Changes In Macroeconomic Factors And Their Implications On Islamic Banking Profitability In Indonesia (A Case Study Of Pt. Bank Muamalat)

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Abstract

Macroeconomic factors are external factors that can affect the profitability of Islamic banking. The macroeconomic factors examined in this study that are suspected to influence profitability are inflation, BI Rate (Bank Indonesia's benchmark interest rate), and the money supply. The research aims to determine macroeconomic factors consisting of; the impact of inflation, BI Rate, and the money supply on Return On Assets. The research object is PT. Bank Muamalat, and secondary data sources include the financial reports of PT. Bank Muamalat, the official website of Bank Indonesia, and the official website of the Central Statistics Agency. This research adopts a quantitative approach with multiple linear regression analysis using the semilog method. The research findings indicate that inflation, BI Rate, and the money supply have a significant influence on profitability. Therefore, it is expected that banks will continuously monitor the profit-sharing ratio and margins offered to customers to prevent a decline in profitability during monetary crises caused by direct inflation and subsequent changes in the money supply affecting the BI Rate.

Keywords : Inflation, BI Rate, Money Supply and Return On Assets
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Introduction

At present the development of the Indonesian banking industry is showing a direction that is increasingly integrated with the regional and international economy and can both support and provide unfavorable impacts. Meanwhile, the development of the national economy continues to move rapidly with increasingly complex challenges. Therefore, policy adjustments in the banking sector are carried out in stages according to the needs and economic conditions at that time so that it is expected to improve and strengthen the national economy (Ayuning & Purwanti, 2020). From an economic point of view, commercial banks act as the heart of the country's economy. The role of Islamic banking in economic activities is not much different from conventional banking (Chowdhury et al., 2018). The role and function of Islamic banking is very important in the development of Islamic banks in Indonesia, it is necessary to improve the performance of Islamic banks in order to create banking with sound Islamic principles (Chowdhury & Rasid, 2017). Profitability is one of the right indicators to measure company performance, because the company's ability to generate profits can be used as a benchmark for company performance (Fuadi & Sugianto, 2022). The level of profitability of Islamic banks in Indonesia is the best in the world as measured by Return On Assets (ROA) (Tanko et al., 2019).

Return On Assets (ROA) is used to measure bank profitability because Bank Indonesia as a banking supervisor prioritizes the value of a bank's profitability as measured by using assets where most of the funds come from public savings funds (Chowdhury & Rasid, 2015). In addition, Return On Assets (ROA) is used to measure a company's effectiveness in generating profits by utilizing its assets (Yunita, 2016).

Table 1. The Return On Asset (ROA) of PT. Bank Muamalat

Year	ROA
2011	1.52
2012	1.54
2013	1.37
2014	0.17
2015	0.20
2016	0.22
2017	0,11
2018	0,08
2019	0,05
2020	0,03
2021	0,02

Source: OJK, 2023

Based on table 1 it can be seen that the Return On Assets (ROA) of PT. Bank Muamalat, Tbk is always below the standard set by Bank Indonesia (BI), which is above 1.215% (Astuti & Kabib, 2021). The greater the ROA of a bank, the greater the level of profit achieved by the bank, and the better the bank's position in terms of asset use (Hong et al., 2013). Conversely, the lower the ROA of a bank, the smaller the level of profit achieved by the bank, and the worse the bank's position in the use of assets (Fuadi & Sugianto, 2022). Factors affecting the profitability of Islamic banks are divided into two categories, namely internal factors and external factors (Purnamasari & Mudakir, 2019). External factors include market domination, money supply, interest rates, inflation, bank size and others (Utami & Sihotang, 2023). The magnitude of the impact of these developments basically comes from external factors, namely the development of the real sector in economic growth, government regulations in the field of law and economics, social and community development, politics and democracy, as well as international influences (Zuhroh, 2022). There are also bank internal factors that directly change the condition of Islamic banking, but changes caused by internal factors are getting bigger due to pressure from external factors (Pramana, 2016). Therefore, this study aims to determine the influence of external factors from a macroeconomic perspective on profitability at Bank Muamalat Tbk. This study uses external factors such as inflation, the BI Rate and the money supply. The following is independent variable data for the 2011-2021 period.

Table 2. Inflation data, BI Rate, and Money Supply (MS)

Year	Inflation (%)	BI Rate (%)	money supply (billions)
2011	3.79	6,58	Rp. 30855982,4
2012	4.3	5,77	Rp. 33780257,33
2013	8.38	6,48	Rp. 41590476,28
2014	8.36	7,54	Rp. 46419561,89

2015	3.35	7,52	Rp. 52294306,04
2016	3.02	6	Rp. 56383735,88
2017	3,61	4,56	Rp. 61.958.557
2018	3,13	5,1	Rp. 66.220.040
2019	2,72	6	Rp. 70.826.470
2020	1,68	4,25	Rp. 78.244.593
2021	1,87	3,52	Rp. 86.187.759,49

Source: Bank Indonesia, 2023

Literature Review

The first external factor is inflation. According to Bank Indonesia, inflation stability is an important factor that can affect a country's economic growth so that it can provide prosperity for people's lives (Prasetya & Thamrin, 2021). Inflation is a factor that can affect bank profitability because financial performance and interest rates can be affected by changes in inflation rates (Winarto et al., 2017). Soetjiati & Mais (2019) states that inflation will have a negative impact on the economy in a country and will reduce people's interest in saving or investing and production activities will decrease. Theoretically, an increase in inflation will cause the real value of savings to decrease because people will use their wealth to meet expenses due to rising prices of goods, this will affect the profitability of Islamic banks (Abaidoo & Anyigba, 2020). This is also supported by research conducted by Astuti & Kabib (2021) which says that inflation has a negative and significant effect on the profitability of Islamic banks. However, empirical facts show that when inflation has decreased from 2019-2020, the profitability proxied by Return On Assets (ROA) of PT. Bank Muamalat Indonesia, Tbk in the same year also experienced a decline.

The second external factor is the BI Rate. The amount of interest rate (BI Rate) is one of the variables for banks to determine the amount of interest rates proposed to the public (Pratiwi et al., 2022). Interest rates affect people's desire and interest to invest their funds in banks through the products offered (Yuliaratih & Artini, 2018). The effect for the bank itself is that the more funds invested by the public will increase the bank's ability to direct these assets as credit, the bank will gain profits (Suzuki & Miah, 2019). Thus, the more credit extended will affect the amount of profit earned by the bank. Theoretically, the BI Rate also influences bank profitability (Narayan et al., 2019). When the BI interest rate rises, it will be followed by an increase in deposit rates which has a direct impact on a decrease in sources of third party funding for Islamic banks (Geriadi & Wiksuana, 2017). The decline in Third Party Funds was due to the transfer of public funds to conventional banks in order to obtain higher interest yields (Salman & Nawaz, 2018). If Third Party Funds in Islamic banks experience a decrease, it will affect the operational activities of Islamic banks in terms of financing and distribution of funds (Anindyaa et al., 2022). If this happens, the profitability of Islamic banks will also decrease, and vice versa (Karim, 2017). This is also supported by research conducted by Yunita (2016) which says that the BI Rate has a negative and significant effect on the profitability (ROA) of Islamic banks. However, empirical facts show that when the BI Rate drops in 2021, the profitability (ROA) of PT. Bank Muamalat Indonesia, Tbk also experienced a decline in the same year.

Another external factor is the money supply. According to Bank Indonesia, the money supply is a very important indicator in formulating monetary policy (Maharani & Budiman, 2023). In this regard, the money supply has always been a concern, both by policy makers in the field of monetary economics, economic observers and society in general (Yanikkaya et al.,

2018). Developments in the money supply reflect economic developments (Ariefudin & Khoirul, 2020). Theoretically, an increase in the money supply causes a decrease in interest rates (Sugiantari & Dana, 2019). This decrease in interest rates indicates that the level of investment has increased. With increasing investment, the demand for financing in Islamic banks will also increase so that the profit (profit) of Islamic banks will also increase (Sutrisno, 2016). This is supported by research conducted by Hajar (2017) which states that the money supply has a positive and significant effect. However, empirical facts show that when the money supply increases from 2013-2021, the profitability (ROA) of PT. Bank Muamalat Indonesia, Tbk in the same year experienced a decline.

Based on the background and framework above, the hypotheses or temporary conjectures in this study are obtained, as follows;

H1: Inflation partially affects Profitability

H2: BI Rate partially affects Profitability

H3: The money supply partially affects profitability

Research Method

The type of research used by researchers is a type of associative research. Associative research is research that looks for relationships between one variable and another. This type of research aims to examine the effect of inflation, the BI Rate and the money supply on profitability (Sugiyono, 2019). This research approach uses a quantitative approach, which is a research method based on the philosophy of positivism, is used to examine certain populations or samples, data collection uses research instruments, data analysis is quantitative/statistical in nature, with stated test objectives. hypothesis (Sugiyono, 2018). The object of the study is PT. Bank Muamalat Tbk. Secondary data is used in this research, which refers to data that is readily available or published by relevant institutions and can be directly utilized by the researcher, such as financial reports. The data sources are obtained from the official website of Bank Indonesia (www.bi.go.id), the Central Statistics Agency (www.bps.go.id), the official website of PT. Bank Muamalat, and other relevant websites, e-books, journals, and printed books.

Table 3. Research Operational Variables

Table	Definition	Indicator	Formula	Scale
Profitability	The company's ability to generate profit (Goel & Sharma, 2016).	-Revenue after Tax - Total Assets	$ROA = \frac{Earning\ After\ Tax}{Total\ Asset}$	Rasio
Inflation	Inflation is a condition in which prices in general continue to rise, and high inflation will result in high production costs (Mufraini et al., 2020).	-Price index Consumer	$INF = \frac{IHK_t - IHK_{t-1}}{IHK_{t-1}} \times 100\%$	Rasio

BI Rate	The BI Rate is the policy interest rate that reflects the stance of monetary policy set by Bank Indonesia and announced to the public (Narayan et al., 2019).	- BI Interest Rate	$SB = \frac{\sum SSBI \text{ selama } 1 \text{ Tahun}}{12}$	
Money Supply	The monetary system's obligations towards the domestic private sector consist of cash (C), demand deposits (D), and quasi-money (T) (Sutrisno, 2016)	- Currency - Giral Money -Quasi Money	$M2 = C + D + T$	Rasio

Results And Discussion

This section contains research findings regarding the analysis of macroeconomic factors on the profitability of PT. Bank Muamalat Indonesia. Before carrying out the regression analysis, it is necessary to test the classical assumptions first, so that the processed sample data can truly represent the population as a whole and can also be used to create an appropriate regression equation model. However, after testing the classical assumptions on all research variables, it turns out that there are 2 tests that are not fulfilled in this classic assumption test, namely the autocorrelation test and the heteroscedasticity test. Therefore, to overcome this problem, researchers use the method of transforming data into natural logarithmic form. So in this test the natural logarithmic equation (Ln) is carried out. Natural logarithmic equations are divided into 2 types, namely semilog and double log (Ardimas & Wardoyo, 2014). In this study, to overcome these problems, researchers used the semilog natural logarithm equation. The semilog model consists of two types of models, namely the log-lin model and the lin-log model. Here the researcher uses the lin-log model, which is a model where the dependent variable (Y) is linear and the independent variable (X) is logarithmic, namely data variables X1 (Inflation) and X3 (Money Supply) are transformed and data X2 and Y are in normal form. The transformation is only carried out on the variables of inflation and the money supply because these variables are considered to have a data range that is too high.

Normality test to determine the distribution of data in the variables used. The normality test used in this study is the Kolmogorov Smirnov non-parametric statistical test.

Table 4. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		11
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	58.87886253
Most Extreme Differences	Absolute	.187
	Positive	.187
	Negative	-.171
Test Statistic		.187
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Table 4 shows that the Asymp. Sig. (2-tailed) of 0.200 <0.05 so it can be concluded that the regression model is feasible to use because it meets the assumptions (data normally distributed). In this study using the Tolerance and VIF methods to test whether the regression model found a correlation between independent variables (independent). If the tolerance value is > 0.100 and VIF < 10.00, it is concluded that there are no symptoms of multicollinearity. If the tolerance value is < 0.100 and VIF > 10.00, it is concluded that there are symptoms of multicollinearity.

Tabel 5. Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	INFL	.556	1.798
	BIR	.431	2.318
	JUB	.439	2.279

a. Dependent Variable: ROA

The test results using the tolerance and VIF methods in the table above, can be interpreted that inflation has a tolerance value of 0.556 and VIF 1.798. The BI Rate has a tolerance value of 0.431 and VIF 2.318. finally, the money supply has a tolerance value of 0.439 and VIF 2.279. From the description above, it can be concluded that data on inflation, the BI Rate, and the money supply are not affected by multicollinearity problems.

The autocorrelation test is used to determine whether there is a correlation between the independent variables in a certain time period with the previous variables. The conditions for the absence of autocorrelation in the regression model are as follows (Umar, 2014):

1. If d is less than dL or greater than (4-dL) then the null hypothesis is rejected which means there is autocorrelation.
2. If d lies between dU and (4-dU), then the null hypothesis is accepted which means there is no autocorrelation.
3. If d lies between dL and dU or between (4-dU) and (4-dL), then it does not produce a definite conclusion.

Table 6. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.433[a]	.187	-.161	70.37370	.942

a. Predictors: (Constant), Money Supply, Bi Rate, Inflation

b. Dependent Variable: Financial performance

Table 6 shows the DW value of 0.942. Meanwhile, from the Durbin Watson table with a significance value of 0.05 and the amount of data (n) is 11 research data and the number of variables (k) = 3, so that the dL value is 0.5948 and the dU is 1.9280. So it can be concluded that dU > d < 4-dU or 1.9280 > 0.942 < 2.072, this means that there is an autocorrelation problem in the regression model. To overcome this problem, the author uses the Semilog method, the Watson Durbin Two-Step Method. This method uses the residual estimated value to obtain ρ information. The method used to find the estimated value of ρ uses the Durbin-Watson method d. The value of ρ is obtained from the 1-dW/2 equation. Where the dW value is obtained from the dW value resulting from multiple linear regression where the variables X1 and X3 have been transformed into Ln functions (Setiawan et al., 2021).

Table 7. Autocorrelation Test after applying the Semilog method

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.914[a]	.835	.764	.31240	1.989

a. Predictors: (Constant), JUB, INFL, BIR

b. Dependent Variable: ROA

Table 7 shows a DW value of 1.989 then a dL value of 0.5948 and a dU value of 1.9280. Thus the value of dU < d < 4-dU or 1.9280 < 1.989 < 2.011 is obtained, which means that there is no autocorrelation problem in the regression model so that it meets the requirements of regression analysis after using the Semilog method.

The heteroscedasticity test aims to test whether in the regression model there is an unequal variance from one residual observation to another. In this study using the heteroscedasticity test with the Glejser test > a = 0.05 (5%), it can be concluded that the regression model does not contain heteroscedasticity.

Table 8. Heteroskedasticity Test

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	8.652	7.549		1.146	.289
	Inflation	-.035	.017	-.275	-2.029	.082
	Bi Rate	.110	.015	.985	7.520	.000
	Circulating Money	1.929E-9	.000	.144	1.100	.308

a. Dependent Variable: ABS_RES

Based on Table 8 the significance value of the inflation variable is 0.082 <0.05. Then the BI Rate variable is 0.000 <0.05 and the money supply variable is 0.308 > 0.05. So it can be

concluded that there is a problem of heteroscedasticity in the regression model because the significance value of the BI Rate and inflation variables is still below 0.05.

Table 9. Heteroskedasticity Test After Applying The Semilog Method

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-20.133	14.404		-1.398	.205
	INFL	.004	.005	.342	.729	.490
	BIR	-.002	.011	-.106	-.229	.826
	JUB	.012	.008	.706	1.571	.160

a. Dependent Variable: ABS_RES

The test results in Table 9 show that the significance value of the inflation variable is 0.490 > 0.05. Then the BI Rate variable is 0.826 > 0.05 and the money supply variable is 0.160 > 0.05. So it can be concluded that there is no heteroscedasticity problem in the regression model after using the Semilog method.

Hypothesis testing consists of partial testing as seen from the acquisition of t-count values. The t test is used to determine the partial effect of each independent variable on the dependent variable.

Tabel 10. Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.560	1.022		4.460	.003
	INFLS	.006	.058	.021	-2.100	.023
	BIR	-.280	.116	-.563	-2.406	.047
	JUB	-4.385E-8	.000	-1.219	-5.258	.001

a. Dependent Variable: ROA

Referring to table 10, the t-count results obtained from the results of SPSS data processing are as follows:

1) The results of the t test show that the inflation variable (X1) obtains a probability value of 0.023 <0.05 and for t-count of -2.100 > 1.85955 t-table obtained from df = n-k, 11-3 = 8, the value of α = 5%. Then for negative values on the t-count results only show influence. So it can be concluded that H0 is rejected and H1 is accepted, which means that inflation has a negative and significant effect on the Return On Assets (ROA) of PT. Bank Muamalat, Tbk.

2) The results of the t test show that the BI Rate variable (X2) obtains a probability value of 0.047 <0.05 and for t-count is -2.406 > 1.85955 t-table (explained in point 1). So it can be concluded that H0 is rejected and H2 is accepted, which means that there is a negative and significant influence between the BI Rate and the Return On Assets (ROA) of PT. Bank Muamalat, Tbk.

3) The results of the t test show that the money supply variable (X3) has a probability value of 0.001 <0.05 and for t count - 5.258 > 1.85955 t table (explained in point 1). So it can be concluded that H0 is rejected and H3 is accepted, which means that there is a negative and

significant influence between the money supply and the Return On Assets (ROA) of PT. BRISyariah, Tbk.

In this study, a multiple linear regression model is developed to investigate the influence of Inflation, BI Rate, and Money Supply as independent variables on Profitability (ROA) at PT. Bank Muamalat, Tbk. The model equation is as follows:

$Y = \alpha + \beta1X1 + \beta2X2 + \beta3X3 + e$

The following are the results of the multiple linear regression analysis:

Table 11. The Multiple Linear Regression

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.560	1.022		4.460	.003
	INFLS	-.006	.058	.021	.100	.923
	BIR	-.280	.116	-.563	-2.406	.047
	JUB	-4.385E-8	.000	-1.219	-5.258	.001

a. Dependent Variable: ROA

Based on Table 11 above, the regression equation obtained is as follows:

Y = 4,560 – 0,006X1 – 0,281X2 – 4,385E-8X3 + e

Referring to the regression equation obtained, the multiple linear regression analysis simultaneously shows that inflation, BI Rate, and the Amount of Money in Circulation have a negative impact on ROA. It is assumed that for every 1-unit increase in inflation, there will be a decrease in ROA by 0.006. Similarly, if BI Rate increases by 1 unit, ROA will decrease by 0.281. Moreover, if the Amount of Money in Circulation increases by 1 unit, ROA will decrease by 4.385E-8, with the condition that the other variables remain constant.

The coefficient of determination is used to measure how far the model explains the independent variables. The R2 value ranges from 0 to 1, if R2 = 0 then there is no relationship between the X variable and the Y variable, the value is close to 1 then the independent variables provide the information needed to predict the variation of the Y variable and if R2 = 1 then a perfect relationship . If the X variable is more than 2 then adjusted R2 can be used as the coefficient of determination (Ariefudin & Khoirul, 2020). The following is the result of calculating the coefficient of determination:

Table 12. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.914[a]	.835	.764	.31240

a. Predictors: (Constant), JUB, INFLS, BIR

Table 12 shows that the Adjusted R Square value is 0.764 (76.4%). Therefore, it can be concluded that the influence of Inflation, BI Rate, and Money Supply accounts for 76.4%, while the remaining 23.6% is influenced by other variables not included in this study.

The research findings indicate a significant negative influence between inflation and Return On Asset (ROA) of PT. Bank Muamalat, Tbk. In this study, it was found that the calculated t-value was -2.100, which is greater than the critical t-value of 1.85955. This is in line with the theory stating that as inflation increases, the real value of savings decreases because people will use

their money to meet increasingly expensive needs, thereby affecting profitability. If a country experiences high inflation, the prices of goods and services will rise, which in turn reduces the amount of savings and financing available to the public. This change will then impact the implementation of Islamic banking functions, with a decrease in the collection of funds from the public, ultimately affecting the bank's performance in achieving profits.

The results of this study are also supported by research conducted by Ningsih et al. (2022) titled "The Influence of Gross Domestic Product (GDP), Interest Rates, and Inflation on the Profitability of Islamic Banks during the 2014-2017 Period," which states that inflation has a significant influence on Return On Asset in Islamic banks.

The results showed that the BI Rate has a negative and significant effect on the Return On Assets (ROA) of PT. BRI Syariah, Tbk with a probability value of 0.047 <0.05 and for a t-count of -2.406 > 1.85955 t-table. This is consistent with the theory which states that the BI Rate also influences bank profitability. When the BI interest rate rises, it will be followed by an increase in deposit rates which has a direct impact on a decrease in sources of third party funding for Islamic banks. This decrease in Third Party Funds was due to the transfer of public funds to conventional banks in order to obtain higher interest returns. If Third Party Funds in Islamic banks decrease, it will affect the operational activities of Islamic banks in terms of financing and distribution of funds. If this happens, the profitability of Islamic banks will also decrease, and vice versa.

The results of this study are also supported by research conducted by Cahyani (2018) entitled "The Influence of Inflation, Interest Rates (BI Rate) and Gross Domestic Product on ROA (Studies on Islamic People's Financing Banks (BPRS) in Indonesia in 2009-2016)" which states that BI Rate has a negative and significant effect on Return On Assets of Islamic Banks.

The results of this study indicate that the money supply has a negative and significant effect on the Return On Assets (ROA) of PT. Bank Muamalat, Tbk with a probability value of 0.001 <0.05 and for a t-count of -5.258 > 1.85955 t-table. This is not in accordance with the theory, an increase in the money supply causes inflation to increase. This means that inflation has a relationship and also has a negative impact on investment activities, in the form of high investment costs. High investment costs reduce the investment amount. An investor will tend to invest if the inflation rate in a country is stable. This is because with stability in the level of investment, the price level of goods in general will not experience a significant increase in the amount of money. Investors will feel more secure to invest when the inflation rate in a country tends to be stable or low. So that an increase in the money supply will cause the profitability of Islamic banks to fall.

This is also supported by research conducted by (Anindyaa et al., 2022) entitled "The Influence of Inflation and the Money Supply on Return On Assets (ROA) in Islamic Commercial Banks for the 2011-2019 Period" which states that the money supply has a negative effect on Return On Assets . An increase in the money supply will actually result in a decrease in Return On Assets (ROA) at Islamic Commercial Banks.

Conclusion

The research findings indicate that inflation, BI Rate, and the amount of money in circulation have a partial negative and significant impact on the Return On Asset (ROA) of PT. Bank Muamalat, Tbk. Among these variables, the most dominant one in influencing the ROA of PT. Bank Muamalat, Tbk is the variable of the amount of money in circulation. Therefore, it is expected that the bank will continue to monitor the profit-sharing ratio and margins offered to customers in order to prevent a decrease in the value of Return On Asset (ROA) during a

monetary crisis caused by direct inflation, and subsequently, the amount of money in circulation that affects the BI Rate.

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