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INTERCONNECTION OF INFLATION, BI RATE, AND EXCHANGE RATE ON MUDHARABAH AND MURABAHAH FINANCING

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ABSTRACT

The purpose of this study is to analyze the relationship between inflation, BI interest rates, and exchange rates on Mudharabah and Murabahah financing at Sharia Commercial Banks. This research is a quantitative study that applies the Johansen Integration Test and Vector Error Correction Model to see the long-term impact and shock response on certain variables. Research findings show that the exchange rate has a significant negative impact in the short term on Mudharabah financing income, while inflation factors and BI interest rates have a smaller negative impact in the short term. The receipt of Murabahah financing is negatively affected by all factors, especially inflation, BI interest rates, and currency exchange rates. Inflation and exchange rates have a significant negative impact in the long run on Mudharabah and Murabahah financing income, while BI interest rates have a small positive impact in the long run. Recommendations based on the results of this study are the importance of maintaining exchange rate stability and controlling inflation, as well as the need for effective risk management in the face of exchange rate fluctuations and inflation. In addition, Islamic banks need to improve operational efficiency, educate customers about economic risks, and encourage collaboration between relevant institutions for further research and better policy development.

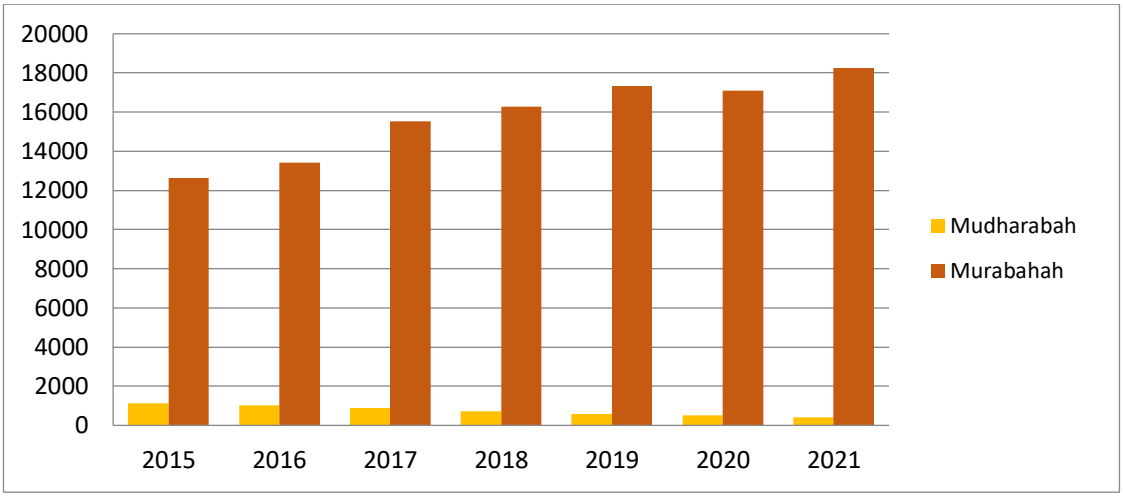
INTRODUCTION

Bank revenue is influenced by factors that management can control such as business segmentation, revenue control, and cost control. In addition, a bank's performance may be affected by external factors, such as economic conditions and

competition in its operating areas (Kaur & Gupta, 2023; Mabkhot & Al-Wesabi, 2022; Twum et al., 2021) The presence of Islamic banks contributes positively and encourages healthy competition by offering a variety of products tailored to the needs of the community. Islamic institutions often use murabahah and mudharabah financing(Diallo et al., 2015; Ibrahim & Kahf, 2020; Laila et al., 2019; Mutamimah & Saputri, 2023).

Mudharabah financing is essential for the preservation of community benefits. Individuals or entities with excess funds can invest in reputable parties to manage these funds, whereas entrepreneurs who need capital can seek help from those with excess funds (Diallo et al., 2015; Doktoralina &; Nisha, 2020; Hanim Kamil et al., 2010; Ibrahim &; Kahf, 2020; Kaur & Gupta, 2023; Latiff & Halid, 2012). These arrangements promote economic activity, job creation, and unemployment reduction by mobilizing resources in the real economy. Murabahah financing requires a sales agreement between the bank and the client. The bank acquires the products that customers want and resells them at a higher price, representing the bank's profit. The specific profit quantity has been predetermined and mutually agreed.

Graph 1. Mudharabah Financing Income and Murabahah Financing Income from 2015 to 2021.

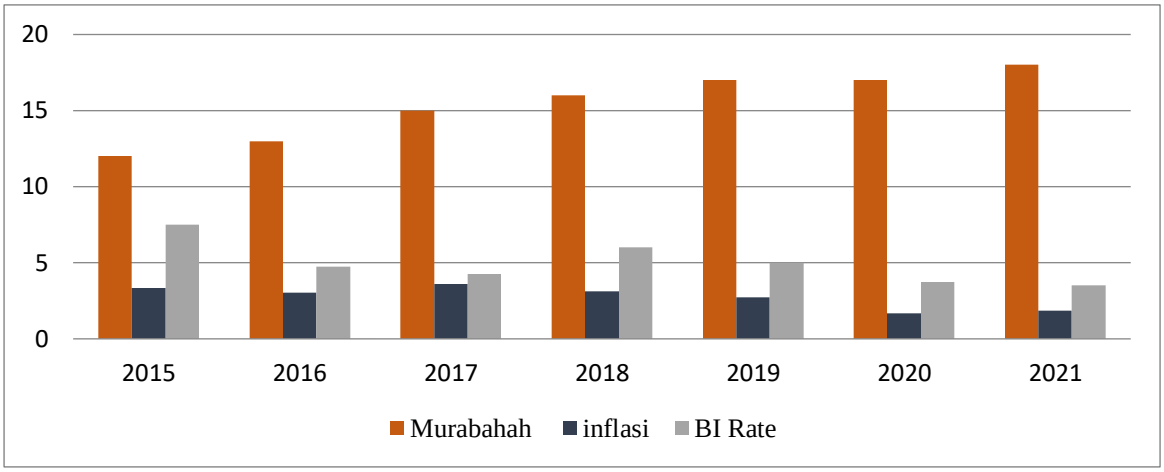


The graph shows that murabahah financing is preferred over mudharabah financing. The table shows the decline in mudharabah financing income from 2015 to 2019 and 2021, while murabahah financing income increased. The way in which conventional banks and Islamic banks make profits is an important difference between the two. Islamic banks use a profit-sharing system, while conventional banks rely on an interest system. However, in practice, products with high public demand are financed through murabahah contracts. This raises questions about the role of Islamic banks as intermediaries, given that their activities largely revolve around buying and selling financing.

This development can be attributed to two factors. First, from the supply side of Islamic institutions, murabahah financing is seen as less risky than profit-sharing financing

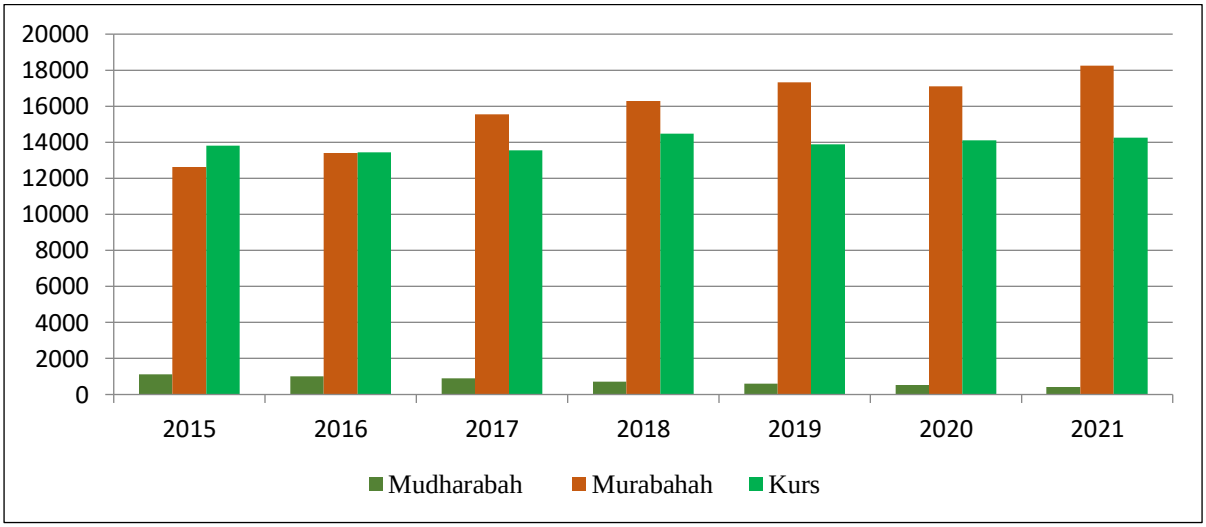
because of its short-term investment mechanism and guaranteed profits. Second, from the customer's perspective, murabahah financing can be tailored to immediate needs, such as the launch of a business or the acquisition of assets such as buildings for an existing business.

Graph 2. Developments in Financing Income, Inflation and BI Rate



The value of JUB (Money Supply, or money supply) can increase when banks set modest profit margins, leading to increased demand for loans. The quantity theory of money states that an increase in the money supply causes inflation. Bank Indonesia (BI) may raise interest rates in response to high inflation to reduce excessive money circulation in the public. Nevertheless, the graph reveals contradictory trajectories. In 2019, income from murabahah financing increased compared to the previous year, while inflation and the BI Rate decreased. This deviation from the predicted outcome calls into question the current quantity theory of money.

Graph 3. Income from Mudharabah, Murabahah and Exchange Rates



The provision of financing by banks plays an important role in driving national development (Abduh &; Azmi Omar, 2012; Abedifar et al., 2016; Kismawadi, 2023), as it supports business growth and overall economic expansion. In addition, the movement of monetary variables has a considerable impact on public financing activities. Because they serve the capital and consumption needs of the real sector, financing activities play an important role in driving economic growth. Nevertheless, the impact of monetary stability can be felt in financing activities. Therefore, it is crucial to understand the extent to which financial volatility impacts financing at Islamic Commercial Banks (ICBs).

There is a dearth of research that examines the interdependence and dynamic relationship between inflation, the central bank's benchmark interest rate (Bi Rate), and exchange rates, as well as their effect on Mudharabah and Murabahah financing in the context of Islamic banking. First, it is necessary to investigate how changes in the inflation rate influence Islamic banks' Mudharabah and Murabaha financing activities. Understanding the effect of inflation on these financing mechanisms is essential for banks in managing risk, pricing products, and assuring the viability of their operations. Second, the influence of the Bi Rate on Mudharabah and Murabahah financing must be investigated further. The BI Rate is the primary instrument that central banks use to control inflation and stabilise the economy. Understanding how changes in the BI Rate influence the cost and availability of Mudharabah and Murabahah financing can shed light on the transmission mechanisms of monetary policy in the Islamic banking sector.

The relationship between exchange rates and the financing of Mudharabah and Murabaha is also worthy of consideration. Changes in exchange rates can have a significant impact on the profitability and risk exposure of Islamic institutions engaged in international trade or financing. Examining the relationship between exchange rates and Mudharabah and Murabahah financing can shed light on the dynamics of these financing instruments in the global economic environment.

This study seeks to cover the literature gap on the relationship between bank financing policy, monetary stability, and the expansion of the Islamic banking sector in Indonesia. Although Islamic banks play an important role in economic development and financial system stability, several studies have examined the impact of bank financing policies on monetary stability and the expansion of the Islamic banking industry. Therefore, this study contributes by analyzing the effect of bank financing policy on monetary stability, the performance of the Islamic banking sector, and overall economic development.

This study is also unique in that it compares murabahah financing and mudharabah financing in the Islamic banking sector. In practice, murabahah financing is more popular with the public, while mudharabah financing sometimes experiences a decrease in income. This study tries to explain the factors that influence the public's penchant for murabahah financing and its implications for the role of Islamic banks as intermediaries in financing buying and selling activities.

Understanding the relationship between bank financing policies, monetary stability, and the expansion of the Islamic banking sector is of the importance of this study. Economic stability and a strong Islamic financial sector have a significant impact on public welfare, economic growth, and quality of life in Indonesia. This research can assist governments, regulators, and financial institutions in maintaining financial system stability and promoting inclusive economic growth by explaining the factors influencing bank financing policy and their effects on monetary stability and development of the Islamic banking sector.

Islamic banking in Indonesia is intriguing for a number of reasons. First, the industry has encountered substantial expansion in recent years. This demonstrates a substantial and desirable market potential for financial industry participants. In addition, Islamic bank financing promotes financial inclusion by making conventional financial institutions accessible to previously inaccessible groups. Second, Islamic bank financing is founded on Islamic finance principles, such as equity, sustainability, and corporate ethics. It attracts individuals who wish to conduct financial transactions in accordance with their religious and ethical values. In addition, Islamic bank financing may have positive social and economic effects. This sector can contribute to inclusive economic growth, a more equitable redistribution of prosperity, and an improvement in people's quality of life. In addition, the significance of Islamic bank financing is tied to government regulations and policies that foster its growth. The government of Indonesia has implemented measures to foster the growth of the Islamic banking sector.

Governments and regulators can design policies that promote the growth of the Islamic banking sector if they have a deeper comprehension of the factors influencing banking financing policies. This could involve providing Islamic banks with incentives and institutional support, as well as establishing an adequate financial infrastructure to facilitate the sector's development.

In addition, financial institutions can use these findings to devise products and services that meet the needs and preferences of their customers. By comprehending the impact of Islamic bank financing on economic growth, quality of life, and well-being, financial institutions can maximize their contribution to the development of an inclusive and sustainable financial ecosystem.

This research can help the general public comprehend the advantages and potential of Islamic bank financing in promoting inclusive economic growth. People can recognize that the adoption of Islamic financial principles not only has religious significance, but also has the potential to improve their economic and social well-being.

This study seeks to provide a solid knowledge base for all stakeholders involved in the development of the Islamic banking sector and inclusive economic growth. By understanding the factors influencing banking financing policies and their impact on monetary stability, economic growth, quality of life, and well-being, strategic measures can be taken to promote the sustainable growth of the Islamic banking sector and positively affect society as a whole.

This research contributes to a greater understanding of the factors influencing people's propensity for murabahah and mudharabah financing in the Islamic banking sector. By analyzing the revenue growth of the two financing categories, this study can explain public preferences for Islamic bank financing products. In addition, the study analyzes the relationship between bank financing, inflation, and interest rates to provide a greater understanding of the mechanisms affecting bank financing policy and monetary stability.

This study fills a void in the literature by examining the relationship between inflation, Bi Rate, and exchange rate on Mudharabah and Murabahah financing in the context of Islamic banking. By examining the dynamic relationship between these variables and their effect on Islamic bank financing, this study aims to contribute to a greater understanding of the factors influencing banking financing policies and their effects on monetary stability, the performance of the Islamic banking sector, and overall economic development in Indonesia. In addition, this research contrasts the popularity and income variations of Murabahah financing and Mudharabah financing, shedding light on the preferences of the public and their implications for Islamic banks. This study's findings will aid policymakers, regulators, financial institutions, and the general public in promoting the stability of the financial system and inclusive economic growth.

This research is expected to contribute significantly to the understanding of the relationship between bank financing policy, monetary stability, and the expansion of the Islamic banking sector in Indonesia. This research can provide guidance for financial institutions, regulators, and governments in developing policies that support financial system stability and inclusive economic growth by filling existing research gaps and revealing factors influencing people's preferences towards murabahah financing and mudharabah financing. Thus, it is anticipated that this study will provide a better understanding of the dynamics of the Islamic banking sector and serve as a foundation for appropriate decision-making aimed at improving the stability and performance of the entire financial sector.

The remaining sections of this investigation are as follows. Section 2 examines the relevant literature and formulates our hypotheses. The strategies utilized to conduct the research are described in Section 3. Section 4 reports and discusses the results, and Section 5 ends the study.

LITERATURE REVIEW

Mudharabah Financing and Murabahah Financing are two types of financing used in the Islamic financial system. Both are part of financing instruments commonly used by Islamic commercial banks in Indonesia and other countries that apply Islamic economic principles.

Mudharabah Financing

Mudharabah Financing is one form of financing used in Islamic banking. In Mudharabah Financing (Muhammad &; Nugraheni, 2021; Mutamimah &; Saputri, 2023), there are two parties involved, namely fund owners (shahibul mal) and entrepreneurs (mudharib). The owner of the fund provides capital that will be used to finance a particular business or project, while the entrepreneur is responsible for managing the business. At the beginning of the agreement, both parties will agree on the sharing of profits that will result from the venture. Usually, profit sharing is done based on a pre-agreed percentage. Fund owners as investors will get a portion of the profits generated, while entrepreneurs will get other parts in return for work and management.

In addition to profit sharing, in Mudharabah Financing there is also loss sharing. If the business experiences a loss, the fund owner as an investor will bear the loss in accordance with the proportion of capital provided (Ajmi et al., 2019; Ben Jedidia, 2020; Islam &; Ahmad, 2020; Suliyono &; Risfandy, 2021). The entrepreneur as a mudharib is not financially responsible for these losses, but he is still responsible for running the business as well as possible. An example of using Mudharabah Financing is when an entrepreneur wants to start a new business, but lacks capital. He can find fund owners who are willing to provide capital in the form of Mudharabah Financing. The entrepreneur is responsible for managing the business, while the owner of the fund as an investor provides the necessary capital. The profits generated from the venture will then be divided according to the initial agreement.

For example, an entrepreneur applies for Mudharabah financing worth Rp 100 million to a fund owner. They agreed to share the profits from the business in a ratio of 60% for fund owners and 40% for entrepreneurs. After a certain period, if the business generates a profit of Rp 50 million, then the fund owner will receive Rp 30 million (60% of Rp 50 million) and the entrepreneur will receive Rp 20 million (40% of Rp 50 million). However, if the business experiences a loss of Rp 20 million, the fund owner as an investor will bear all losses in accordance with the proportion of capital provided, which is Rp 12 million (60% of Rp 20 million). Entrepreneurs as mudharibs do not need to return or bear these losses financially.

Mudharabah Financing provides an opportunity for entrepreneurs to get the required capital without having to pay interest or take conventional loans (Alwi et al., 2020; El Fakir et al., 2023). Meanwhile, fund owners as investors have the potential to get profits in accordance with the success of the business managed by entrepreneurs. In addition, Mudharabah Financing also encourages participation and cooperation between fund owners and entrepreneurs in developing profitable projects or businesses. In Mudharabah Financing, fund owners can have the option to be actively or passively involved in business management. If the owner of the fund wants to be actively involved, he can act as an entrepreneur partner in making strategic decisions and monitoring business development. However, if the owner of the fund wants to be passively involved,

he only serves as a provider of capital and entrusts the management of the business entirely to the entrepreneur.

The share of risk between the owner of the fund and the entrepreneur. The owner of the fund not only benefits from a successful business, but must also be willing to bear losses if the business fails. In addition, Mudharabah Financing can also encourage entrepreneurship and economic growth, because it provides opportunities for entrepreneurs to obtain capital that is difficult to obtain through conventional sources (Alwi et al., 2020; Ben Amar &; O. El Alaoui, 2023; El Fakir et al., 2023; Islam &; Ahmad, 2020).

Murabahah Financing

Murabahah Financing is one of the financing methods commonly used in Islamic banking (Minhat &; Dzolkarnaini, 2016; Smolo &; Kabir Hassan, 2011; Yanikkaya et al., 2018). The basic principle of Murabahah Financing is buying and selling transactions with profits that are disclosed transparently. The bank as a financing provider acts as a seller, while the customer as a borrower acts as a buyer. (Antara et al., 2017; Hidayah et al., 2022; H.-J. Kim &; Hudayana, 2022) The Murabahah Financing process begins when a customer applies for financing to a bank to purchase certain goods or assets, such as cars, houses, or business equipment. After approving the financing application, the bank will purchase the goods at the price agreed between the bank and the customer. This agreed price includes the cost of goods plus the previously disclosed profit margin.

After the bank buys the goods, the bank then resells the goods to customers at a higher price. This selling price includes the cost of goods plus the previously disclosed profit margin. The customer will repay the financing to the bank in the agreed amount within a certain period of time through installment payments. A simple example of Murabahah Financing is when an individual wants to buy a car with financing from an Islamic bank. The bank will buy the car desired by the individual at an agreed price. The bank then resells the car to the individual at a higher price, which includes the bank's profit margin. The individual will repay the financing to the bank through installment payments in accordance with the agreement.

Murabahah Financing has several advantages. First, the transaction is clear and transparent, because the previously disclosed profit and the set selling price are fixed. Second, Murabahah Financing allows customers to obtain desired goods or assets with extended payments or installments. Third, Murabahah Financing does not involve interest or usury, in accordance with Islamic economic principles.

Effect of Inflation on Mudharabah Financing

The effect of inflation on Mudharabah Financing refers to the impact of changes in the general price level of products and services in the economy on the income generated by Mudharabah financing activities (Ajmi et al., 2019; Alwi et al., 2020; Antara et al., 2017). Inflation can affect both directly and indirectly Mudharabah Financing. Over time, inflation

directly erodes the purchasing power of money. As the prices of products and services rise, the real value of the returns generated by the Mudharabah project may decrease. This suggests that income from Mudharabah financing activities may have lower purchasing power than the initial investment.

Inflation can indirectly affect various aspects of the economy, including interest rates, production costs, and consumer behavior (Duffy &; Lunn, 2009; Vuchelen, 2004). These variables can have an indirect effect on the profitability of the Mudharabah company and, by extension, the revenue generated by Mudharabah Financing. For example, inflation can result in rising interest rates, thereby increasing financing costs for the business. This, in turn, can have an impact on the profitability of mudharabah businesses and the income of investors (shahibul mal) and entrepreneurs (mudharib). It is important to note that the impact of inflation on Mudharabah Financing may vary based on specific economic conditions and the nature of the Mudharabah project. A business's capacity to adjust prices or costs can also affect the outcome of inflation's effects on different sectors or industries.

H1: Inflation has a negative influence on Mudharabah Financing

Effect of BI Rate on Mudharabah Financing

The impact of BI Rate on Mudharabah Financing refers to its impact on the revenue and profitability of Mudharabah financing activities. The BI Rate is the benchmark interest rate set by the central bank, Bank Indonesia, and has a direct impact on commercial banks' borrowing costs (Doktoralina &; Nisha, 2020; Maski et al., 2018). When the BI Rate rises, banks may incur higher borrowing costs from the central bank, resulting in modifications to the profit sharing ratio or profit margins for Mudharabah financing clients. This, in turn, can have an impact on the returns (shahibul mal) that investors receive from Mudharabah initiatives. Changes in the BI Rate indirectly impact the overall interest rate environment, affecting market interest rates and making it more expensive for entrepreneurs to finance their initiatives (mudharib). In turn, this can have an impact on the profitability and viability of Mudharabah companies, as well as the revenue generated by Mudharabah Financing (Abbas &; Arizah, 2019; Mohd Jaffar, 2010). For investors, business owners, and financial institutions involved in Mudharabah Financing arrangements to navigate these impacts, close monitoring of the BI Rate, assessing the impact on financing costs and profitability, and making necessary adjustments is essential.

H1: BI rate has a negative influence on Mudharabah Financing

Effect of Exchange Rates on Mudharabah Financing

The exchange rate has a significant impact on Mudharabah Financing because it can affect the income and returns generated by the financing activities. Exchange rates, which represent the value of one currency relative to another, fluctuate in response to economic factors (Abidin &; Haseeb, 2018; Setyowati, 2019; Shah & Rashid, 2019; Solarin

et al., 2018). These fluctuations have the following implications for Mudharabah Financing. First, currency conversion is crucial, as Mudharabah financing often requires transactions in multiple currencies. Changes in exchange rates can have an impact on the conversion of funds, thus affecting the overall profitability of the financing arrangement.

Depreciation of the local currency, for example, can result in lower returns when converted from foreign currency. Second, exchange rate fluctuations have an impact on import and export activities. Due to exchange rate fluctuations, Mudharabah projects that rely on imported products or materials may experience fluctuating costs. A weaker local currency can increase import costs, potentially reducing project profitability, while a stronger local currency can increase profitability by reducing import costs. Lastly, Mudharabah Financing introduces exchange rate risk. When there is a delay between investment and final settlement, investors and entrepreneurs face this risk. Negative exchange rate fluctuations during this timeframe can have an impact on the return and feasibility of the project. To manage the impact of exchange rates, participants should monitor fluctuations closely, assess their impact on costs and revenues, and consider risk management strategies such as hedging. By understanding exchange rate dynamics and their implications, stakeholders can navigate potential headwinds and maximize the profitability of Mudharabah Financing.

H1: Exchange Rate has a negative influence on Mudharabah Financing

Effect of Inflation on Murabahah Financing

The effect of inflation on Murabahah Financing is very significant and can have an impact on the income and profitability of such financing activities. Inflation, which is a general increase in the price of goods and services (Athari &; Bahreini, 2023; Belkhaoui, 2023; Kanapiyanova et al., 2023; Neifar & Gharbi, 2023), may affect Murabahah Financing in several ways. First, inflation can increase the cost of goods and raw materials used in murabahah transactions, potentially reducing profit margins. Second, inflation can require price adjustments in murabahah transactions, affecting profitability for banks and customers. Third, inflation erodes the purchasing power of money, potentially lowering the real returns customers earn. Lastly, inflation can affect consumer behavior and demand for Murabahah financing products as individuals and businesses become more cautious with their spending. An example of the effect of inflation on Murabahah Financing is when a bank offering Murabahah financing for electronic goods has to acquire goods at a higher price due to inflation. This impacts transaction costs and may require adjustments to selling prices, which may affect customer demand. To manage the impact of inflation, banks and customers need to consider pricing strategies, monitor costs, and assess the real returns on Murabahah financing products.

H1: Inflation has a negative influence on Murabahah Financing

Effect of BI Rate Economic on Murabahah Financing

The BI Rate which represents the central bank's benchmark interest rate has a considerable impact on Murabahah Financing (Korkut &; Özgür, 2017; Mohd Yusof et al., 2016). Changes in the BI Rate can have a multiplier effect on income and the dynamics of Murabahah financing activities. First, the BI Rate affects the cost of funds for banks and financial institutions. When the BI Rate rises, borrowing costs increase, which can reduce the profit margins of banks that provide Murabahah financing. As a result of the BI Rate's impact on overall interest rates, customers pursuing Murabahah financing may incur higher borrowing costs. This may affect the affordability and demand for Murabahah financing products. In addition, the BI Rate has implications for investment and economic activity, thus indirectly affecting murabahah financing. An increase in the BI Rate may decrease business and consumer confidence, affect investment decisions and overall demand for Murabahah financing. For example, a higher BI Rate may result in banks adjusting their Murabahah financing margins to reduce increased borrowing costs, potentially affecting customers' ability to repay financing or reducing their demand for the product.

H1:BI Rate has a negative influence on Murabahah Financing

Effect of Exchange Rate on Murabahah Financing

The exchange rate effect on murabahah financing can have an impact in several aspects (Baharin et al., 2021; Jusoh & Khalid, 2013b, 2013a). First, changes in exchange rates can affect the price of goods purchased in murabahah transactions. If the exchange rate of the customer's currency against the bank's currency increases, the price of goods in the customer's currency will tend to rise. Conversely, if the customer's currency exchange rate falls, the price of goods will tend to decrease as well. This means that the amount of financing required by the customer and the amount of profit margin to be paid will also be affected. For example, if the exchange rate of the customer's currency against the bank's currency weakens, the customer needs to apply for greater financing in the customer's currency. In addition, changes in exchange rates can also affect the profit margins set in murabahah transactions. If the exchange rate of the customer's currency against the bank's currency increases, then the profit margin determined in the customer's currency will also tend to increase. Conversely, if the customer's currency exchange rate falls, profit margins will tend to decrease. This means that the customer will have to pay a larger or smaller amount of profit margin to the bank, depending on changes in exchange rates. Therefore, murabahah financing is also related to exchange rate risk, especially if the customer's currency exchange rate is unstable.

H1: Exchange Rates has a negative influence on Murabahah Financing

RESEARCH METHODS

This study uses five variables: inflation, BI rate, Rupiah exchange rate (exchange rate) versus US currency, mudharabah financing income, and murabahah financing income. This type of research uses quantitative methods and utilizes secondary data in

the form of monthly time series data from January 2015 to December 2021. This study utilizes secondary data in the form of time series. This research takes data from the official websites of Bank Indonesia (BI), the Financial Services Authority (OJK), and the Central Statistics Agency (BPS), especially variables related to exchange rates.

This investigation analyzes the financial statements of Islamic banks as its unit of analysis. Monthly data from the official website of the Financial Services Authority (www.ojk.go.id) is used to compile the data. This research utilizes literature research and internet research to obtain data.

The study used the Vector Error Correction Model (VECM), which combines VAR in a finite model (Kassim & Majid, 2009; Khasanah et al., 2021; M. Anwar et al., 2020; S. A. A. Shah et al., 2021). Due to the existence of data forms with non-stationary cointegration data at the level, additional constraints must be imposed. In its specification, VECM uses information limiting cointegration. In addition, to make it easier for authors to perform calculations on each test, "Eviews 9.0" is used to analyze the data collected, and the results are then interpreted.

Data stationary test

The purpose of conducting unit root tests in this study is to determine the stationarity of the observed data. The ADF (Augmented Dickey-Fuller) test will be used as a stationary test. If the statistical value of the ADF test is lower than the critical test value, this indicates that H0 is accepted, implying that the variable contains unit roots and is not stationary. Conversely, if the t-ADF value exceeds the critical test value, it signifies that the data is stationary at a predetermined level of significance. In addition, the probability value at the 5% significance level can also be checked. If unit roots are present, the data is not stationary at the level, thus requiring further analysis at the first difference level.

Another aspect to consider is the optimal lag length test, which helps determine the duration of a variable's response to other variables and eliminates VAR autocorrelation. Lag is used because variables often react with each other over time intervals. If the lag used in the stationarity test is too short, the residue from the regression cannot adequately explain the relationship, and vice versa.

Before proceeding with further analysis, it is very important to test the stability of the VAR (Vector Autoregressive) model. This test ensures that the combination of VAR estimation with error correction models produces valid impulse response functions and variance decomposition results. The stability of the VAR model can be evaluated by examining the modulus value of the research variable. A VAR model is considered stable if the modulus value is within radius 1.

Cointegration testing is another important step, and various tests can be used, such as the Engle-Granger Cointegration Test, the Johansen Cointegration Test, and the Durbin-Watson Cointegration Regression Test. In this study, the Johansen cointegration test was used. If trace statistics exceed critical values, this indicates cointegration, with H0

indicating non-cointegration and H1 indicating cointegration. If no cointegration relationship is found, an unlimited VAR model is used. However, if there is a cointegration between variables, VECM (Vector Error Correction Model) is used.

In this investigation, we estimate two ARDL models. Models 1 and 2 of the ARDL employed in this study can be stated as follows:

$$Mudharabah = \alpha_0 + \alpha_1 INF_t + \alpha_2 BI\ Rate_t + \alpha_2 Exchange\ Rate_t + \in_t \quad (1)$$

$$Murabahah = \alpha_0 + \alpha_1 INF_t + \alpha_2 BI\ Rate_t + \alpha_2 Exchange\ Rate_t + \in_t \quad (2)$$

The following is the error-correction representation for the ARDL models used in this study:

$$\Delta\ in\ Mudharabah = \alpha_0 + \sum_{j=1}^{k1} b_j \Delta \ln Mudharabab_{t-j} + \sum_{j=0}^{k2} c_j \Delta \ln INF_{t-j} + \sum_{j=0}^{k3} e_j \Delta \ln BI\ Rate_{t-j} + \sum_{j=0}^{k4} f_j \Delta\ Exchange\ Rate_{t-j} + n_1 \ln Mudharbah_{t-j} + n_2 \ln INF_{t-j} + n_3 ln\ BI\ Rate_{t-j} + n_4 \ln Exchange\ Rate_{t-j} + \in_t \quad (3)$$

$$\Delta\ in\ Murabahah = \alpha_0 + \sum_{j=1}^{k1} b_j \Delta \ln Mudharabab_{t-j} + \sum_{j=0}^{k2} c_j \Delta \ln INF_{t-j} + \sum_{j=0}^{k3} e_j \Delta \ln BI\ Rate_{t-j} + \sum_{j=0}^{k4} f_j \Delta\ Exchange\ Rate_{t-j} + n_1 \ln Mudharbah_{t-j} + n_2 \ln INF_{t-j} + n_3 ln\ BI\ Rate_{t-j} + n_4 \ln Exchange\ Rate_{t-j} + \in_t$$

VECM estimation is performed when time series data have a proven cointegration relationship and rest at differences in degree. If the data is stationary at the level, a VAR model is used, and a cointegration test is not required. VECM estimation helps determine the short- and long-term effects of the dependent variable on the independent variable.

The Impulse Response (IRF) function is used to understand how each variable responds to changes or shocks that occur in other variables in the system. It provides insight into the behavior of variables by measuring their response to a single standard deviation shock in the system.

Furthermore, variance decomposition (VD) analysis in this model is used to predict the percentage of contribution between variables. It complements IRF analysis by explaining the impact of shocks from one variable on another, highlighting the relative importance of each variable in the VAR model and the strength of their composition in variance decomposition analysis.

RESULTS AND DISCUSSION

The unit-root test is the initial stage in testing. According to the results of the data stationarity test (root-unit test) for the five variables, not all variables are stationary at the level. Only the exchange rate variable is stationary at the level because the ADF t-statistic value is greater than the t-critical value of 5% and the probability is less than 5%, whereas the ADF t-statistic value is smaller than the t-critical value at the 1%, 5%, and 10 levels for

inflation, the BI Rate, mudharabah, and murabahah respectively. The four variables in this analysis are therefore not stationary at the same level.

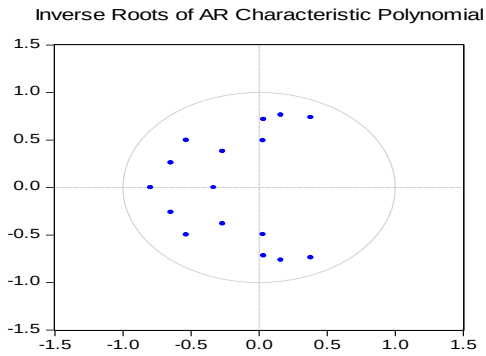
Table 1. Unit Root Test Results at Level

Variable	ADF *test statistic*	Test Critical Values			Prob.	Information
		1%	5%	10%		
Inflation	-2.169499	-3.511262	-2.896779	-2.585626	0.2189	Not Stationary
BI Rate	-1.526507	-3.513344	-2.897678	-2.586103	0.5153	Not Stationary
Exchange rate	-3.328789	-3.511262	-2.896779	-2.585626	0.0166	Stationary
Mudharabah	-1.378037	-3.524233	-2.902358	-2.588587	0.5884	Not Stationary
Murabahah	-1.180125	-3.524233	-2.902358	-2.588587	0.6789	Not Stationary

The next step in its processing is to make non-stationary data stationary. Differentiation is how this is achieved. According to the results of the data stationarity test (root unit), the inflation variable, the BI Rate, the exchange rate, the Mudharabah, and the Murabahah are all considered to be stationary changes in the variables at the second difference level.

The VAR Stability Test is the second stage. A VAR system is considered stable (stationary) if all of its roots have a modulus of less than 1 and are all contained within the unit circle.

Model I (Mudharabah)



Model II (Murabahah)

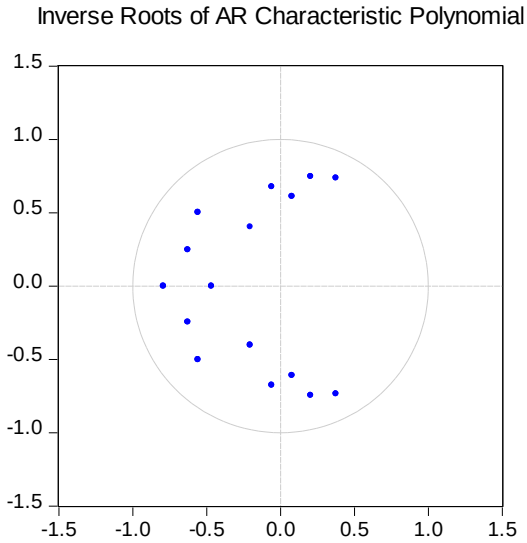


Table 2. Results of Unit Root Test on Second Difference

Variable	ADF Test statistic	Test Critical Values			Prob.	Information
		1%	5%	10%		
Inflation	-9.307659	-3.515536	-2.898623	-2.586605	0.0000	Stationary
BI Rate	-15.39551	-3.513344	-2.897678	-2.586103	0.0001	Stationary
Exchange rate	-8.558606	-3.517847	-2.899619	-2.587134	0.0000	Stationary
Mudharabah	-197.1426	-3.525618	-2.902953	-2.588902	0.0001	Stationary
Murabahah	-141.7881	-3.525618	-2.902953	-2.588902	0.0001	Stationary

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The third step is the cointegration test; the test results are shown in Tables 3 and 4. The results show that the variables used have a long-term relationship between them.

Table 3. Johansen Cointegration Test Results on Model I

Trend assumption: Linear deterministic trend
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**

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None *	0.514733	148.7180	47.85613	0.0000
At most 1 *	0.394882	93.04265	29.79707	0.0000
At most 2 *	0.334568	54.36308	15.49471	0.0000
At most 3 *	0.258215	22.99956	3.841466	0.0000

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

Table 4. Johansen Cointegration Test Results on Model II

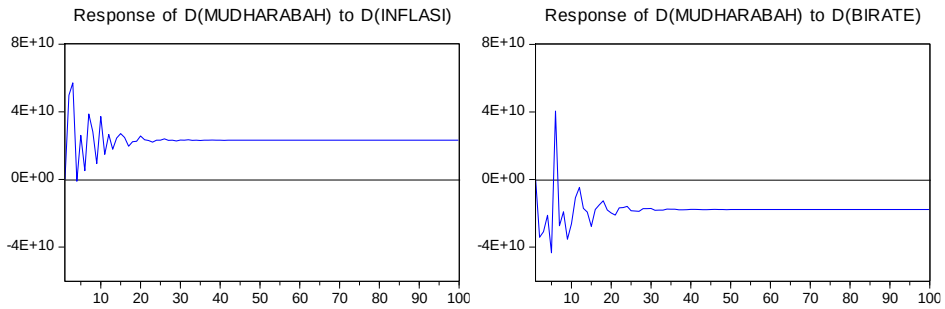
Trend assumption: Linear deterministic trend
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.520277	148.2178	47.85613	0.0000
At most 1 *	0.387640	91.65776	29.79707	0.0000
At most 2 *	0.329588	53.89432	15.49471	0.0000
At most 3 *	0.259229	23.10492	3.841466	0.0000

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

The fourth step is to test the estimated vector error correction model (VECM). The test results are shown in tables 5 and 6 using lag 4. The most important thing is the first column under "D (Mudharabah)". This is a set of parameter estimates that show the long-term relationship between the Mudharabah variable and other variables. To understand the VECM estimation results, the authors use impulse response function (IRF) analysis and variance decomposition. The results of the impulse response function analysis are shown in Figure 1. The first picture shows the mudharabah variable responding positively due to the shock that occurred in the inflation and exchange rate variables, while the shocks given by the BI Rate were responded to negatively by the mudharabah variable. And in the second picture (right), the murabahah variable responds positively due to the shock that occurs in the inflation and exchange rate variables, while murabahah responds negatively to the shock given by the BI Rate.

Figure 1. Impulse Response Function Test Results



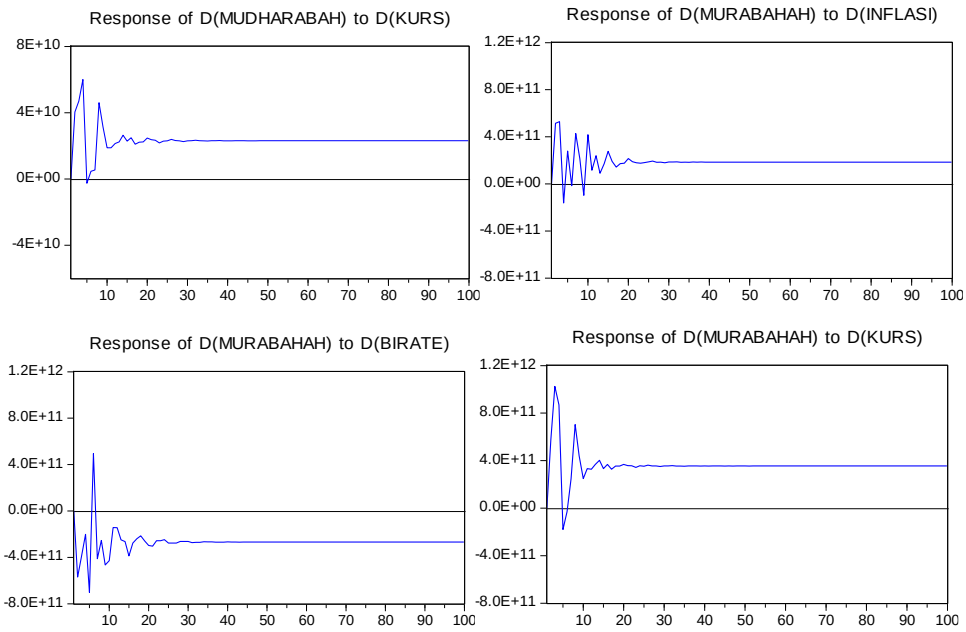


Table 7 depicts the variance decomposition test, which is the final stage. According to the results of variance decomposition, the mudharabah financing income is entirely affected by the variable. Inflation contributes 3.91 percentage points, the exchange rate contributes 2.57 percentage points, and the BI rate contributes 1.80 percentage points as the period elongates. Long-term, the exchange rate has the second-largest impact with 7.93 percent at the end of the period, after inflation (7.89 percent) and the BI rate (5.05 percent). Table 8 also shows the results of the variance decomposition test. The largest contributor to the murabahah variable is the variable itself, as indicated by the variance decomposition results presented above. In the subsequent period, other variables began to have an impact; The exchange rate variable became the second-largest contributor, despite its value continuing to decline to 5.39 % by the end of the period. BI Rate contributed 1.325% to 3.12% at the conclusion of the period, making it the third largest contributor. In addition, inflation contributed 1.07% to 2.31 % in the tenth period, but in the subsequent period, inflation's contribution began to gradually decline to 1.56% by the end of the period.

Table 7. Variance Decomposition of Mudharabah

Period	S.E.	D(MUDHARABAH)	D(INFLASI)	D(BIRATE)	D(KURS)
1	2.40E+11	100.0000	0.000000	0.000000	0.000000
2	2.52E+11	91.66888	3.910554	1.843322	2.577244
3	2.68E+11	83.74216	7.978301	2.945478	5.334061
4	2.86E+11	80.71628	7.030827	3.143654	9.109236
5	3.00E+11	79.69533	7.121206	4.927645	8.255818
95	8.41E+11	79.09627	7.894429	5.070171	7.939132
96	8.45E+11	79.10094	7.894708	5.066126	7.938229

97	8.49E+11	79.10552	7.894982	5.062158	7.937343
98	8.53E+11	79.11001	7.895250	5.058263	7.936473
99	8.57E+11	79.11442	7.895514	5.054441	7.935620
100	8.61E+11	79.11876	7.895773	5.050689	7.934782

Tabel 8. Variance Decomposition Of Murabahah

Period	S.E.	D(MURABAHAH)	D(INFLASI)	D(BIRATE)	D(KURS)
1	4.81E+12	100.0000	0.000000	0.000000	0.000000
2	4.95E+12	96.24210	1.078615	1.325319	1.353963
3	5.20E+12	91.10641	2.011395	1.765101	5.117095
4	5.45E+12	89.15662	1.915792	1.740575	7.187013
5	5.71E+12	88.24431	1.989290	3.103696	6.662706
95	1.59E+13	89.88768	1.568417	3.135966	5.407935
96	1.60E+13	89.89325	1.566845	3.134179	5.405723
97	1.61E+13	89.89872	1.565304	3.132426	5.403553
98	1.61E+13	89.90408	1.563791	3.130705	5.401423
99	1.62E+13	89.90935	1.562306	3.129017	5.399332
100	1.63E+13	89.91451	1.560848	3.127359	5.397280

Effect of Inflation on Mudharabah Financing

In both the short and long run, inflation hurts mudharabah financing. According to the results of the variance decomposition test, inflation is the second order factor that influences mudharabah behavior. In the event of inflation, customers will withdraw funds from Islamic institutions, causing a decrease in third-party funds, as more money is needed for consumption. Attracting Islamic banking deposits during periods of rising inflation will reduce the amount of funds available for financing under these circumstances. And a price increase of 100 percent or more will result in a loss of public confidence in the currency and a tendency to invest in assets or other forms of security. This of course causes people's purchasing power to stop or decrease, and a decrease in the value of the currency can cause them to avoid leaving their money in the bank. causing difficulties in the operation of Islamic institutions, especially in the distribution of funds through mudharabah financing. The findings of this study are consistent with (Bashir et al., 1993; Mansur, 2019; Musa et al., 2022)

The results of the Impulse Response Function Test show that shocks caused by inflation variables are responded positively by the mudharabah, indicating that one standard deviation of rising inflation will increase mudharabah financing income. According to Keynes's theory, when the economy expands and aggregate demand causes inflation, there is a high probability that people will earn more money. In general, inflation caused by economic cycles has a greater impact on income than spending and will ultimately improve bank performance (Adem, 2023; Balakrishnan & Parameswaran, 2023;

Ghosh &; Nath, 2023; H. Kim, 2023; Sümer, 2023). The impact of inflation depends on whether the central bank anticipates inflation or not. If inflation is anticipated, then the interest rates charged can protect against the dangers of inflation.

Economic Analysis of the BI Rate on Mudharabah Financing

The BI Rate has a negative and significant effect on mudharabah financing in the near future. According to the results of the variance decomposition test, the third order influences the behavior of the Mudharabah. Islamic banks do not apply an interest system in their operations, but changes in interest rates can have an impact on Islamic banks. Changes in traditional bank interest rates can affect a person's decision to deposit funds or request a loan.

The BI Rate variable has a positive and insignificant effect on mudharabah in the long run. The rise and fall of interest rates at conventional banks can have an impact on individual investments. To maintain profits, conventional banks have raised their interest rates in response to the BI Rate hike. When interest rates in conventional banks rise, individuals will move to Islamic bank financing. To prevent an increase in problematic financing, the increasing demand for financing must be aligned with a thorough analysis. Changes in interest rates do not have a significant impact on a customer's ability to repay a loan when the bank's management is able to allocate available funds to creditworthy clients. The findings of this investigation are consistent with (Ercan et al., 2021; Hamza &; Saadaoui, 2018; Karim et al., 2017; Musa et al., 2022)

The results of the Impulse Response Test (IRF) show that mudharabah responds negatively to the stimulus that occurs in the BI Rate variable. The rise and fall of interest rates at conventional banks can have an impact on individual investments. To maintain profits, conventional banks have raised their interest rates in response to the BI Rate hike. Islamic banks do not apply an interest system in their operations, but changes in interest rates can have an impact on Islamic banks. Changes in conventional bank interest rates can affect an individual's decision to deposit funds or request financing from a bank, thus affecting mudharabah financing income.

Economic Analysis of Exchange Rates on Mudharabah Financing Income

In both the long and short term, exchange rates have a negative and substantial impact on mudharabah. The results of the variance decomposition test show that the exchange rate has the greatest impact on Mudharabah behavior. The exchange rate is the exchange rate of the country's currency. If the exchange rate decreases, it indicates that the country's currency is becoming less valuable. Exchange rates are external factors that also impact funds from third parties. Currency depreciation reflects uncertain economic conditions, which increases the risk of doing business (Ahmed, 2023; Burdekin &; Nguyen, 2023; Chernov & Creal, 2023; Lee et al., 2023; Sarnstrom & Ryan, 2023). As a result, the

business world will respond hesitantly to entrust its funds to Islamic banks, so that mudharabah financing is problematic. In addition, customer debt dependents will increase in value. This will result in a decrease in mudharabah revenues as a consequence of increased bad financing. The findings of this investigation are consistent with

The results of the Impulse Response Test (IRF) showed that mudaraba showed a positive response to shocks in exchange rate variables. That is, an increase of one standard deviation of the exchange rate will result in an increase in mudharabah financing income. The exchange rate affects the growth of third-party funds of Islamic institutions, including mudharabah. Third-party funds in Islamic banking are sensitive to fluctuations in the rupiah exchange rate. And the increasing trend of third-party funds is in line with the tendency of the rupiah exchange rate against the dollar to strengthen. However, when the rupiah exchange rate declines against the US dollar, it reflects economic stability that reduces the risks associated with its business operations, causing investors who previously invested in the money market to shift their focus to the banking sector. By saving part of the capital, especially mudharabah savings, it is possible to generate funds.

Economic Analysis of Inflation on Murabahah Financing Income

Inflation has a negative and significant effect on murabahah financing both in the short and long term. According to the results of the Variance Decomposition (VD) test, inflation is the third order that affects murabahah behavior. In the event of inflation, third-party funds in Islamic banks will decrease as consumers withdraw money for consumption. Inflation reduces the purchasing power of a currency (falling purchasing power), so more money is needed to buy the same product. Under these conditions, Islamic banking deposits are withdrawn to meet public demand. Costs to households and businesses will increase as inflation increases, which will ultimately reduce the amount of funds available for financing. And a price increase of 100 percent or more will result in a loss of public confidence in the currency and a tendency to invest in assets or other forms of security. The findings of this study are consistent with (Al-Shaghdari et al., 2023; Kamila &; Suhartanto, 2019; Musa et al., 2022; Priyadi et al., 2021)

Based on the results of the Impulse Response Function (IRF) test, it has been determined that murabahah responds positively to the impact that occurs on inflation variables. This implies that an inflation shock of 1 standard deviation will increase murabahah financing income. Keynes believed that aggregate demand causes inflation (Lapavitsas, 2022; Nikensari et al., 2019; Palley, 2018). As the economy expands, the prognosis for income growth becomes more optimistic. This requirement is to increase output and employ a large number of individuals to generate domestic income and expenditure. This process will persist on a large scale and accelerate economic expansion and inflation. In general, inflation caused by economic cycles has a greater impact on revenues than spending and will ultimately improve bank performance. The impact of

inflation depends on whether the central bank anticipates inflation or not. If inflation is anticipated, then the interest rates charged can protect against the dangers of inflation.

BI Rate Economic Analysis of Murabahah Financing Income

The BI Rate has no effect on mudharabah in the short and long term. And according to the results of the variance decomposition test, the BI rate is the second order that affects murabahah behavior. Islamic banking has no laws governing the establishment of murabahah margins. This is because the determination of profit margins for Islamic bank financing is still influenced by conventional factors. Islamic banks use the BI Rate and inflation as the basis for determining profit margins in murabahah financing because there are no provisions governing the determination of profit margins. If Islamic institutions set high margins, the demand for financing will decrease. However, if margins are insufficient, the demand for financing will increase, resulting in a decrease in murabahah financing income. The findings of this study are supported by (Lapavitsas, 2022; Nikensari et al., 2019; Palley, 2018)

Based on the results of the Impulse Response Function test, murabahah responds negatively to the stimulus in the BI Rate variable. The rise and fall of interest rates at conventional banks can have an impact on individual investments. To maintain profits, conventional banks have raised their interest rates in response to the BI Rate hike. Islamic banks do not apply an interest system in their operations (Diaw &; Mbow, 2011; Doktoralina &; Nisha, 2020; Maski et al., 2018; Yusof et al., 2015), but changes in interest rates can have an impact on Islamic banks. Changes in traditional bank interest rates can influence people's decisions regarding whether to place money in a bank or request a loan, which in turn impacts the income generated by murabahah financing.

Economic Analysis of the Exchange Rate on Murabahah Financing Income

The exchange rate does not have a significant impact on murabahah in the short and long term. Murabahah (buying and selling) financing continues to be in demand among the general public. Changes in exchange rates are not felt too strongly by customers because they occur relatively quickly in the short term; Therefore, they do not have a significant impact on the installment of financing payments made by customers because the price of goods is determined based on the agreed market price. Customers can provide the necessary funds to pay their installments on time, and short-term fluctuations in relative exchange rates have no effect on the return on financing provided to customers (Diaw &; Mbow, 2011; Doktoralina &; Nisha, 2020; Maski et al., 2018; Yusof et al., 2015). Based on the results of the Impulse Response Function (IRF) test, it has been determined that murabahah responds positively to the stimulus that occurs in exchange rate variables. This implies that a surprise of 1 standard deviation to the exchange rate will increase murabahah financing income.

The results of the Variance Decomposition (VD) test show that exchange rates have the greatest impact on murabahah behavior. The exchange rate shows the value of one country's currency relative to another country's currency (Amalia et al., 2019; He et al., 2023; Issoufou, 2019; Kotlarz et al., 2023; Luo et al., 2023; Mohd Jaffar & Idris, 2011; Ohene et al., 2023). Banks will be affected by exchange rates. Due to the weakening of the rupiah exchange rate, banks will be exposed to considerable risks. When the rupiah weakens, it will affect the commercial activities of bank customers who rely on imported raw materials. The decrease in income will make it difficult for customers to pay off the financing provided by the bank. As a result of the weakening of the rupiah exchange rate relative to the strengthening of the dollar, more rupiah will be issued in transactions, which will have a direct impact on society and expose consumers to a high level of business risk, thus affecting bank revenues.

CONCLUSION

Short-term analysis reveals that neither inflation nor the BI Rate has a significant impact on mudharabah financing income, while the exchange rate has a substantial negative impact. However, in the short-term analysis, there were no variables that had a significant effect on murabahah financing income. In addition, long-term analysis shows that inflation and exchange rates have a significant negative influence on mudharabah financing income, while the BI Rate has negligible positive effects. Inflation and exchange rates have a significant negative impact on murabahah financing, while the BI Rate has a negligible positive impact.

In impulse response analysis, it can be seen that mudharabah and murabahah financing income respond positively to inflationary shocks, albeit with different timings. Nonetheless, high inflation rates can reduce people's desire to invest. Both financing categories responded negatively to BI Rate fluctuations, while exchange rate fluctuations were met with positive responses. However, the return of equilibrium following inflation, the BI Rate, and exchange rate disruptions is still long. The result of variance decomposition shows that the exchange rate has the greatest impact on mudharabah financing income behavior, followed by inflation and the BI Rate. The exchange rate most influences the behavior of murabahah financing income, followed by the BI Rate and inflation. As a result, the instability of macroeconomic variables (inflation, BI Rate and exchange rate) has a greater impact on mudharabah financing income than murabahah financing income.

We suggest several steps that can be taken by the public, government, and interested parties in relation to mudharabah and murabahah financing in Indonesian sharia commercial banks. To maintain economic stability and increase public interest in financing, the government must first focus on controlling inflation effectively. Second, Bank Indonesia (BI) must consider the function of the BI Rate in determining interest rates in order to stimulate expansion of long-term mudharabah financing. Third, interested

parties, such as Islamic commercial institutions, should pay attention to exchange rate fluctuations and implement effective risk management in managing financing. Fourth, the public should gain a better understanding of the risks and potential impacts of macroeconomic factors on mudharabah and murabahah financing. In order to understand the influence of these macroeconomic factors in depth, it is necessary to conduct additional research and develop a comprehensive analytical methodology. By implementing these recommendations, it is hoped that a more stable environment will be created and Indonesia's mudharabah and murabahah financing will flourish.

These measures can help people cope with economic fluctuations, minimize risks, and maximize the growth potential of Islamic financing. The government should strengthen stable and progressive economic policies while providing Islamic commercial banks with essential support and facilities. Financial institutions and companies, among other interested parties, should be committed to improving risk management and service quality in mudharabah and murabahah financing. Meanwhile, the public must continue to acquire and develop their understanding of Islamic finance, as well as consult with qualified financial experts. With the cooperation of the community, government, and strong interested parties, mudharabah and murabahah financing in Indonesia can develop sustainably and contribute significantly to the country's economy.

This study has several limitations, among others: the analysis conducted only on short-term and long-term perspectives, may not cover the entire dynamics of the relationship between inflation, BI Rate, exchange rate, and Mudharabah and Murabahah financing. In addition, the findings suggest that the influence of macroeconomic variables on Murabahah financing income is not significant in short-term analysis. The study also focused on the Indonesian context, so generalizations to other countries may be limited. Future research can overcome these limitations and provide a more comprehensive understanding of the interaction between macroeconomic variables and Islamic bank financing.

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