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# Impact of Internal and External Factors on Non-Performing Financing in Indonesia's Islamic Commercial Banks

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## Abstract

**Purpose**–This study examines how external factors like inflation, FDR, and CAR affect non-performing financing in Indonesian Sharia commercial banks.

**Methodology**—Using a quantitative methodology, this study examined Islamic commercial banks registered with the Financial Services Authority (OJK) over a five-year observation period, from 2019 to 2023. Purposive sampling was used to choose the study's sample, which included ten Islamic commercial banks that met the requirements. The data analysis technique employed is panel data linear regression analysis with Eviews 13.

**Findings** – Based on the results of research and analysis, it was concluded that partially FDR and CAR variables had a significant negative effect on NPF. In contrast, inflation variables did not affect NPF. Moreover, variable FDR, CAR, and inflation do not impact NPF.

**Implications** – This study suggests that Islamic commercial banks should focus on internal factors, particularly the Financing to Deposit Ratio and Capital Adequacy Ratio, when managing Non-Performing Financing. An increase in FDR and a decrease in NPF indicate the importance of efficient liquidity management and strong capital to maintain the quality of financing assets.

**Originality**—The study analyzed the effect of Financing to Deposit Ratio (FDR), Capital Adequacy Ratio (CAR), and inflation on Non-Performing Financing (NPF) at Sharia commercial banks in Indonesia from 2019 to 2023. While FDR and CAR have a significant negative effect on NPF, and inflation has no effect, the study's novelty lies in its simultaneous evaluation of all three variables, which collectively have no significant impact on NPF.

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## 1. Introduction

The increasing economy in a country, especially Indonesia, has increased the community's demand for funding for productive and consumptive needs. A banking institution can affect the country's micro and macro economy. In accordance with its function, Banking serves as a financial intermediary between the party with excess funds and those without funds. The excess funds can be channeled through banking to those who need funds (Riyadi, 2006).

Non-performing loans (NPL) or non-performing financing (NPF) are among the issues Indonesian Islamic banks confront. A financial ratio called non-performing financing (NPF) illustrates the financing risks that banks face when they offer investment financing for bank funds across various portfolios. This financing risk arises from the customer's incapacity or failure to return the loan amount and the results that were obtained from the bank within the allotted time (Asmara, 2019). Therefore, a high non-performing financing (NPF) indicates that the bank is not professionally managing financing and that the risk or financing distribution is high. The lower the NPF, the lower the financing risk borne by the bank.

According to Lemiyana and Litriani, (2016) problem financing or financing that is substandard, doubtful, and bad in accordance with the good amount rules set by Bank Indonesia, namely NPL/NPF below 5%. Non-Performing Financing (NPF) includes financing where the borrower cannot carry out the terms of the financing agreement he has signed, which is caused by various things that need to be reviewed or changes in the agreement to minimize the possibility of financing risks increasing again.

In the Islamic perspective, this is in line with the word of Allah SWT recommends making transactions or debts and debts clearly. In QS. Al-Baqarah: 282, Allah said:

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْٓا اِذَا تَدَايَنْتُمْ بِدَيْنٍ اِلٰٓى اَجَلٍ مُّسَمًّى فَاكْتُبُوْهُۗ وَلْيَكْتُبْ بَّيْنَكُمْ كَاتِبٌ بِالْعَدْلِۖ

*"O you who believe, when you enter transactions not in cash for an appointed time, write them down among yourselves. Let a writer among you write justly..."* (QS. Al-Baqarah: 282)

This verse teaches that every debt transaction must be carried out clearly and recorded so that problems do not occur in the future. In the context of NPFS, if there are payment problems or failure to fulfill obligations, this can be viewed because of vagueness or unfairness in the transaction. The ratio of non-performing finance (NPF) is one technique to gauge the improvement in financing quality. The ratio of problematic financing to the overall amount of money distributed to the public is known as non-performing financing, or NPF. The greater the financing disbursed to financing customers, the greater the likelihood of problematic financing or Non-Performing Financing (NPF). The high value of NPF shows the bank's failure in managing funds distributed to the community. The following is a table of financing rates and NPFS at Islamic commercial banks in 2019-2023.

**Table 1. Financing Rate and NPF value of Sharia commercial banks in 2019-2023**

| Year | Non-Performing Financing (NPF) | Financing Amount |
|---|---|---|
| 2019 | 3.23% | 39.89% |
| 2020 | 3.23% | 39.03% |
| 2021 | 2.59% | 38.85% |
| 2022 | 2.35% | 38.72% |
| 2023 | 2.10% | 43.20% |

Source: Islamic Banking Statistics 2019-2023

Based on the table above, it can be seen that the development of the amount of financing and the number of NPFS for 5 years fluctuated. However, during the year of the study, it turned out that there was a gap between the amount of financing and the number of NPF, which can be seen in 2019, the amount of financing was 39.89% while the NPF level reached 3.23%. In 2020, the number of financing decreased by 39.03%, and NPF was still the same as the previous year at 3.23%. Then, there was a decrease in the number of financing in 2021 to 2022 by 38.72%, and NPF also decreased in the same year by 2.35%. However, in 2023, the amount of financing increased from the previous year, reaching 43.20%, while the NPF rate continued to decrease by 2.10%. This disparity suggests that the rise in finance and the rise in NPF are not directly correlated. In other words, an increase in NPF does not automatically follow an increase in finance.

Based on information provided by the Financial Services Authority (OJK), the NPF in a number of banks that were part of Sharia Commercial Banks was recorded to be quite high such as Bank Victoria Syariah in 2021 the NPF value reached 9.54% then in Bank Jabar Banten Syariah in 2020 showed an NPF of 5.28% and in Bank Syariah Bukupoin in 2021 the NPF was recorded at 8.83%, which means 2021, which states a maximum limit of NPF of 5 %. This happened due to high inflation in 2021, reaching 5.51%, and worsening financing due to COVID-19, which led to a failed restructuring. In addition, the threat of a recession in 2023 is a factor that can affect the high level of problem financing directly or indirectly.

Problematic financing can occur due to internal or external factors. Internal factors are derived from the bank's operational activities, which are reflected in financial performance (Anisa & Tripuspitorini, 2019). Economic performance can be seen through its financial ratios as an indicator of the health of banks, such as NPF, CAR, FDR, and ROE. External factors do not come from the bank's operational activities, but can come from macroeconomic factors. Macroeconomics is intended to study how the economy works; thus, the causal relationships studied by macroeconomics are between aggregate economic variables such as inflation, BI Rate, GDP, and JCI (Tripuspitorini & Setiawan, 2020).

The signalling theory, which was first proposed by Michael Space in 1973, describes the connection between internal factors and NPF. It asserts that corporations possess greater knowledge than external parties, so they send signals to prevent information imbalance (Firmansyah et al., 2022). Regarding this study, Signalling Theory explains how banks can use financial ratios to analyse financial statements and determine whether a bank's health condition can be considered reasonable. Meanwhile, Keynes' Theory, which was developed in 1936 by British economist John Maynard Keynes, explains how government policies, specifically those controlling inflation, the BI rate, exchange rate, and aggregate spending, determine economic activity. To preserve financial stability and people's purchasing power, the government would employ monetary policy to stabilise the inflation rate by reducing the benchmark interest rate, or BI rate. Additionally, the rupiah will depreciate if the exchange rate rises against the US dollar, which could lower the debtor's income and make it harder for them to make their financing installment payments on time (Purnamasari & Musdholifah, 2018).

Previous studies on problematic financing tercemin by non-performing financing (NPF) have been conducted; nevertheless, the findings of each study vary concerning the impact of Islamic commercial banks' internal and external factors on NPF. Research Retnowati and Jayanto (2020), Kadir et al. (2022); and Kadir (2019) examining the variables that impact the NPF in Indonesian Islamic banking found that while BOPO has a positive and significant impact on the NPF, CAR has a negative and significant effect. FDR, GDP, and inflation do not significantly affect the NPF. Different from research Prastyo and Anwar (2021), which demonstrates that while GDP and FDR favorably impact the NPF, inflation does not affect these metrics.

Based on the phenomena, theories, and results of previous research, there is a research gap that explains the factors that affect Non-Performing Financing (NPF), which still needs to be investigated further. Differences in research results or inconsistencies in the findings of previous studies are important reasons for conducting further research. Therefore, the researcher felt interested in re-examining this phenomenon by re-examining some of the conclusions of earlier studies, focusing on more recent periods.

The Financing to Deposit Ratio (FDR), which compares the bank's financing with third-party funds that the bank has effectively deployed, is the first internal component that has to do with FDR. The quantity of financing issued and the amount of third-party funds raised by a bank are directly correlated; that is, the more financing issued, the more third-party funds, and the higher the distribution of funds channelled through financing, the greater the likelihood of problematic financing risks, which in turn causes NPF to increase (Nurnasrina & Putra, 2018). Following signal theory, banks that analyze their performance using FDR can receive a picture of the risk of problematic financing (Putri & Kusumaningtias, 2020). According to earlier studies, the FDR variable positively impacts the NPF. Therefore, the first hypothesis (H1) can be prepared, which is that FDR is suspected to positively affect NPF.

The study examined how internal and external factors affected non-performing financing (NPF) in Indonesian Sharia commercial banks between 2019 and 2023 fills the research gap because although studies on NPF in Islamic banking have been carried out, a comprehensive analysis that compares explicitly the influence of internal bank factors (such as operational efficiency, management quality, and financing growth) and external factors (inflation) simultaneously on NPF in a period that includes economic dynamics before, during, and after the COVID-19 pandemic is still limited. The Novelty of this study lies in the identification and measurement of the relative contribution of these groups of internal and external factors to NPF fluctuations in Indonesian Sharia commercial banks during this crucial period, thus providing a deeper understanding of financing risk determinants and their implications for the stability of the Islamic banking sector in Indonesia.

This study aimed to thoroughly examine the impact of external macroeconomic factors, such as inflation rates, and internal bank factors, such as measures of Islamic commercial banks' operational and financial performance, on the amount of non-performing financing (NPF) at Islamic commercial banks in Indonesia from 2019 to 2023. To support bank management, regulators, and other pertinent stakeholders in preserving the stability and expansion of Indonesia's Islamic banking industry, this study aims to identify important factors that influence the calibre of finance provided by Islamic banks.

## 2.1 Literature Review

### 2.1 Signaling Theory

Signal theory is a theory proposed by Spence in 1973. This theory describes a gesture made by company managers to outside parties, including investors and creditors, whose information is usually disclosed in the form of financial statements (Spence, 1978). These signals can take many forms, some of which can be easily observed and others that require further investigation. The purpose of any inferred signal is to suggest something in the hopes that outside parties will alter the company's evaluation. Disclosure of accounting data may indicate that the company is doing well (good news) or, conversely, doing poorly (bad news) (Firmansyah & Amanah, 2020).

Signaling theory describes how one party credibly conveys information about itself to another party, mainly when asymmetric information exists. In the context of the study "Analysis of the Influence of Internal and External Factors on Non-Performing Financing (NPF) in Indonesian Islamic Commercial Banks," signaling theory is relevant in understanding how Islamic banks signal asset quality and financial health to investors, regulators, and depositors. A low NPF level can serve as a positive signal that the bank has sound risk management, prudent financing distribution processes, and stable customer quality. On the contrary, a high NPF can be a negative signal indicating internal problems or sensitivity to external factors, which can ultimately affect market confidence and the stability of the Islamic bank. Therefore, the internal (such as management quality and operational efficiency) and external (such as macroeconomic and regulatory conditions) factors influencing NPFS directly relate to Islamic banks' signals regarding their performance and prospects.

### 2.2 Regulatory Capital Theory

Regulatory Capital refers to the amount of capital a financial institution, such as a bank, must have based on rules and regulations set by financial regulators. The main purpose of this theory is to ensure the stability and financial health of the institution and protect its shareholders and depositors (Umar, 2020).

The relationship between regulatory capital theory and research on the analysis of the influence of internal and external factors on Non-Performing Financing (NPF) in Islamic commercial banks in Indonesia is very close, considering that regulatory capital theory discusses the importance of bank capital adequacy to absorb losses and maintain financial system stability. In the context of NPF research, internal factors such as poor risk management, weak corporate governance, careless financing disbursement policies, and external factors such as slowing macroeconomic conditions or regulatory changes can directly affect NPF levels. If the NPF rate increases significantly, this can erode the bank's capital and potentially violate the terms of regulatory capital established by the authority. Therefore, this kind of research not only identifies the causes of NPF but also implicitly contributes to understanding how such factors can affect banks' compliance with regulatory capital requirements and, ultimately, the financial stability of Islamic commercial banks.

### 2.3 Financing to Deposit Ratio (FDR)

The FDR ratio is one of the liquidity ratio measurement tools. FDR ratio shows the ability of a bank to pay off depositors' funds by withdrawing funds provided (Nura et al., 2023). FDR is a ratio that measures a bank's ability to meet customer obligations. The higher the FDR ratio, the more the NPF will increase. Suppose the bank cannot adequately manage the funds channeled to customers, and the funds cannot settle. In that case, the cause could be that financing is channeled to other customers using these funds, the bank cannot charge them, so the funds are not distributed properly, causing financing problems.

Signaling theory can explain how the Financing to Deposit Ratio (FDR) serves as a signal sent by Islamic banks to the market. A healthy and controlled FDR reflects the bank's ability to manage and channel its funds efficiently and indicates the bank's level of liquidity and prudence in financing. An optimal FDR can be a positive signal to investors and depositors that the bank has sound risk management practices, thus potentially lowering the risk perception of Non-Performing Financing (NPF). Conversely, an FDR that is too high or too low may indicate imbalances or hidden risks, ultimately affecting NPF levels.

### 2.4 Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio (CAR) measures the bank's ability to cover potential losses in financing or securities trading with its current capital (Fadli, 2024). The magnitude of the bank's earnings is not always correlated with the amount of its capital adequacy (CAR). Capital won't significantly impact bank problem financing if banks have a lot of capital but cannot use it efficiently to make money. Due to the high risk involved, Islamic banks find it difficult to issue their money for funding, notwithstanding their efforts to preserve bank capital adequacy. A low CAR increases the risk of problematic borrowing because the bank cannot withstand losses (Sembiring, 2021).

Regulatory capital theory is closely related to the capital adequacy ratio (CAR), one of the internal factors analyzed. This theory states that banks must have sufficient capital to absorb potential losses and maintain financial stability. CAR directly reflects the implementation of this theory as a quantitative indicator of bank capital adequacy. Banks with a high CAR are assumed to have a more substantial capital buffer, so they can better withstand credit risks, including NPFS, and minimize the impact of adverse external factors. Therefore, in the context of this study, CAR serves as a key representation of banks' compliance with the capital adequacy Principles mandated by Regulatory Capital Theory and is expected to show a negative influence on NPF levels.

### 2.5 Inflation

An economic phenomenon known as inflation denotes a steady increase in average prices. A general and ongoing rise in prices is the prerequisite for inflation. A brief spike in prices, such as those brought on by seasonality, before holidays, natural disasters, etc., is not inflation; it is not inflation if only one or two categories of commodities see price increases (Padambo et al., 2021). The idea states that inflation is generally believed to be the rise in prices of goods and services brought on by an excess of money (demand) over the quantity of available goods and services (supply). The expansion of the money supply that surpasses the expansion of the real sector is the cause of inflation since it results in a constant decline in the purchasing power of money, which impacts both macro and microeconomic activity. When inflation occurs, people's purchasing power will also decline because real income levels also fall. As inflation rises, installment payments become more erratic, which lowers the quality of financing and may even become problematic (Akbar, 2016).

Signaling theory can explain how inflation is an essential factor for the health condition of Islamic banks. When there is high inflation, this can be a negative signal for banks and customers. For banks, inflation can increase operating costs and potentially reduce customers' ability to pay financing installments because their real purchasing power decreases, ultimately triggering an increase in NPF. Conversely, controlled inflation can be a positive signal, indicating economic stability that supports customers' ability to meet their financing obligations, potentially reducing NPF numbers. Thus, the inflation rate provides important information to the bank's internal (management) and external (customers and investors) regarding potential financing risks.

### 2.6 Non-Performing Financing (NPF)

NPF is a tool used to gauge the asset quality of Islamic banks. The degree of funding issues is gauged by this ratio, which measures Islamic banks' experience (Syakhrun et al., 2019). The quality of Islamic bank funding declines with a bank's NPF ratio. The non-performing finance (NPF) ratio can be used to assess how well bank management handles complex financing (Syakhrun et al., 2019). The problem financing referred to here is due to the default or inability of the customer to repay the funding taken from the bank within a predetermined period.

In this context, Islamic banks will try to send a positive signal to the market (customers, investors, regulators) about their financial health and financing quality, especially in the face of high NPF potential. These signals can be transparent financial statements, strong risk management policies, or even a good reputation for managing problem financing. When the NPF increases, this can be a negative signal indicating the presence of internal or external problems that may affect the bank's performance. Therefore, studies analyzing internal and external factors to NPFS need to consider how this information (signals) is processed and interpreted by the market, and how banks can effectively provide confidence signals to minimize the negative impact of NPFS.

### 2.7 Hypotheses

#### 2.7.1 Effect of FDR on NPF

The Financing to Deposit Ratio (FDR) compares the bank's financing with monies from third parties that the bank has successfully deployed (Pangestu & Santoso, 2021). A bank's ability to raise third-party funds directly correlates with the financing it issues. This means that the more third-party funds it raises, the more financing it issues, the more money is distributed through financing, the more likely it is that financing risks will become problematic, and consequently, NPF will rise (Ayu Juwita, 2023).

According to earlier studies carried out by Prastyo and Anwar (2021) using the signal theory, which holds that FDR can function as a pertinent signal in the context of NPF, it is evident from the title that the FDR variable is positively correlated with NPF. A high FDR can signal a potential increase in credit risk and NPF, especially if not offset by strong risk management. External parties such as regulators and investors will pay attention to these signals in evaluating the health and risk of banks. Then, based on the description, hypotheses can be formulated in this study, namely:
*$H_1$: FDR has a positive effect on NPF*

#### 2.7.2 Effect of CAR on NPF

The bank's capital adequacy shows its condition, expressed by a certain ratio called the Capital Adequacy Ratio (CAR) (Iska & Fitriani, 2020). Disclosure of Capital Adequacy Ratio (CAR) has a crucial role in influencing the Non-Performing Financing (NPF) level in Islamic financial institutions. A high CAR indicates that the bank has sufficient capital to absorb potential losses from risky assets, including problem financing. Transparency in CAR disclosures can increase investor and customer confidence, which in turn can stabilize bank operations and reduce the likelihood of panic or mass withdrawal of funds that can worsen the condition of NPF. In addition, with an adequate CAR, banks tend to be more selective in channeling financing and focus more

on strict risk management, which can indirectly suppress NPF numbers. Conversely, a low CAR or less transparent disclosure can lead to a negative perception of a bank's financial health, fueling concerns about the bank's stability and ability to bear risk, ultimately leading to an increase in NPF. Based on findings from earlier studies carried out by Wibowo and Saputra (2017) As can be seen from the headline, the CAR significantly and negatively affects NPF. Then, based on the description, hypotheses can be formulated in this study, namely:
*$H_2$: CAR has a negative effect on NPF*

### 2.7.3 Effect of inflation disclosure on NPF

Inflation changes impact NPF because excessive inflation will cause people's incomes to decline, which will lower people's living standards. Before inflation, a debtor could still afford to pay installments for his financing. However, when inflation strikes and prices rise significantly while the debtor's income stays the same, the debtor's ability to make installments is weakened. Due to increasing prices, most of his income now covers household expenses (Alquraini, 2021). Inflation disclosure significantly impacts Non-Performing Financing (NPF) or problematic financing in Islamic financial institutions. When inflation is high, the real value of people's income tends to decrease, reducing their ability to meet financing payment obligations. This directly increases the risk of default and, in turn, promotes an increase in the NPF ratio. In addition, poorly managed inflation can lead to greater economic uncertainty, making it difficult for businesses and individuals to plan for the long term. Therefore, transparent and accurate disclosure of inflation is crucial. This allows financial institutions to more effectively identify and manage NPF risks through adjusting financing strategies, pricing products, and improving risk mitigation to maintain the stability of their financing portfolios.

Inflation, which is defined as a rise in the cost of goods and services, can raise the NPF in tandem with Keynes' theory since it can impact borrowers' capacity to repay debts, particularly if their income is not keeping up with inflation. According to earlier studies Nensi et al. (2022), it is evident that the inflation variable significantly and favourably affects NPF. Then, based on the description, hypotheses can be formulated in this study, namely:
*$H_3$: Inflation has a positive effect on NPF*

## 3.1 Research Methods

This research employs a quantitative descriptive methodology, gathering data primarily from secondary sources using document analysis techniques. An internal component of information was taken from articles on the websites of associated businesses registered with the Financial Services Authority (OJK) between 2019 and 2023, as well as the annual report of Sharia commercial banks published by the Financial Services Authority (OJK). However, information on external issues was taken from Bank Indonesia's (BI) official website.

This study's population consisted of all Islamic commercial banks listed in the Financial Services Authority's (OJK) Islamic banking data. A sample of 14 Islamic commercial banks was chosen through purposive sampling. The sample determination is based on the following criteria: (1) banks registered with Sharia commercial banks during the research year, (2) banks that publish financial statements ending December 31 for 5 years of research, namely: 2019-2023. Based on these criteria, 50 annual financial report data from 10 Sharia commercial banks (BUS) that can be sampled are: BCA Sharia, Bank Muamalat Indonesia, Bank Nusa Tenggara Barat Sharia, Bank Victoria Sharia, Bank Jabar Banten Sharia, Bank Mega Sharia, Bank Aceh Sharia, Bank Panin Dubai Sharia, Bank Syariah Bukupoin, Bank Tabungan Pensiunan Nasional Sharia.

The data analysis technique used in this study is quantitative descriptive analysis. The analysis approach used in this study to determine the degree of association and the influence of the independent variable on the dependent variable is panel data regression, as stated in the description. The software used for data administration is called EViews 13.

**Table 2. Operational Definition of Variables**

| Variables | Definition | Scale | Formula |
|---|---|---|---|
| *Financing to Deposit Ratio* (FDR) | Comparison among the funds provided the bank with third party funds who succeeded assembled by the bank (Destiana, 2018). | Ratio | FDR = Total Financing/Total Third Party Fund × 100% |
| *Capital Adequacy Ratio* (CAR) | Capital fulfillment obligation ratio Minimum required by the bank (Riyadi,2006) | Ratio | CAR = Capital/ATMR × 1005 |
| Inflation (X3) | Rising prices of goods in general and continuously (Naf'an, 2014) | Ratio | Π = IHKt – IHKt – 1/IHKt – 1 × 100% |
| *Non-Performing Financing* (NPF) ( | Uncollectible or unpaid financing that has been given to customers (Veithzal rivai, 2010) | Ratio | NPF = Troubled Financing/Total Financing × 100% |

## 4. Results and Discussion

### 4.1 Descriptive Statistics

Descriptive statistics is a part of the science of statistics that focuses on collecting, organizing, summarizing, and presenting data to make it easier to understand and provide a clear picture of its characteristics. Its purpose is to describe the data as it is, without drawing conclusions or generalizing to a larger population.

**Table 3. Results of Descriptive Statistical Analysis**

| | NPF | FDR | CAR | INF |
|---|---|---|---|---|
| Mean | 2.617600 | 159.6652 | 31.17380 | 2.892000 |
| Median | 1.735000 | 83.76500 | 24.53500 | 2.610000 |
| Maximum | 9.540000 | 3833.000 | 149.6800 | 5.510000 |
| Minimum | 0.080000 | 40.63000 | 12.42000 | 1.680000 |
| Std. Dev. | 2.086497 | 530.5268 | 20.83783 | 1.389265 |
| Skewness | 1.522946 | 6.839677 | 3.907130 | 1.158815 |
| Kurtosis | 5.229566 | 47.86252 | 22.13953 | 2.808104 |
| Jarque-Bera | 29.68422 | 4582.856 | 890.3840 | 11.26715 |
| Probability | 0.000000 | 0.000000 | 0.000000 | 0.003576 |
| Sum | 130.8800 | 7983.260 | 1558.690 | 144.6000 |
| Sum Sq. Dev. | 213.3201 | 13791476 | 21276.55 | 94.57280 |
| Observations | 50 | 50 | 50 | 50 |

Source: Output Reviews 13 (data processed 2025)

In the descriptive statistical analysis, the mean, standard deviation, variance, maximum, minimum, range, kurtosis, and skewness are all used to describe the data processed test. This analysis does not aim to verify the hypothesis; rather, it is used to ascertain the information about the data held.

### 4.2 The Significance of The Model

Model significance testing is crucial in statistical analysis, particularly in regression modeling. The goal is to determine if the statistical model we build is feasible and able to explain the variation in the dependent (outcome) variable in a significant way.

**Table 4. Selection of Regression Models**

| Effects Test | Test Chow | Hausman Test | Lagrange Multiplier Test |
|---|---|---|---|
| Cros s-section Chi-square Prob. | 0,000 | 0,9528 | 0,000 |

Source: Output Reviews 13 (data processed 2025)

Based on the model significance test shows that the Random Effect Model (REM) is the most appropriate used in estimating panel data in this study than the Common Effect Model (CEM) or Fixed Effect Model (FEM).

### 4.3 Classical Assumption Test

The normalcy test and multicollinearity are components of the traditional assumption test. Because the panel data is cross-sectional, and autocorrelation only happens in time series data, the autocorrelation test is not necessary in the panel data (Basuki, 2016). Additionally, the normalcy test is not required because it is not a requirement.

**Table 4. Classical Assumption Test**

| Normality Test |
|---|
| 0,355068 |

Source: Output Reviews 13 (data processed 2025)

The probability value of 0.355 > 0.05 that was obtained following the transformation indicates that either the data has a normal distribution, or the assumptions of the data normality test have been satisfied.

### 4.6 Panel Data Regression Analysis

Regression analysis aims to determine the average value of the dependent variable based on the value of the independent variable already known.

**Table 6. Panel Random Effect Model (REM)data regression results**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 6.147841 | 0.848907 | 7.242064 | 0.0000 |
| FDR | -0.651532 | 0.110291 | -5.907378 | 0.0000 |
| CAR | -0.717201 | 0.198415 | -3.614658 | 0.0007 |
| INF | -0.194202 | 0.149131 | -1.302222 | 0.1993 |

Source: Output Reviews 13 (data processed 2025)

Based on the table above, the panel data regression equation is obtained as follows:

**LOG(NPF) = 6,147 – 0,651 LOG(FDR) – 0,717 LOG(CAR) - 0,194 LOG(INF) + *e***

Translating the regression equation, the constant value of 11.359 means that the average value of NPF BUS is 6.147 if CAR, FDR, and inflation are all 0. The car coefficient of -0.717 means that, provided the values of the other independent variables remain constant, a 1% increase in the CAR will result in a -0.717 drop in the NPF of the BUS. With an FDR coefficient of -0.651, the BUS's NPF will fall by -0.651 for every 1% increase in FDR, presuming that the values of the other independent variables remain unchanged. The NPF BUS will fall by -0.194 if inflation rises by 1%, according to the inflation coefficient of -0.194, provided that the values of the other independent variables remain unchanged.

The next step is to test the null hypothesis. If a large sample is taken, then the resulting significance under the null hypothesis can be tested with a two-way Test (significance level = 5%) using the t-test.

The results of partial hypothesis testing (T test) can be concluded that:

1. $H_0$ is accepted and $H_1$ is rejected based on the FDR variable's T-statistic value of -0.651 and the probability (significant) value of 0.000 > 0.05. Given this, it may be concluded that the FDR variable considerably lowers NPF.
2. With a value probability (significance) of 0.007 < 0.05 and a T-statistic value of -0.717, variable CAR rejects $H_0$ and accepts $H_1$. We may conclude that NPF is significantly negatively impacted by the car variable.
3. $H_0$ was accepted while $H_1$ was denied because the inflation variable's T-statistic value was -0.194 and its prob. (significance) value was 0.199 > 0.05. We infer that the NPF is unaffected by partially variable inflation.

### 4.8 Discussion

#### 4.8.1 Effect of Financing Deposit Ratio on Non-Performing Financing

The first hypothesis submission states that the variable financing to deposit ratio (FDR) negatively influences non-performing financing (NPF) in Sharia Commercial Banks. This suggests that a drop in non-performing financing (NPF) will be impacted by an increase in the financing-to-deposit ratio (FDR), or vice versa. In this study, FDR has an adverse effect because of the slowing of third-party funds disbursed, so the NPF becomes small. The slowing of the distribution of funds is due to the principles of prudence applied in Islamic banking in determining prospective debtors who can really keep the credit funds disbursed.

The results of this study are in accordance with the signaling Theory, which states that internal factors such as FDR affect the occurrence of financing defaults reflected in NPF. Thus, FDR is an important factor in mitigating the financing funds being channeled to customers in the precautionary principle so that the incidence of NPF is little or reduced.

Research is consistent with the findings Rosidah (2018) and Yasin (2014) claimed that FDR had a significant detrimental impact on NPF. Based on the study's results, it can be concluded that the Financing to Deposit Ratio (FDR) in Islamic commercial banks has a negative and significant effect on Non-Performing Financing (NPF). This means that NPF tends to decrease as FDR increases, and vice versa. Implementing strict precautionary principles in the distribution of funds by Islamic banks indicates a decrease in NPF along with an increase in FDR. This careful selection process of prospective debtors ensures that financing is channeled to parties who can maintain and return the funds, thus minimizing the risk of default. These findings align with signaling Theory, which suggests that internal factors such as FDR are essential in mitigating the risk of problem financing. Thus, FDR is a key indicator in maintaining the quality of Islamic bank financing assets.

#### 4.8.2 The effect of Capital Adequacy Ratio on Non-Performing Financing

The second hypothesis's contribution demonstrates that non-performing financing (NPF) is negatively impacted by the variable capital adequacy ratio (CAR), indicating that changes in CAR will significantly affect changes in NPF for Islamic commercial banks. A low RWA rating may also mean little risk is associated with financing. According to the CAR ratio, Islamic banks' capital must be sufficient to cover all the risks to their operations, including the possibility of losses from troublesome financing.

This perspective is consistent with the results of research that emphasizes the role of Regulatory Capital Theory in influencing bank behavior. Regulatory requirements mandate a minimum CAR rate to ensure banks have sufficient capital to absorb unexpected losses, including those arising from NPFS. Banks operating close to regulatory minimums may be more sensitive to increased NPFS and take more proactive measures to manage credit risk. Conversely, a bank with a much higher CAR may have more flexibility.

The results align with research Retnowati and Jayanto (2020) that claims that the variable CAR has a substantial detrimental impact on NPF. Based on the study's results, the Capital Adequacy Ratio (CAR) has a significant negative effect on Non-Performing Financing (NPF) in Islamic commercial banks. This means an increase or decrease in CAR will significantly impact a reduction or increase in NPF. The low value of Risk-Weighted Assets (RWA) indicates a low financing risk, confirming that the capital of Islamic banks, measured by CAR, must be sufficient to cover all business risks, including losses due to problematic financing. This finding is in line with the signaling Theory, which shows that internal factors such as CAR affect financing defaults reflected in NPFS, so CAR is crucial in mitigating Islamic bank risk. This perspective is supported by Regulatory Capital Theory, where the regulatory requirements of the CAR ensure banks have enough capital to absorb unexpected losses from NPFS.

**4.8.3 Effect of Inflation on Non-Performing Financing**

According to the third hypothesis, non-performing financing (NPF) in Islamic commercial banks is unaffected by variable inflation. This demonstrates that the significance of the NPF level is unaffected by changes in the inflation %. Since inflation fluctuates and tends to decline during the research period, the cause of inflation has little effect on the NPF. In 2021, inflation was 1.87% and then rose in 2022 by 5.51% and again decreased significantly in 2023 by 2.61%. In other words, the change in the percentage of declining inflation does not cause an increase in prices that have an impact on people's purchasing power that falls and does not cause pressure on debtors in the smooth payment of financing installments, and also increases or decreases in the inflation rate in this study is still maintained below 10% or known as moderate inflation (one-digit inflation). Thus, it can be said that an increase or decrease in NPF levels is not significantly impacted by changes in inflation during this research year.

Although signal theory often explains how internal bank information affects market perception and financial performance, in the context of inflation and non-performing Financing (NPF) in Islamic commercial banks, this relationship is not always direct or significant. This can happen for several reasons. First, Islamic banks generally have a different product structure than conventional banks, where risk is shared between the bank and the customer through a profit-sharing or buying and selling scheme (Murabaha, musyarakah, mudarabah). In conditions of inflation, the impact may be more evenly distributed or absorbed through the adjustment of asset values in certain financing schemes, so it does not directly and significantly trigger an increase in NPF. Second, Islamic commercial banks may have strong internal mechanisms and risk management policies to manage the impact of inflation, such as profit margin adjustments, more conservative asset valuations, or proactive risk mitigation strategies. Third, the market may not always interpret inflation as a negative signal that affects the quality of financing, especially if it is moderate or offset by stable economic growth. Therefore, the signals sent by inflation may not be strong enough to materially affect the NPF, especially if the bank's internal factors and overall market conditions predominate in determining the NPF rate.

However, this inquiry's results align with research Prastyo and Anwar (2021) that states that variable inflation does not affect the NPF. Based on the results of the above study, inflation does not significantly affect Non-Performing Financing (NPF) in Islamic commercial banks. This is due to inflation fluctuations that tend to decrease and are below 10% (moderate inflation) during the study period (2021-2023), so they do not cause a decrease in people's purchasing power or installment payment pressure for debtors. Although signal theory often links internal bank information to financial performance, the relationship between inflation and NPF in Islamic banks is not always direct. This is due to the risk-sharing structure of Islamic bank products, strong internal risk management mechanisms, and the possibility that the market may not interpret moderate inflation as a significant negative signal to the quality of financing. In other words, internal bank factors and overall market conditions tend to be more dominant in determining the NPF rate.

## 5. Conclusion

This study aims to empirically analyze the effect of Financing to Deposit Ratio (FDR), Capital Adequacy Ratio (CAR), and inflation on the level of Non-Performing Financing (NPF) in Islamic commercial banks in Indonesia during the period 2019-2023. Specifically, this study wanted to identify whether the three independent variables, either partially or simultaneously, significantly relate to the rise and fall of problematic financing faced by Islamic commercial banks.

According to the findings of a study and analysis on the impact of both internal and external factors on NPF in Indonesian Sharia commercial banks from 2019 to 2023, the FDR and CAR variables significantly negatively impact NPF to some extent. This means that if the FDR and CAR variables rise, the NPF variable will fall, and vice versa. The NPF variable is unaffected by the inflation variable; hence, a change in the inflation variable will not have an impact on the NPF variable. Inflation, FDR, and CAR all have no effect on the NPF at the same time, indicating that factors other than the CAR variable also affect the NPF variable.

It is recommended that banks maintain FDR at optimal levels to ensure sufficient liquidity while encouraging productive financing disbursement, without creating excess pressure on asset quality. The CAR upgrade is also crucial, as stronger capital provides a greater cushion to absorb potential losses from troubled financing, thereby strengthening the overall resilience of banks. Although inflation is not proven to have a direct effect on NPF in this period, Islamic commercial banks must maintain a proactive risk management policy against macroeconomic fluctuations, including inflation, through sensitivity analysis and stress scenarios to identify potential hidden risks that may arise in the future.

This study includes drawbacks, such as a limited sample size, a brief observation time, and a lack of broad use, according to the explanation of the data analysis results. To produce more accurate research results and identify the elements generating problematic financing that occurs in Indonesian Sharia commercial banks, future research is recommended to prolong the study time and include additional variables not included in this study.

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