The Effect of Inflation, Exchange Rate, and Unemployment on Financing of the Islamic Commercial Bank Sector in Indonesia

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Abstract
MSMEs are one of the main factors in encouraging national economic development, but the MSME sector in Islamic banking has fluctuated from year to year in Indonesia. This study aims to analyze the influence of the macro economy on financing the MSME sector in Islamic banking in Indonesia. This study uses time series data, namely monthly data on the financial statements of Islamic Commercial Banks and data on macroeconomic variables for 2018-2022 in Indonesia. The analysis method used in this research is Autoregressive Distributed Lag (ARDL). The results of this study indicate that this affects the financing of the MSME sector of Islamic Commercial Banks in the short-term inflation. In the long term, inflation affects the financing of the MSME sector of Islamic Commercial Banks. Other variables, namely exchange rates and unemployment, cannot affect the financing of the MSME sector of Islamic Commercial Banks.

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INTRODUCTION

Banks are a source of life that can drive a country's economy, such as creating currency, saving funds, conducting business, and other financial services. Indonesia with the most significant Muslim majority in the world, it is very important to have Islamic banking which has a mission to encourage individual and collective economic development and social progress and avoid interest rates charged at conventional banks (Said & Ali, 2016). The existence of Islamic banking and conventional banking in Indonesia is very complementary to the banking world in advancing the mission, namely regarding the economy of a country. In 2020, Islamic bank financing increased by 9.5% and the total wealth of Islamic finance in 2020 amounted to 1,770.3 trillion, an increase of around 21.48% compared to the previous year's period as reported by financial.bisnis.com.

Theoretically, the principles of Islamic financing business activities include justice (‘adl), balance (tawazun), kemashlahatan (maslakah), universalism (alamiyah), and do not contain gharar, maisir, riba, zhulm, risywah, and other haram objects. In addition, there are various kinds of contracts used in Islamic financing in accordance with the business activities carried out, the types of contracts that are suitable are: Mudharabah, which is a business cooperation contract between two parties where the first party (shahib mal) provides all the capital, while the second party (mudharib) acts as the manager, and the business profits are between them according to the agreement of the parties (Keuangan, 2017).

MSMEs are productive businesses owned by individuals and/or individual business entities that meet the criteria for micro businesses as regulated in Law Number 20 of 2008. Some countries and organizations generally use the category of micro and small businesses (UMK), while others use micro businesses, small and medium enterprises (MSMEs) and Indonesia is also one of the countries that implements MSMEs (Wajebo, 2022).

In most countries, especially developing countries, micro, small and medium enterprises (MSMEs) are the most important businesses or important contributors to job creation and global economic development. Formal and informal MSMEs can contribute up to 50% of national income (GDP), making MSME development a top priority for many governments around the world including Indonesia. However, the biggest obstacle to business development in every country is the lack of access to financing for both investment and working capital. Financing in MSMEs is one of the main tasks of Islamic banking, namely by providing funds to respond to the needs of all business actors. Micro, small and medium enterprises must apply for financing which must be approved through a rational assessment of all components related to the purpose of financing for MSME actors (Dela Cruz et al., 2023).

The Islamic banking industry has achieved tremendous growth in financing every year. The economic situation of developing countries is often fluctuating which in turn always makes banks pay attention to their financing channels, namely when inflation occurs. Because the real value of the currency will fall when there is high inflation and people prefer to speculate with money to buy long-term assets such as land and buildings, which is not good for banks because customers will withdraw money from the bank (Lestari & Rahman, 2020). Inflation,
on the other hand, is a symptom of a general and continuous rise in the prices of goods and services, which occurs due to a large increase in demand compared to the supply of goods in the market. Not only inflation can affect the source of financing in Islamic banking, but there is still the exchange rate. When exchange rate fluctuations occur in a country, it will cause shocks to the economy and greatly impact the activities of Islamic commercial banks in Indonesia. The influence of other variables, namely the unemployment rate on MSME financing in Islamic banking, which is a continuous problem and has increased almost every year. Unemployment in Indonesia in 2023 amounted to 7.99 million and this was due to one of them being limited employment opportunities which were the main cause of the increasing unemployment rate. The Frictional Unemployment Theory states that unemployment occurs because of the gap between the time when a person loses his job and the time when he gets a new job. This theory also states that unemployment can be overcome by increasing the mobility of labor and capital (Sukirno, 2010).

The presence of MSMEs can be said to be able to overcome this problem, based on the Ministry of Cooperatives and MSMEs explaining that MSMEs can help the Indonesian economy by 97% of the total workforce in Indonesia (Putri & Putri, 2023). cannot be separated from the variable exchange rate (kurs), which is the current price level of the exchange of one currency to another, and is used in various transactions, including international trade transactions, banking financing transactions, and raising funds by banks in the form of savings or deposits using foreign currencies (Sitompul, 2021). In determining financing at Islamic commercial banks in Indonesia.

The purpose of this study is to analyze the influence of inflation, exchange rate, and unemployment variables on MSME (Micro, Small, and Medium Enterprises) financing. By understanding the relationship between these macroeconomic factors and access to MSME financing, this study aims to provide deeper insight into how national economic conditions can affect the MSME sector, which is the backbone of the economy. Inflation can affect consumer purchasing power and operational costs, while exchange rate fluctuations can affect the cost of importing raw materials and the competitiveness of MSME products in the international market. Unemployment rates may also reflect broader economic conditions, which may affect the ability of MSMEs to expand and obtain financing. As such, this research is expected to provide recommendations for policymakers and businesses to develop effective strategies to support MSME financing and growth amidst changing economic dynamics.

**RESEARCH METHOD**

This study explains the causal relationship between the dependent and independent variables by testing the hypothesis and using a quantitative approach. The data used in this study are time series secondary data. The data is monthly data derived from the publication of Islamic Banking Statistics from OJK, Bank Indonesia, Central Bureau of Statistics for the period January 2018 to December 2022. Secondary data collection techniques from the official websites of OJK, Bank Indonesia and BPS and the population in this study consisted of...
all Islamic Commercial Banks and Micro, Small and Medium Enterprises in Indonesia registered with the Financial Services Authority. The dependent variable of this study is the financing of the MSME sector in Islamic Banking. Then the independent variables include Inflation, Exchange rate, Unemployment, financing MSMEs. Data analysis in this study uses the Autoregressive Distributed Lag (ARDL) method.

The regression can be written as follows:

\[
\text{Financing MSMEs} = \beta_0 + \beta_1 \text{Inflation}_t + \beta_2 \text{Exchange Rate}_t + \beta_3 \text{Unemployment}_t + e_t
\]

The ARDL model for the equation can be written as follows:

\[
\Delta \text{Financing MSMEs} = \alpha_0 + \sum_{i=1}^{n} \alpha_{i1} \Delta Y_{t-1} + \sum_{i=1}^{n} \alpha_{i2} \Delta \text{Inflation}_{t-1} + \sum_{i=1}^{n} \alpha_{i3} \Delta \text{Exchange Rate}_{t-1} + \sum_{i=1}^{n} \alpha_{i4} \Delta \text{Unemployment}_{t-1} + \theta_1 \text{Y}_{t-1} + \theta_2 \text{Inflation}_{t-1} + \theta_3 \text{Exchange Rate}_{t-1} + \theta_4 \text{Unemployment}_{t-1} + e_t
\]

In the ARDL model to see the long-term relationship between variables in the model, the bound testing cointegration test developed by Pesaran, Shin and Smith is carried out by estimating the general ARDL equation using all independent variables in turn (Widarjono, 2018). This bound testing cointegration test is based on the F Statistical test. The null hypothesis (H0) and alternative hypothesis (Ha) of the Bound Testing Approach cointegration hypothesis test can be written as follows:

\[
\begin{align*}
H_0 &: \theta_1 = \theta_2 = \theta_3 = \theta_4 = 0 \\
H_a &: \theta_1 = \theta_2 = \theta_3 = \theta_4 = 0
\end{align*}
\]

The calculated F-Statistic value will be compared with the critical values shown in the table. The lower bound critical value assumes that the explanatory variables are cointegrated in order zero or I (0). While the upper bound critical value assumes that the explanatory variables are integrated in order one or I (1). In this ARDL model, an adjustment model is also tested to make corrections for short-term imbalances using an error correction model. The error correction model of the previous ARDL equation is as follows:

\[
\Delta \text{Financing MSMEs} = \alpha_0 + \sum_{i=1}^{n} \alpha_{i1} \Delta Y_{t-1} + \sum_{i=1}^{n} \alpha_{i2} \Delta \text{Inflation}_{t-1} + \sum_{i=1}^{n} \alpha_{i3} \Delta \text{Exchange Rate}_{t-1} + \sum_{i=1}^{n} \alpha_{i4} \Delta \text{Unemployment}_{t-1} + \theta_1 \text{Y}_{t-1} + \theta_2 \text{Inflation}_{t-1} + \theta_3 \text{Exchange Rate}_{t-1} + \theta_4 \text{Unemployment}_{t-1} + \theta ECT_{t-1} + u_t
\]

ECT_{t-1} is an error correction variable, namely the error (residual) of the previous period.

**Figure 1**

*Framework of Thought*
Based on the review of previous research, the following hypothesis is obtained:
H1: Inflation has a significant impact on MSME financing in Indonesia.
H2: Exchange rate has a significant effect on MSME financing in Indonesia.
H3: Unemployment has a significant effect on MSME financing in Indonesia.

RESULT AND DISCUSSION

Descriptive Statistical Analysis

This study uses monthly data from the publication of Islamic Banking Statistics from the Financial Services Authority (OJK), Central Bureau of Statistics for the period January 2018 to December 2022. So that the total number of observations is 60 statistical data.

<table>
<thead>
<tr>
<th>Table 1. Descriptive Statistical Analysis Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing MSMEs</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Observation</td>
</tr>
</tbody>
</table>

Source: Data processed with Eviews 12

Based on the descriptive statistics table given in table 1, it can be interpreted the data characteristics for each variable. Variable Y (Financing MSMEs) has an average of 368,592, with a maximum value (maximum) of 491,489 and for a minimum value (minimum) of 280,631 with a total observation of 60 data.

Meanwhile, the X1 variable, namely Inflation, has an average value of 2.81, with a maximum value of 5.91 and a minimum value of 1.32. The X2 variable, namely the Exchange Rate, has an average value of 14,460.00, with a maximum value of 15,737.00 and for a minimum value of 13,413.00 and the last variable is Unemployment with an average value of 0.951, with a maximum value of 1.0625 and for a minimum value of 0.8508 with a total of 60 observations.

Data Stationarity Test

In the next study, the data stationarity test using the unit root test developed by David Dickey and Weyne Fuller, known as the Augmanted DickleyFuller (ADF) Test. If the time series data is not stationary at the level or order 1 (0) then the data can be tested again at the level of first difference or order 1 (1) so that stationary data is obtained. The results of the unit root test with Augmented Dickey Fuller (ADF) can be seen in table 2 below:

Based on Table 2, the Exchange Rate variable is stationary at the level and the Financing, Inflation and Unemployment variables are stationary at the First Difference level. This certainly indicates that there may be direct regression and stationary data at different
orders. Therefore, the analysis used in this study is to use Autoregressive Distributed Lag (ARDL).

### Table 2. Stationarity Test Results (Augmented Dickey Fuller (ADF))

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prob.Level</th>
<th>Description</th>
<th>Prob. 1st difference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing</td>
<td>0.8246</td>
<td>Non-stationary</td>
<td>0.0075</td>
<td>Stationary *</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.9732</td>
<td>Non-stationary</td>
<td>0.0000</td>
<td>Stationary *</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>0.0309</td>
<td>Stationary**</td>
<td>0.0000</td>
<td>Stationary*</td>
</tr>
<tr>
<td>Unemployment</td>
<td>0.5975</td>
<td>Non-stationary</td>
<td>0.0000</td>
<td>Stationary *</td>
</tr>
</tbody>
</table>

Notes: MacKinnon's Criterion * = 1%. ** = 5%. *** = 10%
Source: Data processed with Eviews 12

### Bound Testing Cointegration Test

Based on the results of the bound testing cointegration test can be seen in table 3 below:

### Table 3. Results of bound testing cointegration test

<table>
<thead>
<tr>
<th>Financing of MSME Sector BUS Test Statistik</th>
<th>Value</th>
<th>Significance</th>
<th>l(0)</th>
<th>l(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>10.54578</td>
<td>10%</td>
<td>2.37</td>
<td>3.2</td>
</tr>
<tr>
<td>k</td>
<td>3</td>
<td>5%</td>
<td>2.79</td>
<td>3.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5%</td>
<td>3.15</td>
<td>4.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1%</td>
<td>3.65</td>
<td>4.66</td>
</tr>
</tbody>
</table>

Notes: MacKinnon's Critical Value * = 1%, ** = 5%, *** = 10%
Source: Data processed with Eviews 12

From the results of the cointegration test in table 3 above, it can be seen that the F-Statistic value in the Islamic Commercial Bank (BUS) MSME sector financing equation is 10.54578, which is greater than the upper limit value of l(0) and l(1) with a significance level of 10%. Thus, this shows that there is a long-term relationship between the three determinant variables on the financing of the MSME sector of Islamic Commercial Banks (BUS).

### Classical Assumption Test

Classical assumption testing was conducted in the short-term equation with the following results(Rahmatika, 2023).

a) Normality Test

From the results of the figure above in testing classical assumptions on the effect of inflation, exchange rates and unemployment on MSME financing, the probability result is 0.336902> 0.05. So it can be concluded that the normality test in this study is normally distributed disturbance variables.
b) Autocorrelation Test

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

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>4.724410</th>
<th>Prob. F(2,22)</th>
<th>0.4287</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs*R-squared</td>
<td>13.82073</td>
<td>Prob. Chi-Square(2)</td>
<td>0.1569</td>
</tr>
</tbody>
</table>

Source: Data processed with Eviews 12

Figure 3

Result Autocorrelation Test

Based on the figure 3, the probability value of the Chi-Square LM Test 0.1569 is greater than the significance level of 0.05. So it can be concluded that the regression model between residuals does not have autocorrelation.

c) Heteroscedasticity Test

Heteroscedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>0.420607</th>
<th>Prob. F(21,24)</th>
<th>0.9755</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs*R-squared</td>
<td>12.37504</td>
<td>Prob. Chi-Square(21)</td>
<td>0.9289</td>
</tr>
<tr>
<td>Scaled explained SS</td>
<td>4.934085</td>
<td>Prob. Chi-Square(21)</td>
<td>0.9999</td>
</tr>
</tbody>
</table>

Source: Data processed with Eviews 12

Figure 4

Result Heteroscedasticity Test

In the Breusch-Pagan-Godfrey Test, it can be seen that the prob.chi-square is greater than 0.05 with the results obtained, namely 0.9999> 0.05. So it can be concluded that in this study there is no heteroscedasticity.

Test of ARDL Model Estimation Results (Coefficient of Determination, F Test and T Test) short term and long term

The Adjusted R-Squared value in the figure above states that 70% of the independent variables in this study can explain the dependent variable, namely the effect of inflation,
exchange rates and unemployment on MSME financing, while the remaining 30% is explained by other variables outside of this study. In other words, the value of R-Squared is quite high, which can indicate that the model in this study is good enough to analyze the independent variables on the dependent variable. The numerical value in the parentheses of a particular variable, such as D(Inflation(-5)) indicates the lag variable. Variable X1, namely the inflation variable, has a significant positive effect on MSME financing, at D(Inflation(-5)) and D(Inflation(-6)) which means that a 1% increase in inflation will affect MSME financing by 0.0050% for the next 1 month. Meanwhile, the exchange rate variable (X2) and the unemployment variable (X3) have no significant effect in the short term on MSME financing. Furthermore, the Simultaneous Effect Test (F Test) was conducted (Rohkhayatim & Setiawan, 2022), in the ARDL test results above, it can be seen that the probability is 0.011088. it can be concluded that all independent variables simultaneously have a significant effect on the dependent variable.

Source: Data processed with Eviews 12

Figure 5
ARDL model estimation test results
To find out the results of the influence between the independent variables on the dependent variable, this study also obtained long-term test results as follows.

### Levels Equation

**Case 2: Restricted Constant and No Trend**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(INFLASI)</td>
<td>9075.939</td>
<td>3379.554</td>
<td>2.685543</td>
<td>0.0129</td>
</tr>
<tr>
<td>D(NT)</td>
<td>15600.73</td>
<td>8083.951</td>
<td>1.929840</td>
<td>0.0655</td>
</tr>
<tr>
<td>D(PG)</td>
<td>-23719.91</td>
<td>37001.26</td>
<td>-0.641057</td>
<td>0.5276</td>
</tr>
<tr>
<td>C</td>
<td>2784.370</td>
<td>507.6222</td>
<td>5.485123</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

EC = D(PEMBIAYAAN) - (9075.9394*D(INFLASI) + 15600.7280*D(NT)
-23719.9104*D(PG) + 2784.3702)

**Figure 6**

**ARDL Long-Run Form Results**

From the estimation results in the long term using the ARDL test model, it shows that the Inflation variable has a significant positive effect on MSME financing in the long term. Meanwhile, the exchange rate and unemployment variables have no significant long-term effect on MSME financing.

### The Effect of Inflation on MSME Financing

Inflation can affect the financing of Micro, Small and Medium Enterprises (MSMEs) through various mechanisms that impact on operational costs and access to financing. When inflation increases, prices of raw materials and energy tend to rise, resulting in higher operating costs for MSMEs and lower profit margins. To control inflation, central banks often raise interest rates, which makes borrowing more expensive for MSMEs. In addition, inflation reduces consumer purchasing power as the prices of goods and services increase, so demand for MSME products and services may decrease, leading to lower revenues. Economic uncertainty due to high and volatile inflation also makes lenders more cautious, making MSMEs' access to financing more difficult. While inflation may reduce the real value of long-term debt, banks or financial institutions may raise interest rates to compensate for this reduction in value, which still makes financing costs higher. Finally, increased operating costs and potential declines in revenue create pressure on MSMEs' cash flows, making it difficult for them to meet their short-term financial obligations and obtain financing for investment or expansion. Therefore, it is important for MSMEs to manage inflation risk through appropriate strategies such as cost control, diversification of revenue sources, and better interest rate negotiations with financial institutions.

### The Effect of Exchange Rate on MSME Financing

Exchange rate variables often do not have a significant effect on Micro, Small, and Medium Enterprises (MSMEs) financing and are not in line with the hypothesis built at the same time in Sitompul's research, 2021, because the majority of MSMEs operate within the
domestic market and are not directly involved in international trade. Most MSMEs earn revenue and make purchases in local currency, so exchange rate fluctuations have no direct impact on their daily operations. In addition, MSMEs usually do not have significant exposure to foreign currency-denominated debt, so changes in exchange rates do not affect their debt burden. While some MSMEs are involved in exports or imports, this proportion is relatively small compared to the overall MSME sector. Therefore, the impact of the exchange rate on production costs and revenues for MSMEs as a whole is minimal. While large enterprises and sectors involved in international trade may feel the significant impact of exchange rate fluctuations, for most MSMEs, this variable does not directly affect their financial condition and access to finance.

The Effect of Unemployment on MSME Financing

The unemployment variable may not have a significant effect on MSME (Micro, Small, and Medium Enterprises) financing for several reasons. More dominant external factors such as government policies, availability of funds from financial institutions, and overall macroeconomic conditions have more influence on MSME financing. In addition, MSMEs often rely on informal or private sources of financing, such as personal savings, loans from family, or local investors, so the unemployment rate may not directly affect their access to financing. Lenders are also more focused on the business viability, growth prospects, and risk management of MSMEs than the general state of unemployment. Unemployment may impact MSME financing indirectly through reduced consumer purchasing power, but this impact does not necessarily directly affect MSMEs' ability to obtain financing. In addition, research results can be influenced by data collection and analysis methods. If the unemployment data is not relevant or specific to a particular MSME context, the results of the analysis may show no significant effect. Finally, financial institutions may have credit policies that are based more on analyzing individual MSMEs' credit, reputation, and credit history, rather than the unemployment rate. While the unemployment rate is an important economic indicator, many other factors more directly affect MSMEs' access to finance.

CONCLUSION

This research discusses the effect of inflation, exchange rates, and unemployment rates on MSME financing in the Islamic banking sector. The results showed that the inflation variable had a significant effect in the short and long term on MSME financing. Meanwhile, the exchange rate and unemployment rate variables do not have a significant effect in both the short and long term. This is because most MSMEs operate domestically so that exchange rate fluctuations do not have a direct impact, while the unemployment rate is more influenced by external factors such as government policies and macroeconomic conditions. For this reason, an inflation risk management strategy for MSMEs and increased financing to the MSME sector are needed so that they can grow and develop and be able to reduce the unemployment rate in Indonesia. This journal is expected to provide recommendations to
policy makers and business actors in developing effective strategies in supporting financing and growth of MSMEs amidst changing economic dynamics.

REFERENCES