Determinants of Non-Performing Financing: Evidence from Islamic Commercial Banks in Indonesia (2019–2024)

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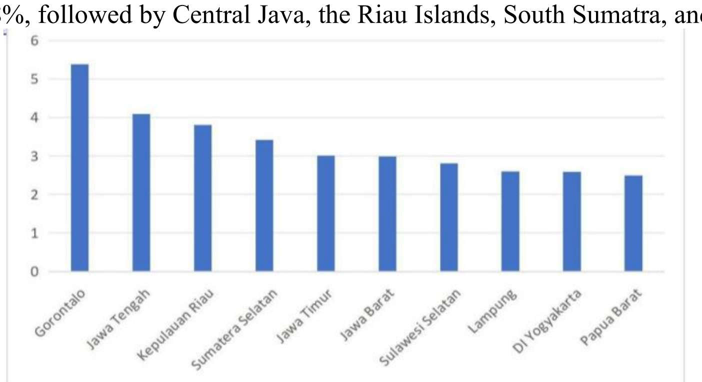
Abstract *– This study aims to examine the influence of both exogenous and endogenous factors on the level of non-performing financing (NPF) within the Islamic banking sector in Indonesia. The sample consists of ten Islamic Commercial Banks (Bank Umum Syariah/BUS), utilizing secondary data derived from their quarterly financial statements covering the period from 2019 to 2024. Supporting data were also obtained from the Central Statistics Agency, the Financial Services Authority, and Bank Indonesia. The data were analyzed using EViews 12 and Microsoft Excel, employing a panel data regression approach to assess the relationships among the variables.*
The findings indicate that external factors, such as inflation and the Financing-to-Deposit Ratio (FDR), do not exert a statistically significant effect on NPF. In contrast, internal factors—including Gross Domestic Product (GDP), Return on Assets (ROA), and the Capital Adequacy Ratio (CAR)—demonstrate a significant influence on NPF. These results provide important insights for the management of problematic financing risk and for maintaining financial stability within the Islamic banking industry. Furthermore, this study is expected to serve as a reference for the formulation of financing risk mitigation strategies and as a foundation for future research examining the determinants of non-performing financing in the Islamic banking sector.

Keywords*: Non-Performing Financing (NPF), Islamic Commercial Banks, Panel Data Analysis, EViews 12*

I. INTRODUCTION

Over the past five years, Islamic Commercial Banks (Bank Umum Syariah—BUS) in Indonesia have experienced remarkable asset growth. According to Islamic banking statistics as of December 2023, the total assets of BUS reached IDR 594.709 trillion, representing an increase of 11.81% compared to the previous year. This development reflects the increasingly significant contribution of Islamic commercial banks to the national economy. At the global level, Indonesia has also gained recognition for the advancement of its Islamic financial sector, ranking third in the *Refinitiv Islamic Finance Development Report 2022*, which evaluates countries based on financial performance, governance, sustainability, and knowledge awareness.

Despite these encouraging developments, several challenges persist, particularly concerning Non-Performing Financing (NPF). Based on the Financial Services Authority (OJK) report (2023), the NPF ratio of Islamic commercial banks stood at 2.19% in December 2023, indicating the presence of a portion of financing experiencing repayment difficulties. The total financing or credit disbursed by commercial banks across Indonesia reached IDR 7.09 quadrillion, of which approximately 2.19% was categorized as problematic or non-performing. Regionally, Gorontalo Province recorded the highest NPF ratio at 5.38%, followed by Central Java, the Riau Islands, South Sumatra, and East Java.



Source: databoks.katadata.co.id
Figure 1.1 Provinces with the Highest Non-Performing Loan Ratios at the End of 2023

Entering 2024, the total volume of non-performing financing in both Islamic Banking Units (Unit Usaha Syariah—UUS) and Islamic Commercial Banks (BUS) increased to IDR 11.751 trillion in January 2024, up from IDR 11.596 trillion recorded in December 2023. On an annual basis, this figure also exceeded the level reported in January 2023, which stood at IDR 11.625 trillion. Although the NPF ratio for UUS and BUS remained relatively stable within the range of 2.03% to 2.11%, this level indicates the need for stronger efforts to enhance the financial soundness of Islamic banking institutions. A persistently elevated NPF ratio may signal inefficiencies in banks' operational performance, which in turn can weaken their capital position (Nugrohowati & Bimo, 2019).

This study aims to analyze the impact of exogenous and endogenous factors on the level of non-performing financing (NPF) in the Islamic banking industry in Indonesia. The research sample comprises ten Islamic Commercial Banks (Bank Umum Syariah—BUS), utilizing secondary data obtained from the quarterly financial statements published by each bank for the period 2019–2024. Additional supporting data were sourced from the Central Statistics Agency (Badan Pusat Statistik), the Financial Services Authority (Otoritas Jasa Keuangan—OJK), and Bank Indonesia.

The data analysis was conducted using EViews 12 and Microsoft Excel through a panel data regression approach to examine the relationships among the variables. The findings reveal that external variables, such as inflation and the Financing-to-Deposit Ratio (FDR), do not exert a significant influence on NPF. In contrast, internal variables—including Gross Domestic Product (GDP), Return on Assets (ROA), and the Capital Adequacy Ratio (CAR)—demonstrate a significant effect. These results provide valuable insights for Islamic banking institutions in managing non-performing financing risks and maintaining financial stability. Furthermore, the findings are expected to serve as a reference for the formulation of financing risk mitigation strategies and as a foundation for future research examining the determinants of non-performing financing within the Islamic banking sector.

Therefore, this study focuses on examining the combined influence of internal and external factors on Non-Performing Financing (NPF) in Islamic Commercial Banks (BUS), with the aim of providing deeper insights into addressing the issue of problematic financing. Considering the prevailing conditions within the Islamic banking sector in Indonesia, it is important to investigate the factors associated with non-performing financing in Islamic commercial banks. Accordingly, the following research questions are formulated to guide the analysis:

1. How does inflation influence the NPF ratio in Islamic Commercial Banks in Indonesia?
2. How does Gross Domestic Product (GDP) affect the NPF ratio in Islamic Commercial Banks in Indonesia?
3. How does Return on Assets (ROA) influence the NPF ratio in Islamic Commercial Banks in Indonesia?
4. How does the Financing-to-Deposit Ratio (FDR) influence the NPF ratio in Islamic Commercial Banks in Indonesia?
5. How does the Capital Adequacy Ratio (CAR) affect the NPF ratio in Islamic Commercial Banks in Indonesia?

II. LITERATURE REVIEW

Non-Performing Financing (NPF)

Financing refers to the provision of funds associated with financial obligations or costs. According to Banking Law No. 10 of 1998, financing based on Sharia principles is defined as the provision of funds or equivalent claims established through an agreement between a bank and another party. Under such an arrangement, the recipient of the financing is obligated to repay the funds or fulfill the corresponding liability within an agreed period, accompanied by compensation in the form of profit-sharing or other returns in accordance with Sharia principles.

Non-performing financing refers to a condition that arises when, during the life cycle of a financing agreement, irregularities occur in the debtor's fulfillment of repayment obligations. Such irregularities may manifest in the form of delayed installment payments, the inability to meet repayment schedules as previously agreed, or circumstances that necessitate legal intervention in the collection process. In certain cases, this situation also reflects the potential risk of financial loss for the financing institution due to the customer's failure to meet the agreed contractual obligations.

A decline in the quality of financing generally does not occur abruptly; rather, it is typically preceded by a series of warning signals or early indicators. These signals may include a deterioration in the customer's repayment capacity, declining performance of the financed business, or changes in broader economic conditions that adversely affect the borrower's ability to meet repayment obligations. Consequently, banks are required to conduct continuous monitoring and periodic evaluations of their financing portfolios in order to identify potential risks at an early stage.

In general terms, the causes of non-performing financing can be classified into two principal categories: internal factors and external factors. Internal factors originate within the banking institution itself and may include less selective financing policies, weaknesses in the feasibility assessment process, inadequate monitoring of ongoing financing arrangements, or errors in determining financing schemes that are appropriately aligned with the characteristics and risk profiles of customers.

External factors, on the other hand, encompass a range of causes that lie beyond the direct control of banking institutions. These factors may originate from the customers themselves, such as a decline in managerial capability, poor business management, or uncooperative behavior in fulfilling repayment obligations. In addition, natural disasters that result in asset damage or the disruption of economic activities also constitute external factors. Another equally significant aspect involves government policies, including regulatory changes, increases in tax rates, or trade restrictions, all of which may directly affect customers' capacity to meet their financing obligations.

By understanding these various determinants—both internal and external—banking institutions can formulate more effective prevention and risk mitigation strategies in order to minimize the occurrence of non-performing financing in the future (Andrianto & Firmansyah, 2019).

Al-Banna (2021) identifies two principal categories of factors that may lead to non-performing financing:

1. **Endogenous Factors**
   a) *Self-dealing*, referring to actions undertaken for personal interests, such as the involvement of Islamic bank personnel in the business activities of customers;
   b) Compromises in the application of the prudential banking principle, which emphasizes caution in assessing the feasibility of financing, thereby increasing the risk exposure associated with financing activities;
   c) The absence of financing policies or procedures that meet appropriate institutional standards;
   d) Limitations in the availability of financing for prospective debtors;
   e) Delays in making decisions regarding liquidation measures that have previously been agreed upon; and
   f) Inconsistent supervision and monitoring of ongoing financing arrangements.
2. **Exogenous Factors**

Macroeconomic conditions, such as economic instability within a country, can significantly increase financing risk. Consequently, business analysts must exercise greater caution when extending financing to enterprises that are particularly vulnerable to macroeconomic fluctuations. Political factors also play an important role, as analysts are required to anticipate the potential impact of political instability on the business sustainability of debtor firms.

A. The Effect of Inflation on Non-Performing Financing (NPF)

Inflation refers to an economic condition characterized by a decline in the purchasing power of currency, which generally arises from an excessive and rapid expansion in the money supply. This phenomenon leads to a sustained and widespread increase in the prices of goods and services. When the amount of money circulating in the economy exceeds the availability of goods and services, an imbalance between demand and supply emerges, thereby driving prices upward. Within the broader context of economic development, inflation represents a crucial macroeconomic variable that influences multiple dimensions of social and economic life, including purchasing power, consumption levels, income distribution, and overall social welfare. Persistently high inflation can erode the ability of households to meet basic needs, which may ultimately contribute to rising poverty levels (Suparmono, 2018).

In general, the effects of inflation vary across different segments of society. For individuals or entities with substantial debt obligations, inflation may provide a relative advantage, as the real value of outstanding liabilities tends to decline over time. Conversely, for individuals who rely on fixed incomes or maintain their wealth primarily in the form of savings, inflation can be detrimental because the real value of both savings and income diminishes. This illustrates the non-neutral nature of inflation, as its economic consequences differ depending on an individual's financial position.

In relation to the banking sector—particularly Islamic banking—inflation may also influence the level of non-performing financing (NPF). A study by Auliani and Syaichu (2016) finds that inflation exerts a significant negative effect on NPF, implying that an increase in inflation is associated with a decline in the NPF ratio. This finding is noteworthy because, from a theoretical perspective, rising prices resulting from inflation would be expected to reduce borrowers' repayment capacity. However, the study suggests a different dynamic, which may be explained by factors such as banks' financing management strategies, borrowers' adaptive capacity, or shifts in the economic sectors receiving financing.

These findings are consistent with previous empirical studies conducted by Kusmayadi et al. (2017), Isnaini et al. (2021), and Iswanto and Ibadurrahman (2022), all of which conclude that inflation has a statistically significant negative relationship with NPF. The consistency of these results strengthens the argument that, within the context of Islamic banking in Indonesia, increases in inflation tend to be accompanied by a reduction in the ratio of problematic financing. This phenomenon may occur because certain business sectors experience nominal income growth during inflationary periods, thereby improving their ability to meet financing obligations supported by bank financing.

Based on the theoretical framework and empirical evidence from prior studies, this research formulates the following hypothesis to be tested empirically: inflation has a negative and significant effect on Non-Performing Financing in Islamic banking institutions in Indonesia. This hypothesis serves as a foundation for examining the relationship between macroeconomic variables and financing risk within the Islamic financial sector.

H1: Inflation has a negative effect on NPF.

B. The Effect of Gross Domestic Product (GDP) on Non-Performing Financing (NPF)

National income represents one of the key macroeconomic indicators used to describe the economic condition of a country on an annual basis (Suparmono, 2018). A higher level of Gross Domestic Product (GDP) generally reflects a stronger and more stable economic environment. A healthy economic climate, in turn, enhances the capacity of bank customers to fulfill their financial obligations to banking institutions (Nugrohowati & Bimo, 2019).

Kusmayadi et al. (2017) found that GDP has a significant negative effect on Non-Performing Financing (NPF). This finding is consistent with other empirical studies conducted by Muqorrobin (2019) and Darmawanti and Suprayogi (2020), both of which similarly conclude that GDP exerts a statistically significant negative influence on NPF. Based on the theoretical considerations and empirical evidence from prior research, the following hypothesis is formulated for empirical testing in this study:

H2: GDP has a negative effect on NPF.

C. The Effect of Return on Assets (ROA) on Non-Performing Financing (NPF)

Return on Assets (ROA) is a financial ratio that reflects the return generated from the total assets utilized by a company in its operations (Kasmir, 2019). According to Kasmir, a higher ROA indicates better performance, as it suggests that the company is able to utilize its assets more efficiently to generate profits.

Purnamasari and Ramayanti (2019) found that ROA has a significant negative effect on Non-Performing Financing (NPF). This finding is further supported by studies conducted by Yulianti et al. (2022) and Iswanto and Ibadurrahman (2022), which similarly report that ROA has a statistically significant negative influence on NPF. Based on the theoretical perspective and the findings of previous studies, the hypothesis to be empirically tested in this study can be formulated as follows:

H3: ROA has a negative effect on NPF.

D. The Effect of Financing-to-Deposit Ratio (FDR) on Non-Performing Financing (NPF)

The Financing-to-Deposit Ratio (FDR) is a financial indicator that compares the total amount of financing extended by a bank with the total third-party funds successfully mobilized by the institution (Antonio, 2003). An increase in the FDR value generally indicates a lower level of bank liquidity. This condition may arise from the substantial allocation of funds to financing activities, which consequently reduces the volume of public deposits held by the bank (Lestari, 2021). One of the factors that may trigger the emergence of non-performing financing is the bank's aggressive financing expansion policy (Yulianti et al., 2022).

Empirical evidence from Supriani and Sudarsono (2018) indicates that FDR has a positive and significant effect on Non-Performing Financing (NPF). This finding is consistent with the results reported by Yulianti et al. (2022), who similarly conclude that FDR exerts a significant positive influence on NPF. Based on the theoretical arguments and findings from previous studies, the hypothesis to be empirically tested in this research can be formulated as follows:

H4: FDR has a positive effect on NPF.

E. The Effect of Capital Adequacy Ratio (CAR) on Non-Performing Financing (NPF)

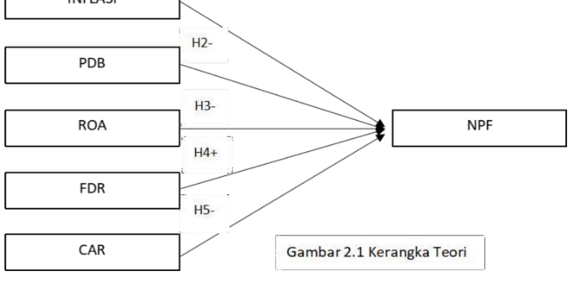
The Capital Adequacy Ratio (CAR) represents the proportion of a bank's core capital relative to its total risk-weighted assets (Budianto & Dewi, 2023). An increase in the CAR value indicates that an Islamic bank possesses a stronger capital base to absorb potential losses arising from various risks, including the risk of default (Yulianti et al., 2022).

Empirical findings from Purnamasari and Ramayanti (2019) demonstrate that CAR has a negative effect on Non-Performing Financing (NPF). This result is further supported by studies conducted by Isnaini et al. (2021) and Yulianti et al. (2022), both of which conclude that CAR exerts a negative influence on NPF. Based on the theoretical framework and empirical evidence from previous research, the hypothesis to be tested in this study can be formulated as follows:

H5: CAR has a negative effect on NPF.

III. THEORETICAL FRAMEWORK

Based on the theoretical foundations discussed above, the relationships among the variables are illustrated in the conceptual framework presented in the following figure.



Gambar 2.1 Kerangka Teori

Operational Definition of Variables

Variable	Definition	Measurement
NPF-Net	A ratio used to measure the ability of Islamic bank management to manage non-performing financing.	(Non-Performing Financing – Allowance for Impairment Losses / CKPN) / Total Financing Disbursed
Inflation	A sustained increase in the general price level of goods and services within an economy.	***Monthly report*** www.bi.go.id
Real GDP	The total value of goods and services produced by a country within a specific period. Real GDP uses constant prices from a base period as the basis for calculation.	Base-year price × current quantity of goods/services
ROA	A ratio that reflects the level of return generated from the assets owned by a company.	$\frac{Laba\ bersih\ setelah\ pajak}{Total\ asset} x100\%$
FDR	A ratio used to measure the proportion of financing disbursed by a bank compared with the total public deposits collected.	$\frac{Total\ pembiayaan}{Dana\ pihak\ ketiga} x100\%$
CAR	A financial ratio that indicates the availability and adequacy of a bank's capital to absorb potential risks.	$\frac{Modal\ bank}{ATMR} x100\%$

Table 3.1. Definitions and Indicators of Variables

IV. METHODOLOGY

This study utilizes data obtained from official institutional websites relevant to the research, including Bank Indonesia, the Financial Services Authority (Otoritas Jasa Keuangan), and the Central Statistics Agency (Badan Pusat Statistik). The sample analyzed in this study consists of two categories of variables. First, the endogenous variables include Return on Assets (ROA), Financing-to-Deposit Ratio (FDR), and Capital Adequacy Ratio (CAR), with Non-Performing Financing (NPF) of Islamic Commercial Banks in Indonesia serving as the dependent variable. Second, the exogenous economic variables employed in the analysis are inflation and Gross Domestic Product (GDP).

The study applies panel data analysis, which integrates cross-sectional and time-series data. The dataset was derived from quarterly financial reports covering the period from 2019 to 2023. The data processing procedure began with panel data model testing, including the Common Effects Model, Fixed Effects Model, and Random Effects Model, to determine the most appropriate estimation technique.

The regression equation employed in this study is specified as follows:
Y : Net Non-Performing Financing (NPF-Net)
α : Constant
i : Bank
t : Time period
β1, β2, β3, β4, β5 : Coefficients of variables X1, X2, X3, X4, and X5
X1 : Inflation X2 : GDP X3 : ROA X4 : FDR X5 : CAR

V. RESULT & DISCUSSION

A. Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	54.368706	(9,185)	0.0000
Cross-section Chi-square	258.669302	9	0.0000

Source: EViews 12 Output (Processed Data), 2024

Based on the table, the probability value of Prob > F = 0.0000, which is lower than the significance level of 0.05. Therefore, the Chow test result is statistically significant, indicating that the Fixed Effect Model (FEM) is more appropriate than the Common Effect Model (CEM).

B. Hausman Test

Correlated Random Effects - Hausman Test Equation: Untitled Test cross-section random effects

Test Summary	Chi- Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	5	1.0000

Source: EViews 12 Output (Processed Data), 2024

From the results presented above, the Prob > Chi-Square value is 1.0000, which is greater than the significance level of 0.05. Therefore, the Random Effect Model (REM) is selected as the appropriate model. Subsequently, the Lagrange Multiplier (LM) test is conducted to determine whether the Common Effect Model (CEM) or the Random Effect Model (REM) is more suitable for the panel data analysis.

C. Lagrange Multiplier (LM) Test

Lagrange Multiplier Tests for Random Effects Null hypotheses: No effects Alternative hypotheses: Two-sided (Breusch-Pagan) and one- sided (all others) alternatives.

Test Hypothesis Cross-section	Time	Both
Breusch-Pagan801.7714	5.928374	807.6998
(0.0000)	(0.0149)	(0.0000)

Source: EViews 12 Output (Processed Data), 2024

Based on the results of the Chow test, Hausman test, and Lagrange Multiplier test, the Prob > Chi² value is 0.0000, which is lower than the significance level of 0.05. Therefore, the appropriate model selected for this study is the Random Effect Model (REM).

D. Classical Assumption Test

1. Multicollinearity Test

Variable	ROA	GDP	Inflation	FDR	CAR
ROA	1	0.0198649476 8032511	0.0702054295 2085504	0.0721426195 8798891	0.3411066592 987903
PDB	0.0198649476 8032511	1	0.537407063 5775319	-0.138172449 6510078	0.2136821017 49162
Inflation	0.0702054295 2085504	0.537407063 5775319	1	-0.1480820488 678725	0.1619103958 960724
GDP	0.0721426195 8798891	-0.138172449 6510078	-0.1480820488 678725	1	0.0393419705 1207503
CAR	0.3411066592 987903	0.2136821017 49162	0.1619103958 960724	0.0393419705 1207503	1

Source: Stata 12 Output (Processed Data), 2024

The correlation values among the independent variables were examined to assess the presence of multicollinearity. A high correlation coefficient (>|0.8|) indicates a potential multicollinearity issue. Based on the results, none of the correlation coefficients exceed this threshold. Therefore, it can be concluded that the research data do not exhibit indications of multicollinearity and successfully pass the multicollinearity test.

E. Hypothesis Testing

1. Coefficient Test

Root MSE	0.647310	R-squared	0.452837
Meandependent var	0.179937	AdjustedR-squared	0.438735
S.D.dependentvar	0.877289	S.E.ofregression	0.657244
Sumsquaredresid	83.80201	F-statistic	32.11127
Durbin-Watsonstat	0.840371	Prob(F-statistic)	0.000000

The overall Adjusted R-Square value is 0.438 (43.8%), indicating that approximately 43.8% of the variation in the dependent variable can be explained by the independent variables included in this study. The remaining 56.2% is explained by other factors not incorporated in the research model.

F. F-Test

Root MSE	0.647310	R-squared	0.452837
Meandependent var	0.179937	AdjustedR-squared	0.438735
S.D.dependentvar	0.877289	S.E.ofregression	0.657244
Sumsquaredresid	83.80201	F-statistic	32.11127
Durbin-Watsonstat	0.840371	Prob(F-statistic)	0.000000

Source: EViews 16 Output

The Prob (F-statistic) value is 0.0000, which is lower than the significance level of 0.05. This result indicates that the independent variables—inflation, GDP, ROA, FDR, and CAR—simultaneously have a significant effect on the dependent variable, namely Non-Performing Financing (NPF).

G. T-Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	68.51669	15.36796	4.458411	0.0000
ROA	-0.004540	0.037701	-0.120413	0.9043
GDP	-10.43862	2.387926	-4.371418	0.0000
Inflation	-0.006691	0.044830	-0.149252	0.8815
FDR	0.015092	0.003272	4.613191	0.0000
CAR	-0.030441	0.003734	-8.153301	0.0000

Based on the results presented in the table, the t-test indicates that ROA, FDR, and CAR have a significant effect on the NPF ratio of Islamic Commercial Banks in Indonesia, whereas inflation and GDP do not have a significant effect on NPF in Islamic Commercial Banks in Indonesia.

VI. CONCLUSION

The primary function of banks is to mobilize and distribute public funds. Islamic Commercial Banks perform this function by providing financing facilities to their customers, where all financing arrangements are formalized through contractual agreements (*akad*) in accordance with Sharia principles. The level of customers' ability to fulfill their financial obligations to the bank is commonly measured using the Non-Performing Financing (NPF) ratio. A high NPF ratio indicates a lower level of bank soundness, as it reflects a larger proportion of problematic financing within the bank's operational activities. The fluctuation in the NPF ratio is influenced by both internal and external factors affecting the banking institution.

Based on the results of the partial data analysis, this study finds that inflation and ROA do not have a significant effect on the NPF ratio of Islamic Commercial Banks in Indonesia. These findings are consistent with previous studies conducted by Asnaini (2014), Purnamasari and Ramayanti (2019), Nugrohowati and Bimo (2019), and Ikhsan and Karyatni (2023).

For future research, it is recommended that subsequent studies incorporate a broader range of variables that may potentially influence non-performing financing in Islamic Commercial Banks in Indonesia. In addition, the scope of this study is limited to Islamic Commercial Banks, whereas conventional banks also play a significant role in driving economic activity in Indonesia.

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