)	-0.000505	0.006102	-0.082821	0.9343
D(GROWTH_PUMKM)	-0.001079	0.007144	-0.151033	0.8805
D(INFLASI)	0.002983	0.064266	0.046423	0.9632
D(BI_RATE)	-0.014623	0.166126	-0.088024	0.9302
RESID_ECM(-1)	0.070038	0.085562	0.818557	0.4168
RESID(-1)	-0.220774	0.165682	-1.332518	0.1886
RESID(-2)	-0.173160	0.155628	-1.112649	0.2711

R-squared	0.043902	Mean dependent var	-2.50E-19
Adjusted R-squared	-0.087327	S.D. dependent var	0.004789
S.E. of regression	0.004994	Akaike info criterion	-7.635659
Sum squared resid	0.001272	Schwarz criterion	-7.353959
Log likelihood	233.2520	Hannan-Quinn criter.	-7.525695
F-statistic	0.334546	Durbin-Watson stat	1.944458
Prob(F-statistic)	0.934445		

Figure 7. Breusch-Godfrey LM Test Autocorrelation Results

Source: EViews 13 Output (2026)

Based on Figure 3, the Obs*R-squared value is 2.590227 with a Chi-Square(2) Prob. of 0.2739 (> 0.05), so there is no autocorrelation in the model residuals. Thus, the ECM model meets all tested diagnostic assumptions.

Hypothesis Testing

Partial Test (t-Test)

Table 7. Partial Test Results (t-Test) of the ECM Model

Variables	Coefficient	Prob.	Conclusion
D(LOGOS_PUMKM)	-0.040576	0.0000	Significant Negative
D(GROWTH_PUMKM)	-0.001804	0.7988	Not Significant
D(INFLATION)	-0.024993	0.6957	Not Significant
D(BI_RATE)	-0.214500	0.1980	Not Significant
ECT(-1)	-0.251319	0.0010	Significant Negative

Source: EViews 13 output, processed by the author (2026)

Based on Table 7 , D(LOGOS_PUMKM) has a negative and significant effect on changes in NPF (prob. 0.0000 < 0.05). D(GROWTH_PUMKM), D(INFLATION), and D(BI_RATE) do not have a significant effect with probabilities of 0.7988, 0.6957, and 0.1980, respectively. ECT(-1) is significantly negative (prob. 0.0010) with a coefficient of -0.251319,

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indicating the existence of an adjustment mechanism towards long-term equilibrium.

Simultaneous Test (F Test)

Table 8. Simultaneous Test Results (F Test) of the ECM Model

Indicator	Mark
F-statistic	19.67436
Prob(F-statistic)	0.000000

Source: EViews 13 output, processed by the author (2026)

Based on Table 8 , the Prob(F-statistic) value is 0.000000 < 0.05, so that all independent variables simultaneously have a significant effect on changes in the NPF of MSME financing.

Coefficient of Determination (R^2)

Table 9. Coefficient of Determination (R^2) of the ECM Model

Indicator	Mark
R-squared	0.649869
Adjusted R-squared	0.616837

Source: EViews 13 output, processed by the author (2026)

Based on Table 9 , the *Adjusted R-squared value* of 0.616837 shows that the independent variables in the model are able to explain 61.68% of the variation in changes in NPF of MSME financing, while the remaining 38.32% is explained by other factors outside the research model.

The discussion of the research results is conducted by interpreting the influence of *outstanding* MSME financing, MSME financing growth, inflation, and the BI Rate on the NPF of MSME financing in the short and long term. The short-term relationship is analyzed using ECM estimation, while the long-term relationship is obtained from a level equation that describes the balance between variables. The results of the long-term relationship estimation are presented in Table 10 .

Table 10. Long-Term Relationship Estimation Results

Variables	Coefficient	Prob.	Conclusion
LOGOS_PUMKM	-0.023763	0.0000	Significant Negative
GROWTH_PUMKM	-0.047673	0.0000	Significant Negative
INFLATION	-0.062724	0.5201	Not Significant
BI_RATE	-0.467679	0.0024	Significant Negative

Source: EViews 13 output, processed by the author (2026)

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Based on Table 10, there are three variables that show a significant influence on the NPF of MSME financing in the long term, namely LOGOS_PUMKM, GROWTH_PUMKM, and BI_RATE with negative coefficients, while INFLATION does not show a significant influence.

The Influence of *Outstanding* MSME Financing on NPF

The ECM estimation results show that changes in *outstanding* MSME financing have a negative and significant effect on changes in NPF in the short term (coefficient -0.040576; prob. 0.0000) and the long term (coefficient -0.023763; prob. 0.0000). This finding indicates that an increase in *outstanding* MSME financing is associated with a decrease in NPF, indicating that financing expansion is not always accompanied by an increase in the risk of non-performing financing. From the perspective of financial intermediation theory, increased financing reflects increased channeling of bank funds to the productive sector (Mishkin, 2022), while from the perspective of financing risk, asset quality is determined by the ability of financing to generate cash flow. This finding is consistent with Fakhrunnas and El Hasanah (2022) who showed that bank intermediation characteristics are related to NPF in the MSME sector, and Sutrisno, Widarjono, and Mohamad (2023) who found that financing diversification can reduce the risk of Islamic banks. From an Islamic economic perspective, these results can be linked to the principles of prudence, transparency, and clarity in financing transactions as emphasized in QS. Al-Baqarah verse 282 regarding the recording of debt transactions (Shihab, 2017), as well as the hadith of the Prophet Muhammad ﷺ: "Delaying debt payments by those who are able is an injustice" (HR. Bukhari No. 2287; Muslim No. 1564).

The Impact of MSME Financing Growth on NPF

The ECM estimation results show that changes in MSME financing growth do not significantly affect changes in NPF in the short term (prob. 0.7988), but in the long term have a negative and significant effect (coefficient -0.047673; prob. 0.0000). This difference in results indicates that the effect of financing growth on financing quality is not immediately reflected in changes in NPF and requires time before the impact is seen. This finding is in line with Haryanto et al. (2024) who found that financing growth does not significantly affect risk in Indonesian Islamic banking in the short term. From an Islamic economic perspective, this result can be linked to the principle of fulfilling contracts (*al-'uqud*) and responsibility in financing transactions as stated in QS. Al-Ma'idah verse 1 (Az-Zuhaili, 2021), as well as the hadith of Rasulullah ﷺ: "Muslims are bound by the conditions (agreements) they make" (HR. Abu Dawud No. 3594; Tirmidhi No. 1352).

The Effect of Inflation on NPF

The ECM estimation results show that changes in inflation do not significantly affect changes in NPF in the short term (prob. 0.6957) or long term (prob. 0.5201). This finding indicates that changes in the inflation rate during the study period have not been a dominant factor in determining the quality of MSME financing. This is in line with Amanda (2025) who found that inflation does not significantly affect NPF in Islamic Commercial Banks in Indonesia. The characteristics of Islamic financing that use fixed margin-based contracts or profit-sharing mean that the effect of inflation on financing quality is not always direct. From an Islamic economic perspective, this result can be linked to the principles of honesty

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and protection of rights in economic activities as stated in QS. Al-Mutaffifin verses 1-3 (Az-Zuhaili, 2021), as well as the hadith of the Prophet Muhammad ﷺ: "May Allah have mercy on a person who is easygoing when selling, when buying, and when collecting his rights" (Narrated by Bukhari No. 2076).

The Influence of BI Rate on NPF

The ECM estimation results show that changes in the BI Rate do not significantly affect changes in NPF in the short term (prob. 0.1980), but in the long term they have a negative and significant effect (coefficient -0.467679; prob. 0.0024). This finding indicates that changes in the BI Rate do not directly affect the quality of MSME financing in the short term, but in the long term are associated with a decrease in NPF. This is related to Ilhamdi, Luqman, and Ali (2024) who showed that the monetary policy transmission mechanism also occurs in Islamic banking in Indonesia. From an Islamic economic perspective, these results can be linked to the principles of ease, justice, and responsibility in financing relationships as stated in QS. Al-Baqarah verse 280 (Az-Zuhaili, 2021), as well as the hadith of the Prophet Muhammad ﷺ: "Whoever gives grace to someone experiencing difficulties... then Allah will shade him under His shade" (Narrated by Muslim No. 3006).

Simultaneous Influence on NPF

The results of the simultaneous test (F test) show that *outstanding* MSME financing, MSME financing growth, inflation, BI Rate, and ECT together have a significant effect on changes in NPF (F-statistic 19.67436; Prob. 0.000000). This finding indicates that changes in the NPF of MSME financing are influenced by the interaction between internal banking factors and external macroeconomic factors. These results support the theory of financial intermediation, *asymmetric information* , financing risk theory, and monetary transmission mechanisms which explain that financing quality is the result of the interaction of various interrelated factors. This finding is in line with Niswatin et al. (2025) who showed that internal and external factors jointly influence NPF in Indonesian Islamic banking, as well as Mai, Kristianingsih, and Dahtiah (2024) who showed that macroeconomic factors play a role in explaining NPF variations in Islamic Commercial Banks. From an Islamic economic perspective, these results can be linked to the principle of balance (*wasath*) and responsibility in managing economic activities as stated in QS. Al-Baqarah verse 143 (Az-Zuhaili, 2021), as well as the hadith of Rasulullah ﷺregarding the obligation to fulfill the contract (HR. Abu Dawud No. 3594; Tirmidhi No. 1352).

CONCLUSION

Based on the results of the analysis and discussion regarding the influence *of outstanding* financing of Micro, Small, and Medium Enterprises (MSMEs), growth of MSME financing, inflation, and the BI Rate on *Non-Performing Financing* (NPF) of MSME financing in Islamic banking in Indonesia for the period 2010–2024 using the Error Correction Model (ECM) approach, the following conclusions were obtained:

1. *Outstanding* MSME financing has a negative and significant effect on changes in the NPF of MSME financing in Islamic banking in Indonesia. Increases in *outstanding* financing tend to be accompanied by decreases in NPF, indicating that increased financing disbursement does not necessarily increase financing risk if accompanied by good risk

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management and financing quality.

2. MSME financing growth did not significantly impact changes in the NPF of MSME financing in the short term. However, in the long term, MSME financing growth had a negative and significant impact on NPF. These results indicate that selective financing growth coupled with adequate risk management can contribute to long-term improvements in financing quality.
3. Inflation had no significant effect on changes in the NPF of MSME financing in the short term or on the NPF of MSME financing in the long term. This finding indicates that changes in the inflation rate during the study period were not yet a direct factor in determining the quality of MSME financing in Islamic banking in Indonesia.
4. The BI Rate has no significant effect on changes in the NPF of MSME financing in the short term, but has a negative and significant effect on the NPF in the long term. This finding indicates that changes in the BI Rate do not directly affect the quality of MSME financing, but in the long term are related to improvements in the quality of financing distribution and risk management in Islamic banking.
5. Simultaneously, *outstanding* MSME financing, MSME financing growth, inflation, BI Rate, and ECT significantly influence changes in NPF of MSME financing in Islamic banking in Indonesia. The Adjusted R-squared value of 0.5381 indicates that the model is able to explain approximately 53.81% of the variation in NPF changes in MSME financing, while the remainder is influenced by other factors outside the research model. The significance of ECT indicates the existence of an adjustment mechanism from short-term imbalances to long-term equilibrium, so that changes in NPF are influenced by both short-term dynamics and the adjustment process towards long-term equilibrium conditions.

BIBLIOGRAPHY

Amanda, F. (2025). Impact of internal and external factors on non-performing financing in Indonesian Sharia commercial banks. *Mutawazin* .

Arhinful, R., Mensah, L., Gyamfi, B.A., & Obeng, H.A. (2025). The impact of non-performing loans on bank growth: The moderating role of bank size and capital adequacy ratio: Evidence from US banks. *International Journal of Financial Studies, 13* (3), 165. https://doi.org/10.3390/ijfs13030165

Asmara, K. (2019). Analysis of internal and external factors on non-performance financing (NPF) of Islamic banking in Indonesia for the period 2015–2018. *OECONOMICUS Journal of Economics, 4* (1), 21–34. https://doi.org/10.15642/oje.2019.4.1.21-34

Aswad, A., Purnami, J., Pratama, A., & Fuzi, ABM (2024). Is Islamic monetary system possible in Indonesia? Interrelation study between BI 7 Days Reverse Repo Rate and ratio rate. *Suhuf: International Journal of Islamic Studies, 36* (1), 12–20. https://doi.org/10.23917/suhuf.v36i1.4339

Auda, J. (2008). *Maqasid al-Shariah as philosophy of Islamic law: A systems approach* . The International Institute of Islamic Thought.

Az-Zuhaili, W. (2021). *Tafsir al-Munir: Aqidah, sharia, manhaj* . Human Echo.

Bank Indonesia. (2022). *Bank Indonesia Regulation Number 24/8/PBI/2022 concerning the Macroprudential Inclusive Financing Ratio* . https://www.bi.go.id

Bank Indonesia. (2024). *BI-Rate* . https://www.bi.go.id/id/fungsi-utama/moneter/bi-

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ISLAMIC SCIENTIFIC JOURNAL
P-ISSN: 2746-8240 E-ISSN: 2746-5535
DOI: https://doi.org/10.51192/almubin.v9i2.2924

rate/default.aspx

Central Bureau of Statistics. (2024). *Consumer Price Index and Inflation in Indonesia* 2024. https://www.bps.go.id/

Breusch, T. S. (1978). Testing for autocorrelation in dynamic linear models. *Australian Economic Papers, 17* (31), 334–355. https://doi.org/10.1111/j.1467-8454.1978.tb00635.x

Devi, S., & Juniwati, EH (2024). The Effect of Gross Domestic Product, Inflation, and Unemployment Rate on Non-Performing Financing in Islamic Banks (BUS) in Indonesia Using the ARDL Method. *Journal of Applied Islamic Economics and Finance, 4* (3), 346–358. https://doi.org/10.35313/jaief.v4i3.6008

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74* (366), 427–431. https://doi.org/10.2307/2286348

Engle, R.F., & Granger, C.W.J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica, 55* (2), 251–276. https://doi.org/10.2307/1913236

Fakhrunnas, F., & El Hasanah, LLN (2022). The determinants of Islamic banks' non-performing financing in the small-medium enterprises (SMEs) sector. *Journal of Economics & Development Studies, 23* (2), 220–230. https://doi.org/10.18196/jesp.v23i2.15562

Godfrey, L. G. (1978). Testing for higher order serial correlation in regression equations when the regressors include lagged dependent variables. *Econometrica, 46* (6), 1303–1310. https://doi.org/10.2307/1913832

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill/Irwin.

Guttentag, J. M., & Herring, R. J. (1986). Disaster myopia in international banking. *Princeton Essays in International Finance, 164* , 1–37.

Hartanto, A., & Samputra, PL (2023). Determinants of non-performing financing for Islamic commercial banks in Indonesia with a dynamic panel data approach. *Information Sciences Letters, 12* (8), 2629–2642. https://doi.org/10.18576/isl/120817

Haryanto, S., Safriliana, R., Ridloah, S., Ariefudin, MU, & Khotimah, LK (2024). Determinants of risk in Indonesian Islamic banking: An empirical investigation. *Share: Journal of Islamic Economics and Finance, 13* (1). https://doi.org/10.22373/share.v13i1.20758

Hermawan, E., & Kurniasih, EP (2026). The role of banking intermediation in driving regional economic growth in Indonesia. *BAJ: Behavioral Accounting Journal, 9* (1), 48–60.

Ibrahim, Z., Anita, A., & Fhathunnida, R. (2026). Monetary transmission through the profit-sharing financing channel in Indonesia. *Journal of Islamic Economics and Finance Studies, 7* (1). https://doi.org/10.47700/jiefes.v7i1.11948

Ilhamdi, I., Luqman, L., & Ali, JK (2024). Banking model and monetary transmission mechanism in Indonesia: Are Islamic banks more effective? *Asy Syar'iyyah: Journal of Sharia Science and Islamic Banking, 9* (2), 149–166. https://doi.org/10.32923/asy.v9i2.5074

International Finance Corporation. (2025). *MSME finance* . https://www.ifc.org/en/what-we-do/sector-expertise/financial-institutions/msme-finance

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ISLAMIC SCIENTIFIC JOURNAL
P-ISSN: 2746-8240 E-ISSN: 2746-5535
DOI: https://doi.org/10.51192/almubin.v9i2.2924

International Monetary Fund. (2024). *Indonesia: 2024 Article IV consultation selected issues* (IMF Country Report). International Monetary Fund.

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics Letters, 6* (3), 255–259. https://doi.org/10.1016/0165-1765(80)90024-5

Ministry of Finance of the Republic of Indonesia. (2024). *MSMEs as a pillar of the Indonesian economy* . https://www.kemenkeu.go.id

Coordinating Ministry for Economic Affairs of the Republic of Indonesia. (2022, October 1). *The development of MSMEs as a critical engine of the national economy continues to receive government support* . https://ekon.go.id/publikasi/detail/4593/perkembangan-umkm-sebagai-critical-engine-perekonomian-nasional-terus-mendapatkan-dukungan-pemerintah

Coordinating Ministry for Economic Affairs of the Republic of Indonesia. (2023, March 9). *Oriented toward the productive sector, the government optimizes the distribution of financing for MSMEs* . https://ekon.go.id/publikasi/detail/5004/berorientasi-pada-sektor-produktif-pemerintah-optimalkan-penyaluran-pembiayaan-umkm

Lestari, S., & Khoiriyah, R. (2024). Analysis of the influence of external factors: Inflation rate, BI interest rate, and economic growth (GDP) on credit risk in Islamic banks (NPF). *Journal of Economics and Business Research, 3* (2), 38–50. https://doi.org/10.22515/juebir.v3i2.8149

Lusiana, D. (2024). Determinants of non-performing financing on Sharia banking in Indonesia. *I-ECONOMICS: A Research Journal on Islamic Economics, 10* (2), 199–215. https://doi.org/10.19109/ieconomics.v10i2.24187

Mai, MU, Kristianingsih, K., & Dahtiah, N. (2024). Sharia board characteristics, macroeconomic factors, and non-performing financing of Indonesian Islamic banks. *Muqtasid: Journal of Islamic Economics and Banking, 14* (2), 148–164. https://doi.org/10.18326/muqtasid.v14i2.148-164

Melati, SL, et al. (2024). How does equity financing impact non-performing financing? Evidence from Indonesia. *Global Review of Islamic Economics and Business, 12* (1), 93–106. https://doi.org/10.14421/grieb.2024.122-02

Mishkin, F.S. (2022). *The economics of money, banking, and financial markets* (13th ed.). Pearson.

Muthmainnah, M., Tiara, T., & Kartini, T. (2024). The mediating role of non-performing financing (NPF) in the financial performance of Islamic commercial banks in Indonesia. *International Journal of Islamic Business and Economics, 8* (2), 286–297. https://doi.org/10.28918/ijibec.v8i2.9269

Niswatin, N., et al. (2025). Factors affecting non-performing financing in Islamic banking in Indonesia. *Banks and Bank Systems, 20* (1). https://doi.org/10.21511/bbs.20(1).2025.09

Financial Services Authority. (2020). *Financial Services Authority Regulation Number 11/POJK.03/2020 concerning National Economic Stimulus as a Countercyclical Policy for the Impact of the Spread of Coronavirus Disease* 2019. https://www.ojk.go.id

Financial Services Authority. (2023). *Financial access for MSMEs and strengthening financing for the productive sector* . Financial Services Authority.

Financial Services Authority. (2024). *Sharia Banking Statistics* 2024.

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P-ISSN: 2746-8240 E-ISSN: 2746-5535
DOI: https://doi.org/10.51192/almubin.v9i2.2924

https://www.ojk.go.id/

Raddatz, C., Seneviratne, D., Vandenbussche, J., Xie, P., & Xu, Y. (2024). *The riskiness of credit origins and downside risks to economic activity* (IMF Working Paper No. 24/72). International Monetary Fund. https://doi.org/10.5089/9798400270765.001

Sari, N., et al. (2023). Determinants of financing growth in Islamic Commercial Banks in Indonesia. *JBMWS: Journal of Business, Management, and West Science, 2* (2), 130–142.

Setiawan, R., Ainiyah, Q., & Efa, DB (2024). Abnormal credit growth, credit risk, bank profitability, and bank solvency (A study of conventional commercial banks in Indonesia). *SEIKO: Journal of Management & Business, 7* (1.1).

Shihab, MQ (2017). *Tafsir Al-Misbah: Messages, Impressions, and Harmony of the Qur'an* (Vol. 1). Lentera Hati.

Stiglitz, J. E., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *The American Economic Review, 71* (3), 393–410.

Sugiyono. (2017). *Quantitative, qualitative, and R&D research methods* . Alfabeta.

Sukiyat, DHP, & Anwar, S. (2021). Effect of inflation, GDP, CAR, and FDR on non-performing financing (NPF) of Islamic commercial banks. *JOURNAL OF ECONOMICS, MANAGEMENT, BUSINESS, AND SOCIAL RESEARCH (EMBISS), 1* (4), 353–362. https://embiss.com/index.php/embiss/article/view/46

Sutrisno, S., Widarjono, A., & Mohamad, M. (2023). Does financing diversification improve bank risk? Evidence from Indonesian Islamic rural banks. *International Journal of Economics and Finance Studies, 15* (4), 103–124. https://doi.org/10.34109/ijefs.202315406

Thoyyibah, TH, & Amir, F. (2024). The effect of inflation and unemployment on NPF in Islamic commercial banks in Indonesia. *I-Finance: A Research Journal on Islamic Finance, 10* (2), 289–303. https://doi.org/10.19109/acznrq12

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica, 48* (4), 817–838. https://doi.org/10.2307/1912934

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