

SHARIA BANK RESILIENCE IN FACING MACROECONOMIC FACTORS

Irma Setyawati (University of Bhayangkara Jakarta Raya)

Tri Widyastuti (University of Bhayangkara Jakarta Raya)

Adelina Suryati (University of Bhayangkara Jakarta Raya)

Email: irma.setyawati@ubharayaja.ac.id

Abstract—*The purpose of this study is to analyze the resilience of sharia banks in Indonesia in facing macroeconomic factors. This research data was taken from Bank BRI Syariah's publication of quarterly reports, period of 2009 – 2016. Multiple regression equation was used to determine the relationship between profitability and the macroeconomic factors. The addition of the control variables was used to neutralize, so that the relationship between the independent variable and the dependent variable can remain constant. The results of the study are that macroeconomic factors (inflation rate, gross domestic product, and exchange rate) have a strong effect on the profitability of sharia bank. After adding the inflation rate, gross domestic product and exchange rate, the effect on profitability is greater than if it only uses internal variables.*

Keywords—*bank resilience, capital adequacy ratio, macroeconomic, non-performing finance, sharia bank.*

I. INTRODUCTION

The monetary and economic crisis since July 1997 followed by a political crisis has had a major impact on the Indonesian economy (McLeod, 2018). The crisis has caused Indonesian banks, which are dominated by conventional banks, to experience very severe difficulties (Trinugroho, Agusman, & Tarazi, 2014). This situation caused the Indonesian government to take an action to restructure and recapitalize some banks (Wihantoro, Y., Lowe, A., Cooper, S., & Manochin, 2015).

With the promulgation of Law No. 10 of 1998, concerning amendments to Law No. 7 of 1992, concerning banking, has provided an excellent opportunity for the growth of Islamic banks in Indonesia. The law allows banks to operate fully in sharia or by opening a special branch of sharia (Setyawati, 2017).

With the presence of a sharia bank as a profit-sharing bank in Indonesia, it is expected to fulfill the wishes of

the public who are starting to realize the importance of an interest free bank. Majority of Indonesia's Muslim population makes sharia banks one of the banks that have experienced rapid progress, as it can be seen from the good performance of sharia banks from year to year (Dwi Sari, Bahari, & Hamat, 2016). Based on sharia banking statistical data, the liquidity position is still showing a positive direction, as seen from the position of third-party funds which was raised by 16.1% to 339.05 trillion rupiahs, was due to the addition of accounts to 560 in December 2017 and supported by an increase in the number of sharia public bank offices, as well as sharia business units. The capital of sharia banks is quite good, reflected in the capital adequacy ratio of 18.62% and non-performing financing of 4.31% is still maintained below the 5% threshold (OJK, 2017).

Some of the problems faced by sharia banks are how resilience of sharia banks face competition among sharia banks and conventional banks, and how resilient sharia banks face macroeconomic conditions that are difficult to predict and control. The first problem can be solved by improving the performance. One indicator to assess the performance of a sharia bank is by looking at the level of profitability.

Profit is an important prerequisite for competing in the banking industry (Sapuan & Roly, 2015; Setyawati, Suroso, Suryanto, & Siti, 2017). High profit indicates market strength, especially for large-scale banks, but hampers the financial intermediary function because with the high market power, banks may offer low returns for savings or deposits but impose high loan interest rates. Very low profit, may cause agency conflicts (bank's management and shareholder) of activities carried out by the bank, resulting in the bank failing to attract enough capital to operate and usually occurs in banks with low capitalization (Setyawati, Kartini, Rachman, & Febrian, 2015).

Bank profitability is determined by internal determinants, which are sourced from bank accounts and interpreted as micro or bank-specific determinants, which play a role in management decisions and bank policy objectives, such as liquidity level, reserve policy,

capital adequacy, management costs and bank size. Internal determinants that influence bank performance are bank size, leverage, debt, short-term funding, overhead, capital and ownership (Almazari, 2014; Djalilov & Piesseb, 2016; Petria, Capraru, & Ihnatov, 2015; Setyawati, 2016). Mean-while, external determinants are variables that are not related to bank management and reflect economic conditions, industrial structure, environment that affect the operations and performance of financial institutions, such as ownership, market concentration, stock market developments and macroeconomic factors (Setyawati, 2016).

Capital adequacy ratio (CAR) is one measure to determine the adequacy of bank capital if the bank experiences a shock. Although there is no provision on how much capital is adequate to overcome the capital problem, the government is more pleased if the bank has a capital higher than the minimum amount of provision in order to reduce the case of bank failure. Capital is considered as a reserve that helps banks to cover losses and avoid long-term failure (Uzhegova, 2015).

At the macro level, soundness and profitable banks can face negative shock and play a role in financial system stability, because bank profitability is an important source of capital, especially when banks re-invest, because high profits will increase financial stability (Bonaccorsi di Patti, E., & Palazzo, 2018), such as the stability of macroeconomic policy factors, Gross Domestic Product, inflation, interest rates and political instability and other macroeconomic variables (Magud, Reinhart, & Vesperoni, 2014).

The purpose of this study was to analyze the resilience of sharia banks in Indonesia in facing macroeconomic factors. In this study the non-performing finance and capital adequacy ratio were used as internal determinants and included several control variables (gross domestic product, inflation rate and exchange rate), as the external determinant of the profitability of sharia banks. With this research, it is expected that there will be a contribution of thought in reducing the impact of financial vulnerability, because banks are the backbone of a country's economy in carrying out its role as financial intermediaries. Bank resilience is needed to make a country's overall economic soundness (Lambert & Ueda, 2014).

II. LITERATURE REVIEW

A. *The Effect between Capital and Profitability*

Capital adequacy ratio (CAR) is one measure to determine the adequacy of bank capital if the bank experiences a shock. Although there is no provision on how much capital is adequate to overcome the capital problem, the government is more pleased if the bank has a capital higher than the minimum amount of provision in order to reduce the case of bank failure. Capital is considered a reserve that helps banks to cover losses and avoid long-term failure (Setyawati, 2016).

B. *The Effect between Financing Risk and Profitability*

Non-performing finance is an indicator of asset quality, which can be seen from how much bad financing is experienced by banks. On the financing side, majority of third-party funds were disbursed for debt financing of 70.93%, with *murabahah* composition of 66.42%; others 4.51%, while equity financing was only 29.07%, with the composition of *mudharabah* of 18.05%; *musyarakah* 11.02% (OJK, 2017).

Financing risk makes low profitability in Islamic banks. Management's attention is needed in dealing with financing risks, because it can cause problems in the future. Many banks fail to handle it because they are unable to recognize the weaknesses and make a backup of these assets.

C. *The Effect between Macroeconomics and Profitability*

Banking soundness is very closely related to macroeconomic stability (Kaufman, 2004). Good economic conditions will affect banking performance, because the growth of banking services is influenced by public demand and supply of banking services (Bonaccorsi di Patti, E., & Palazzo, 2018).

The hypothesis of this study is as follows:

- H1 : BRISyariah resilience is relatively good throughout it takes into internal factors and macroeconomic factors that affect profitability
- H2 : BRISyariah resilience is relatively good throughout it takes into internal factors and macroeconomic factors that affect profitability

This research data was taken from Bank BRI Syariah's publication of quarterly reports, period 2009 - 2016. Source of data was derived from the Bank Indonesia and the Financial Services Authority's website. Mean-while data on external determinants, obtained from the Central Bureau of Statistics. The software used in this study was Stata Version 14.

Time series data wa used to make estimates. Multiple regression equation to determine the relationship between profitability and the factors that influence it. The addition of the control variables was used to neutralize, so that the relationship between the independent variable and the dependent variable can remain constant. Multiple regression equations using the control variable as follows:

$$ROA_t = a_1 + b_1 CAR_t + b_2 NPF_t + \epsilon_t \quad (1)$$

$$ROA_t = a_2 + b_3 CAR_t + b_4 NPF_t + b_5 INF_t + \epsilon_t \quad (2)$$

$$ROA_t = a_3 + b_6 CAR_t + b_7 NPF_t + b_8 GDP_t + \epsilon_t \quad (3)$$

$$ROA_t = a_4 + b_9 CAR_t + b_{10} NPF_t + b_{11} EXR_t + \epsilon_t \quad (4)$$

$$ROA_t = a_5 + b_{12} CAR_t + b_{13} NPF_t + b_{14} INF_t + b_{15} GDP_t + b_{16} EXR_t + \epsilon_t \quad (5)$$

Table 1 shows the variables used as a proxy of Islamic bank resilience and the variables that affect it. Regression model with control variable, as shown in equation (1), (2), (3), (4), and (5), using least square fixed effect approach, the test of ordinary least square (OLS), such as multicollinearity, heteroscedasticity, and autocorrelation were still performed.

Table 1. Overview Variables Used in Regression Models

Variable	Variable Definition
Dependent variable	
Return on Assets (ROA)	Parameters used to measure the bank's ability to make a profit from its assets
Independent variable	
Non performing finance (NPF)	Parameters that show how much bad financing is from the overall financing disbursed
Capital Adequacy Ratio (CAR)	Parameters that show the percentage of minimum capital that must be provided by the bank
Control variable	
Inflation rate (INF)	Parameters of an increase in overall prices in an economy
Gross Domestic Product (GDP)	The value of goods and services produced by the public within a year, including those produced by foreign nationals in the country
Exchange rate (EXR)	The exchange rate of the Indonesian currency against the US dollar for current payments

III. RESULTS AND DISCUSSION

The normality test was done using Shapiro - Wilk and Shapiro - Francia tests for normality. Table 2 shows the results of the Shapiro-Wilk test and the Shapiro-Francia test showing that the data is normally distributed which is indicated by a probability value less than $\alpha = 5\%$.

TABLE 2. NORMALITY TEST

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
Residual	36	0.93424	2.398	1.829	0.03371
Shapiro-Francia W' test for normal data					
Variable	Obs	W	V	z	Prob>z
Residual	36	0.92222	3.146	2.122	0.01690

To find out the problem of multicollinearity, it is seen that the VIF value for each variable is greater than 10 or

tolerance (1 / VIF) is .01 or less. Based on table 3, the test results show that the VIF value for all variables is less than 10 and tolerance (1 / VIF) is .01 or greater so that there is no problem with multicollinearity.

Table 3. Multicollinearity Test

Variable	VIF	1/VIF
CAR	5.75	0.174029
NPF	3.27	0.305792
GDP	3.11	0.321080
INF	1.47	0.682576
EXR	1.36	0.737184
Mean VIF	2.99	

The heteroscedasticity test used the Breusch-Pagan Test. Table 4 shows that there is no problem of heteroscedasticity which is indicated by a probability value greater than $\alpha = 5\%$.

TABLE 4. HETEROSCEDASTICITY TEST

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity		
Ho: Constant variance		
Variables: fitted values of ROA		
chi2(1)	=	1.29
Prob > chi2	=	0.2554

Autocorrelation test used the Breusch – Godfrey serial correlation LM Test. If p-value is <5%, then Ho will be rejected. In table 5, p-value is 0.7791 > 5%, so there is autocorrelation.

Table 5. Autocorrelation Test

Breusch-Godfrey LM test for autocorrelation			
lags(p)	chi2	df	Prob > chi2
1	0.079	1	0.7791
H0: no serial correlation			

To eliminate autocorrelation, the praise command is used which automatically removes autocorrelation by adding an auto-regression variable with the lag specified by the standard program. The regression results obtained can be ascertained to have been free from autocorrelation.

In the F test statistics, it is stated that the model is significant, because the p-value is < 0.05, so the model is acceptable in describing the dependent variable. All the models have R2 above 50%, meaning that the variation of ROA can be explained above 50% by variations of NPF, CAR, GDP, INF, EXR, while less than 50% is explained by the variation of other variables, which are not included in the model. Table 6 shows a summary of all the variables.

Table 6. Summary of the dependent and explanatory variables

Variable	Mean	Std. Dev	Min	Max
CAR	16.159	7.11	10.38	45.27
NPF	2.951	1.414	1.11	8.46
ROA	0.855	0.783	0.04	3.18
INF	5.245	1.685	2.587	8.6
GDP	14.227	0.543	13.208	14.654
EXR	9.302	0.169	9.058	9.536

The estimation results are presented in Table 7.

Table 7. Estimation Result

Variable	Model				
	1	2	3	4	5
Constant	-0.194	-0.093	-3.153	-2.094	-0.956
CAR	0.002	0.006	0.013	0.0006	0.028
NPF	-0.347**	-0.33**	-0.347**	-0.341**	-0.319**
INF		-0.024			-0.054
GDP			0.195**		0.386**
EXR				0.243*	0.514*
Adj R2	0.67	0.673	0.67	0.677	0.811

*, **, *** indicates significant at the 1 per cent, 5 per cent, and 10 per cent levels respectively

Based on table 7, CAR has a positive effect on ROA, for the five models. This shows that the level of profit earned by BRI Syariah is affected by the CAR, if the bank uses most of its capital to cover operational failures such as bad financing and others. Positive regression coefficients indicate that the greater the CAR, the larger the tendency of the bank in generating profits. Some studies show that CAR has a positive influence on profitability (Abusharba, Triyuwono, Ismail, & Rahman, 2013; Mirzaei, Liu, & Tomoe Moore, 2011; Sapuan & Roly, 2015), while other CAR studies has a negative effect on profitability (Setyawati, 2016; Setyawati et al., 2017). NPF has a negative effect on ROA, for the five models. The NPF regression coefficient is negative, meaning that the greater the bad financing, it will be difficult for BRI Syariah to get profit. Several studies state that NPF is a proxy of financing risk and will reduce the ability of shariah banks to increase profits (Setyawati & Suroso, 2016; Setyawati et al., 2017).

In model 2 and 5, inflation rate has a negative effect on ROA. This is consistent with previous research, where inflation has a negative effect on ROA (Setyawati, 2017; Setyawati et al., 2017). However, some studies state that inflation rates have a positive effect on bank profitability, depending on whether the bank anticipates future inflation. The inflation rate negatively affects the ROA of BRI Syariah, meaning that BRI Syariah is slow in anticipating inflation and adjusting the profit-sharing ratio, resulting in a faster increase in costs compared to the increase in income.

In models 3 and 5, GDP has a positive and significant effect on ROA. The positive effect between GDP and ROA is consistent with previous research (Setyawati et al., 2017), and supports the argument that economic growth and the performance of BRI Syariah are positively related. Regression coefficients with positive signs indicate the greater the GDP, the banks tend to be larger in making profits. Gross domestic product is one of the macroeconomic indicators in measuring the total economic activity of a country. GDP is expected to affect many factors, especially those related to supply and demand of loan and deposits. Conducive economic conditions will affect the demand and supply of banking services (Bonaccorsi di Patti, E., & Palazzo, 2018).

In models 4 and 5, EXR has a positive and significant effect on ROA. The positive effect between EXR and ROA is consistent with previous research, and supports the argument that exceeds the rate and the performance of BRI Syariah is positively related (Kemisola, Ademola, Olamide, & Moses, 2016; Koteski et al., 2014). This is because bank profit obtained from foreign exchange trading does not allow banks to work effectively or efficiently to obtain the desired profit.

In the end, when it is included in the macroeconomic variables (INF, GDP and EXR), as in model 5, it appears that adjusted R2 is the biggest compared to when the macroeconomic variables are not included in the equation (model 1). This shows that macroeconomic variables have a strong influence in determining the profitability of BRI Syariah. Many previous studies have shown that macroeconomic influences bank profitability (Bonaccorsi di Patti, E., & Palazzo, 2018; Kemisola et al., 2016; Khin, Yee, Seng, Wan, & Xian, 2017; Lambert & Ueda, 2014).

IV. CONCLUSION

This study concludes that macroeconomic factors affect the profitability of BRI Syariah. This is evident from after adding the inflation rate, gross domestic product and exchange rate, the effect on profitability is greater than if it only uses internal variables (CAR and NPF).

The recommendations of this study are, first, because GDP has a significant influence on the profitability of shariah banks, the government must ensure that GDP is managed properly because GDP growth will drive growth in various economic sectors, namely economic growth, and will have multiplier effects, which in turn will cause a huge leap in the growth and growth of various industries in Indonesia

Second, inflation has a negative effect on the profitability of shariah banks, this shows that sharia banks have not anticipated future inflation. Thus, it is necessary for the bank management to anticipate inflation, because it will raise the cost of the shariah bank and ultimately reduce the profit

Finally, in this study, the increase in the exchange rate is related to an increase in bank profitability. If there is a depreciation of the rupiah, it will quickly impact on the economic instability of a country. This requires an effort by Bank Indonesia as the monetary authority in Indonesia to immediately stabilize the local currency. Bank Indonesia needs to make improvements of exchange rates and management of the foreign exchange market with a view to achieving a realistic exchange rate that will help economic growth and achieve rupiah stability against the dollar. However, banks must also have a risk mitigation strategy.

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