THE EFFECT OF CAPITAL, LIQUIDITY AND CONSUMER PRICE CHANGES ON FINANCING RISK

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Abstract

This study aims to analyze the effect of Capital Adequacy Ratio (CAR), Financing Deposit to Ratio (FDR) and inflation on Non-Performing Finance (NPF) in the short and long term. By using time series data for the monthly period from 2015-2019 and the Error-Correction Model (ECM) and cointegration approach, it is found that CAR does not have a significant effect on NPF in the short and long term. FDR in the short term does not have a significant effect on NPF, in the long term FDR has a significant effect on NPF. Meanwhile, inflation has a significant effect on NPF both in the short and long term.

Keywords: CAR, Cointegration, ECM, NPF

Introduction

Islamic banks in terms of their main function as a bank have 3 functions, namely, collecting funds from the public in the form of deposits and investments, channeling funds to people who need funds from banks, and also providing services in the form of Islamic banking services (Ismail, 2011). The process of channeling funds to people who need funds is what is called financing. In another sense, financing is the provision of money or bills that are equated with it, based on agreements or agreements between banks and other parties that require the financier to return the money or bills after a certain period of time in return or profit sharing that has been agreed upon (Kasmir, 2008).

Islamic banks in their journey to provide financing to customers will certainly face various types and complexities of the risks faced. The type of business of the customer is not single. Karim (2008) revealed that risk in the context of banking is a potential event, both anticipated and unanticipated, which has a negative impact on the bank's income and capital.

So one of the variables that can be used to detect a crisis in banking is the risk of bank financing or Non Performing Financing (NPF). NPF is the ratio between non-

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performing financing and total financing disbursed by Islamic banks. Based on the criteria set by Bank Indonesia, the categories included in NPF are substandard, doubtful and loss financing(Firdaus 2015).

Along with the rapid increase in Islamic banks in Indonesia, which currently amounts to 14 Islamic Commercial Banks and 20 Islamic Business Units, the risk of NPF from financing has also increased. The development of NPF from Islamic banking at this time the value tends to fluctuate, as shown in table 1.

Table 1.
Development of FDR, CAR and NPF Levels

Year	FDR (%)	CAR (%)	NPF (%)
2015	98.65	15.94	4.04
2016	90.02	14.66	5.29
2017	87.51	15.21	5.26
2018	81.76	16.78	4.71
2019	81.19	16.87	4.28

Source: Islamic Banking Statistics (2020)

From table 1, it can be seen that from 2015 to 2019 there were fluctuations in the level of NPF on BUS and UUS in Indonesia. This increase in NPF was seen in 2015 which recorded an NPF value of 5.29%, then in 2016 it decreased by 5.26%. This value has exceeded the maximum NPF rate set by Bank Indonesia Regulation No. 6/10/PBI/2004 of 5%. Then from 2017 to 2018 NPF experienced a downward trend from 4.71% to 4.28%.

The causes of non-performing financing (NPF) can be caused by internal and external factors. Internal factors are factors that come from operational activities in the banking environment itself as outlined in financial performance. The financial performance of a bank can be seen through its financial ratios as an indicator of health and an analytical tool to predict the profits that will be generated. While external influences are macroeconomic factors (Auliani & Syaichu, 2016). In this study the authors analyzed the factors that influence NPF in Islamic Commercial Banks based on internal and external factors.

To reduce the risk of Islamic banks caused by financing, the bank must allocate funds for business development and accommodate the risk of loss of funds caused by bank activities which is then called the Capital Adequacy Ratio (CAR). The higher the CAR, the greater the bank's ability to minimize the financing risk that occurs. This also indicates that the bank is able to cover the financing risks that occur with the amount of reserve funds obtained from the ratio of capital and Risk Weighted Assets (ATMR) (Popita, 2013).

In table 1 above, it can be seen that the CAR value fluctuates slightly. The CAR value in 2016 experienced a downward trend of 14.66% from 2015 of 15.94%. The downward trend in CAR in 2015 was followed by an increase in the value of NPF. It is suspected that the higher the CAR value, the lower the NPF ratio, and vice versa. Based on the research results from Havidz & Setiawan (2015) and Purnamasari & Musdholifah (2018) found that CAR has no effect on NPF in Islamic banks. Meanwhile, Auliani & Syaichu (2016) and Muhammad, Suluki, & Nugraheni (2020) state that CAR has a negative and significant effect on NPF. Different research results were revealed by Supriani and Sudarsono (2018) who found that in the long run CAR has a positive effect on NPF.

Next is the Financing Deposit to Ratio (FDR) variable. FDR is a ratio to measure the composition of the amount of financing provided compared to the amount of public funds and own capital used (Kasmir, 2008). FDR also shows the level of ability of Islamic banks in channeling third party funds collected from the public. The maximum FDR allowed by BI is 110%. This means that the higher the financing, the possibility of non-performing financing risks will increase, so that NPF will also increase. Table 1 shows that the FDR value of Islamic banks tends to decrease from 2015 to 2019.

Based on the results of research by Dhal & Misra (2012) and Havidz & Setiawan (2015) revealed that FDR has no significant effect on NPF. This means that any increase in the FDR side has no effect on the NPF of Islamic banks. Another case with the findings of Supriani and Sudarsono (2018) dan Rahmah & Armina (2020) found that FDR has a positive and significant effect on NPF. The results of different findings revealed by Kuswahariani et al., (2020) revealed that FDR has a negative and significant effect on NPF.

Inflation is one of the variables considered in reading financing risk. The effect of an increase in inflation is usually responded by the monetary authority by increasing the BI rate. The logical consequence of the BI rate is an increase in financing costs, namely the profit-sharing ratio or financing margin, so that the value of Islamic bank financing expenditures decreases. In addition, the increase in the price of goods during inflation will affect customers who work as producers which has an impact on the increase in production capital. In turn, it affects the level of sales due to rising prices and customers will have difficulty returning financing.

Based on the results of research by Adebola, Wan Yusoff, & Dahalan (2011) and Supriani and Sudarsono (2018) revealed that inflation has a negative and significant effect on NPF. Meanwhile, research by Aufa & Dja'akum (2019) found that inflation has a positive and insignificant effect on NPF. In contrast to the findings of Havidz & Setiawan (2015) and Kuswahariani et al., (2020) revealed that inflation has no significant effect on NPF.

Based on the description above, researchers feel the need to analyze the factors that cause NPF from the internal and external sides of the bank, considering

that the higher the risk faced by Islamic banks, it will affect the capital of Islamic banks. Instead, it needs to be done so that the bank can plan and prepare ways to minimize financing risks and reduce the high level of NPF. Therefore, the problem raised from this research is whether CAR, FDR and inflation have a significant effect on NPF in the long and short term.

Research Method

This research uses Johansen Joselius multivariate cointegration analysis and error correction model (ECM). The data used in this study is secondary data consisting of monthly data on Islamic banking statistics in 2015-2019. The long-term model is explained as follows:

$$NPF=f\{CAR,FDR,INF\} \quad (1)$$

Where NPF is the percentage of non-performing financing to total financing. CAR is a ratio that shows how far all bank assets that contain risk (financing, investments, securities, and bills to other banks) are financed from the bank's own capital funds in addition to obtaining funds from sources outside the bank, such as public funds, loans (debt) and others. inflation as an overall increase in prices in the economy which can be caused by an increase in the money supply, causing a decrease in the value of money.

The data for this study are sourced from Islamic banking statistics released by the Financial Services Authority (OJK). The long-term estimation model is explained as follows:

$$NPF_t=\beta_0+\beta_1 \log CAR_t+\beta_2 FDR_t+\beta_3 INF_t+\varepsilon_t \quad (2).$$

Meanwhile, in analyzing the short-term effect of the financing equation, an error correction model (ECM) is used which is explained as follows:

$$\Delta NPF_t= \beta_0+\beta_1 \Delta\ CAR_t+ \Delta\beta_2 FDR_t+ \Delta\beta_3 INF_t+ res\text{-}1+V_t \quad (3)$$

Where res-1= error-correction term

Before using the ECM estimation, the steps that must be taken are: First, unit root test using augmented dickey-fuller. Second, identify the cointegration of the variables studied with the residual-based test method. Third, determine the standard ECM estimation method. And Fourth, conduct a classical assumption test.

Results and Discussion

Results

Unit Root Test

Data is said to be stationary if the t-count (absolute) value is greater than the t-table value. Based on the unit root test, the results in table 2 show that all independent and dependent variables are stationary at the 1st difference level. The following are the results of the stationary test at the first difference level.

Tabel 2

Uji Akar Unit (Unit Root Test) pada Tingkat 1st Different

Stationarity Test of 1st Different Level						
Variable	ADF t-Statistic	Probability	ADF Critical Value			Description
			1%	5%	10%	
NPF	-7.630393	0.0000	-3.542808	-2.912631	-2.594207	Stasioner
CAR	-5.410920	0.0002	-3.711457	-2.981038	-2.629906	Stasioner
FDR	-9.962783	0.0000	-3.548208	-2.912631	-2.594027	Stasioner
Inflation	-7.067001	0.0000	-3.548208	-2.912631	-2.594027	Stasioner

Source: Data processed with Eviews 10

Ordinary Least Square (OLS) Estimation

From the Ordinary Least Square (OLS) test conducted, it is known that the CAR variable has a probability value of 0.4390>0.05 percent and a coefficient value of 0.147642. This means that the CAR variable has no significant and positive effect on NPF in the long run. So every 1 percent decrease in CAR has no effect on NPF in the long run.

Table 3

Ordinary Least Square (OLS) Estimation

Variable	Coefficient	Probability
C	-3136733	0.0188
CAR	0.147642	0.4390
FDR	0.325986	0.0099
Inflasi	2.024224	0.0000

Source: Data processed with Eviews 10

FDR variable with a probability value of 0.0099 <0.05 percent and a coefficient value of 0.325986. This means that the FDR variable has a significant and positive impact on NPF in the long term. It can be concluded that every 1% increase in the FDR side affects NPF by 0.325986 percent in the long run. Then the inflation variable has a

probability value of 0.0000 <0.05 percent and a coefficient value of 2.024224, meaning that the inflation variable has a significant and positive impact on NPF in the long term. So every 1 percent increase in inflation has an impact on NPF by 2.024224 percent.

Cointegration Test

Table 4 shows that the ADF value is greater than the Mackinnon critical value. In addition, this result is also supported by the significance of the ADF probability at the degree of confidence α: 5%. So it can be concluded that the data has been cointegrated.

Table 4
Estimated Stationarity of Model Residuals

Residual Stationarity Test						
Variable	ADF t-Statistic	Probability	ADF Critical Value			Description
			1%	5%	10%	
Res	-4.244374	0.0013	-3.355023	-2.915522	-2.595565	Stasioner

Source: Data processed with Eviews 10

Short-Term ECM Estimation

Short-term ECM estimation is conducted to analyze the short-term effect of the NPF equation. Thus, we can identify the variables that affect NPF at Islamic commercial banks in Indonesia in the short term and the variables that cause shocks to NPF.

Based on the ECM estimation results in table 5, it shows that the Res coefficient value is -0.453619 in the model is negative and significant 0.0000 <0.05 for NPF estimation. These results indicate that in the short and long term the variables used in this study have a significant effect on NPF. Then the Adjusted R-Square value is 0.47 or 47 percent. It can be said that 47 percent of CAR, FDR and inflation variables affect NPF. While 53 percent is influenced by independent variables outside the research model.

The inflation variable with a probability value of 0.0070 <0.05%, and a coefficient value of -0.87 means that inflation has a significant and negative effect on NPF. So every 1 percent increase in inflation reduces the NPF rate of Islamic banks by 0.86% in the short term. While the CAR and FDR variables do not have a significant effect on NPF in the short term. FDR with a probability value of 0.07>0.05 and the CAR variable has a probability value of 0.83>0.05.

Table 5
Short-Term ECM Estimation

Variable	Coefficient	t-statistic	Probability

C	-0.236014	-1.761614	0.0842
CAR	-0.065645	-0.213313	0.8319
FDR	-0.210100	1.805581	0.0770
Inflasi	-0.867260	-2.815297	0.0070
Res	-0.453619	-6.382138	0.0000
Adjusted R-Square	0.466173		
Prob. F Statistik	0.000000		

Source: Data processed with Eviews 10

Based on the short-term equation model using the ECM method, the Res coefficient is obtained. This coefficient measures the regressand response for each period that deviates from equilibrium. According to Widarjono (2013), "the coefficient of imbalance Res in the form of an absolute value explains how fast it takes to get an equilibrium value". The Res coefficient value of 0.45 means that the difference between the increase in NPF and its equilibrium value is 0.45 which will be adjusted within 1 year.

Classical Assumption Test

Multicollinearity Test

Multicollinearity test aims to test whether the regression model found a correlation between independent variables (independent) a good regression model should not occur correlation between independent variables. Judging from the tolerance and variance inflation factor (VIF), this study is free from multicollinearity because the VIF value is <10. the following are the results of the multicollinearity test:

Table 6
Multicollinearity Test

Variable	VIF Values	Description
CAR	4.289238	Tidak terjadi multikolinearitas
FDR	5.222523	Tidak terjadi multikolinearitas
Inflasi	2.217550	Tidak terjadi multikolinearitas

Source: Data processed with Eviews 10

Heteroscedasticity Test

Heteroscedasticity is a nuisance factor that has no constant or equal variance in regression analysis. The problem arising from this regression is that the OLS estimator is biased or the variance of the OLS coefficient will be wrong. In this study, the authors used the Breusch-Pagan test to detect the presence or absence of heteroscedasticity in the regression model.

Based on the results of data processing in the short term obtained that the value of Obs * R squared or count is 0.0896 greater than α = 5%. So it can be concluded that in the model there is no heteroscedasticity problem.

Table 6
Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.272474	Prob. F(3,54)	0.0905
Obs*R-squared	6.501599	Prob. Chi-Square(3)	0.0896
Scaled explained SS	26.74087	Prob. Chi-Square(3)	0.0000

Source: Data processed with Eviews 10

Autocorrelation Test

Autocorrelation indicates the correlation between a series of observations. If the model is correlated, the estimate will be biased, and the change is no longer minimal, and the model becomes inefficient. In this study, to determine whether there is autocorrelation in the model, the Lagrangian Multiplier (LM) test is used.

Table 6
Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.199312	Prob. F(2,49)	0.8200
Obs*R-squared	0.443825	Prob. Chi-Square(2)	0.8010

Source: Data processed with Eviews 10

The LM test process is if the Obs R-Squared value is smaller than the table value. This means that the model does not include autocorrelation. In addition, it can be seen from the chi-square probability value that the probability value is greater than the α value, which means that there is no autocorrelation problem. Based on the test results, the chi-square probability value is 0.80> 0.05, which means there is no autocorrelation.

Analysis

Effect of CAR on NPF

The findings of the results of this study reveal that CAR has no significant effect on NPF at Islamic Commercial Banks in Indonesia both in the short and long term. The results of this study confirm the research of Havidz & Setiawan (2015) and Purnamasari & Musdholifah (2018) which reveal that CAR has no effect on NPF.

Banks that have large capital are required to use their capital effectively to accommodate the risk of fund losses caused by channeling financing to customers. When banks are unable to manage capital, in this case CAR, the amount of CAR owned

by Islamic banks will not have a significant effect on bank risk. With sufficient capital, banks should be able to minimize the risks arising from financing activities.

Effect of FDR on NPF

Based on the research results above, it is found that FDR has a significant and negative effect on NPF in the long term. While in the short term, FDR has no significant and negative effect on NPF. The results of this study reveal that FDR has a significant and positive effect on NPF. This means that every 1 percent increase in FDR increases NPF by 0.325986 percent in the long run.

This finding confirms the research of Supriani dan Sudarsono (2018) dan Rahmah & Armina (2020) which state that FDR has a significant and positive effect on NPF. This condition requires Islamic banks to prioritize the principle of prudence in channeling financing so that financing risks can be minimized. In addition, Islamic banks must also be selective in terms of sorting out customers, meaning that customers who are given financing are truly bankable.

Effect of Inflation on NPF

The research findings above reveal that inflation has a negative and significant effect on NPF both in the short term. The results of this study are supported by the research of penelitian Adebola et al., (2011) dan Supriani dan Sudarsono (2018) which state that inflation has a negative and significant effect on NPF. Rising inflation is not always interpreted as an increase in the price of goods. Growing inflation can be interpreted as an increase in people's purchasing power. Therefore, when people's purchasing power increases, it can be assumed that people's income increases. For producers, this is quite beneficial because the increase in purchasing power makes producers able to return capital loans from banks.

While in the long run, inflation has a positive and significant effect on NPF. This means that any increase in the inflation side will result in increased risk for Islamic banks. The results of this study confirm research from Aufa & Dja'akum (2019) which reveals that inflation has a positive and significant effect on NPF. Islamic banks in the long run must be careful of uncertain inflation conditions. Continuous inflation in the long run will have an impact on the customer's ability to return financing. For producers, inflation will encourage the high cost of capital so that it will have an effect on the increase in the price of goods. When the price of goods rises, people tend to reduce their purchases. Strengthening business strategies for banks is required, so that the threat from inflation can be minimized.

Conclusion

Based on the results of data processing and test analysis using cointegration and ECM approaches, it can be concluded that CAR has no effect on Non-Performing

Financing (NPF), both in the long term and in the short term. The Bank's internal policy strategy in the aspect of capital is not effective in influencing the Bank's risk fluctuations. Meanwhile, Financing Deposit to Ratio (FDR) is known to have a positive and significant effect on NPF in the long run. This means that an increase in financing will have an impact on increasing bank risk (NPF) in the long run. Then inflation has a significant negative effect in the short term. Meanwhile, in the long term, inflation has a positive effect on NPF.

Recommendation

Through this research, it is hoped that the management of Islamic banks will be able to formulate policy strategies that integrate banking governance, especially in the aspects of capital, financing feasibility studies and reading of inflation so that financing risks can be minimized.

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