The Effects of Macroeconomic and Bank Specific Factors on Nonperforming Financing in Sharia Commercial Bank in Indonesia

Keti Purnamasari[1] & Tariza Putri Ramayanti[2]

[1]Sriwijaya State Polytechnic, Palembang, Indonesia
Corresponding Author: ketipurnamasari@gmail.com

[2]Raden Fatah State Islamic University, Palembang, Indonesia
Email: tariza.irfani@gmail.com

Abstract: Financing risk is often associated with the risk of default. This risk refers to the potential losses faced by the bank when financing provided to debtors is stuck. The purpose of this paper is to analyze the effect of macroeconomic and bank specific factors on nonperforming financing in sharia commercial bank in Indonesia. The macroeconomic factors included; inflation and Bank Indonesia Certificates Sharia (SBIS). The Bank specific factors included; Capital Adequacy Ratio (CAR), Return on Assets (ROA), Operations Expenses to Operations Income (BOPO), and Financing to Deposit Ratio (FDR). The period covered under this study was January 2011 to December 2017. Data was collected from Bank Indonesia website and Indonesia Banking Statistics. Contrary to other studies, the inflation and SBIS have not been found statistically significant with nonperforming financing. The results also show that NPF can be explained mainly by Bank specific factors. CAR, ROA, and FDR have a negative effect on NPF while BOPO has a positive effect on NPF.

Keywords: Macroeconomics, Bank Specific Factor, Nonperforming Financing, Sharia Commercial Bank.

Introduction

Banks are basically entities that collect funds from the public in the form of financing or in other words carry out the financial intermediary function. In the banking system in Indonesia there are two types of banking operational systems, namely conventional banks and Islamic banks. In accordance with Law No. 21 of 2008 concerning Islamic Banking, Islamic Banks are banks that carry out business activities based on Islamic principles, or Islamic legal principles regulated in the fatwa of the Indonesian Ulema Council such as the principles of justice and balance ('adl wa tawazun), maslahah, universalism (natural), and does not contain gharar, maysir, usury, wrongdoers and illicit objects. In addition, the Sharia Banking Law also mandates Islamic banks to carry out social functions by carrying out functions such as the Baitul Mal institution, namely receiving funds derived from tithe, infaq, alms, grants, or other social funds and channeling it to the waqf manager (Nazhir) according to the will charitable (wakif) provider.

Islamic banking that operates based on the principle of profit sharing provides an alternative banking system that is mutually beneficial not only for the community but also for banks, and highlighting aspects of fairness in transactions, ethical investments, promoting values of togetherness and brotherhood in production, and avoiding speculative activities in financial transactions. Islamic banking has become a credible alternative banking system and can be accepted by all groups of Indonesian society because it provides a variety of products and various banking services with a more varied financial scheme.

Since the development of the sharia banking system in Indonesia, the development of national Islamic finance has undergone a lot of progress both in terms of institutional and supporting infrastructure, regulatory tools and supervision systems, as well as public awareness and literacy of Islamic financial services. Although according to data from the Financial Services Authority (OJK), the total assets of Islamic banking have only reached 5.18% of the total value of banking assets nationwide, but the total assets development of Islamic banking in Indonesia from year to year continues to increase as in the data below.
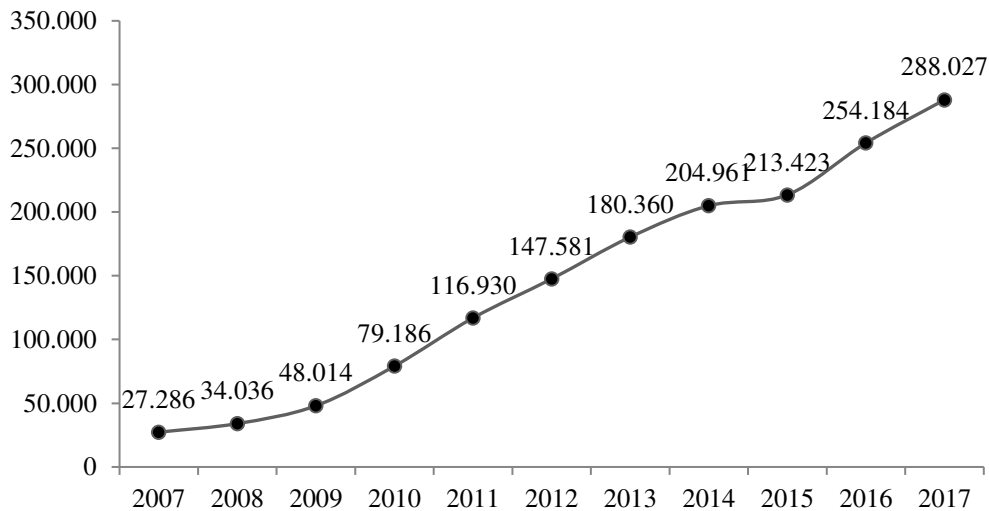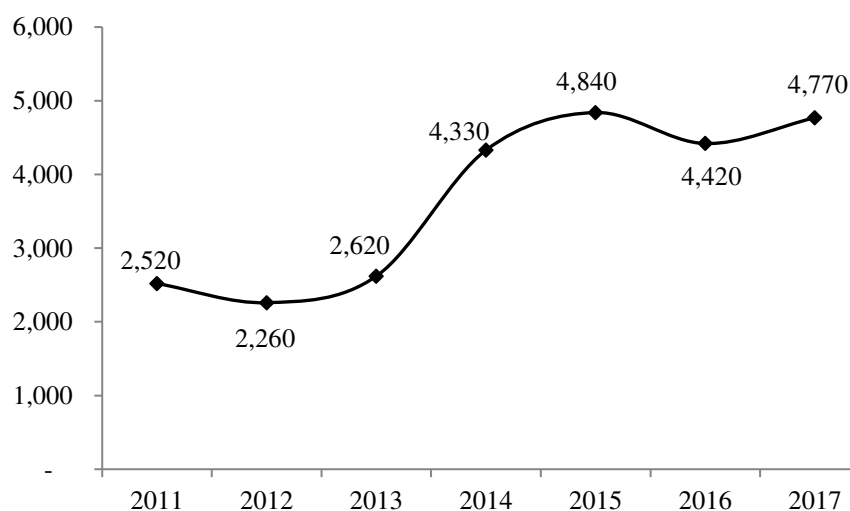
Source: Indonesia Banking Statistics, Otoritas Jasa Keuangan.
Figure 1. Total Asset in Indonesia Sharia Commercial Bank

Islamic banks channel funds to the public in the form of financing. Financing is used for activities carried out by financial institutions such as banks to customers. Financing or expenditure is funding that is spent to support the investment that has been planned, either done alone or done by others (Firdaus, 2015).

Same as conventional banks, Islamic banks also face credit risk (financing). The ratio used to view credit quality (financing) in Islamic banks is Nonperforming Financing (NPF). NPF is financing provided to third parties and does not include financing for other banks. NPF is financing that has substandard, doubtful, and traffic quality. Ratio Nonperforming financing is a comparison of nonperforming financing with earning assets owned by banks. The smaller NPL ratio indicates that is smaller credit risk being borne by the bank. On the other hand, the higher NPF indicates that there is unprofessional in managing its credit. The following figure shows the condition of the NPF of Indonesia Sharia Banks during 2011 until 2017.

Source: Indonesia Banking Statistics, Otoritas Jasa Keuangan.
Figure 2. Percentage of Nonperforming Financing Ratio in Years

According to Bank Indonesia Regulation Number 15/15/PBI/2013 concerning Statutory Reserves for Commercial Banks in Rupiah and Foreign Currency for Conventional Commercial Banks concerning Nonperforming Loans (Nonperforming Financing), namely the NPL/NPF ratio of total bank loans grossly (gross) < 5%. This is consistent with the theory that a low NPL/NPF means that the better the quality of credit (financing) because the less the amount of credit (financing) is problematic

so as to minimize credit risk. But on the contrary if the NPL/NPF is higher it means that the quality of credit is worse because the more credit (financing) is problematic, so the credit risk is greater.

Generally, in developing and underdeveloped countries, the reasons for default have a multidimensional aspect. The cause of failure in the provision of financing can be due to various problems such as internal problems of the bank itself, problems involving customers, and macroeconomic problems. This study aims to analyze the influence of macroeconomic factors and bank-specific factors on NPF in Islamic Commercial Banks in Indonesia for the period of January 2011 until December 2017.

Literature Review

Deterministic Macroeconomic Factors Included in Analysis

Inflation (INF)

Inflation is an increase in the general price level in an economy that continues continuously over time. Inflation can depress the value of real wealth and income in the community so there is a decline in purchasing power. In these conditions, production and marketing costs are increasing so that the company's income decreases. This results in disruption to the smooth return of corporate loans to banks and impacts on default credit risk (Firdaus, 2015).

According to (Nkusu, 2011), higher inflation can affect the level of NPLs negatively or positively. Theoretically, the high inflation should reduce the real value of debt and hence make debt servicing easier. Higher inflation can enhance the loan payment capacity of borrowers by reducing the real value of outstanding debt; moreover payment capacity of borrowers by reducing the real income when salaries / wages are sticky.

Bank Indonesia Sharia Certificate (SBIS)

Bank Indonesia Sharia Certificate (SBIS) is a short-term securities denominated in the rupiah issued by Bank Indonesia based on Sharia Principles. SBIS is issued by Bank Indonesia as one of the instruments for open market operations in the context of monetary control carried out based on Sharia Principles. SBIS issued by Bank Indonesia using the Ju'alah agreement. Ju'alah agreement is a promise or commitment (iltizam) to provide certain rewards ('iwadh/ju'l) for the achievement of results (natijah) determined from a job (http://bi.go.id).

The decline in SBIS is less profitable for the economy because it will increase the money supply. However, this actually benefits Islamic banks because it is expected that funds that are not stored in SBIS will be used to provide productive financing that is useful for the community which ultimately moves the real sector (Pinaringani, 2012). The more financing is given, the greater the likelihood of financing problems.

Deterministic Bank Specific Factors Included in Analysis

Capital Adequacy Ratio (CAR)

Capital Adequacy Ratio (CAR) is a ratio that shows the bank's ability to maintain sufficient capital and the ability of bank management to identify, measure, monitor, and control the risks that arise and can affect the amount of bank capital. The CAR calculation is based on the principle that each risk-bearing investment must be provided with a capital amount of a certain percentage of risk margin to the amount of investment (Maidalena, 2014). The higher CAR shows the greater bank's ability to minimize credit risk, so that the problematic credit/ financing that occurs in the bank will be lower with the amount of reserve funds obtained from the ratio of risk-weighted capital and assets (Astrini, Suwendra, & Suwarna, 2018).

Return on Assets (ROA)

This ratio is used to measure the ability of a bank's management to obtain profits generated from the average total assets of the bank concerned. Banks with strong profitability give less impetus to generate income and are therefore less constrained to engage in risky activities such as risk lending.

In contrast, inefficient banks are obliged to provide credit that is considered risky and then reaches a high level of nonperforming loans (Messai & Jouini, 2013).

Financing to Deposit Ratio (FDR)

Financing to Deposit Ratio is a division between financing provided by banks and third party funds managed by banks. LDR ratio (FDR for Islamic banking) is the ratio of the ratio of the amount of funds disbursed to the public (credit/financing) with the amount of public funds and own capital used. The greater financing channeled compared to the savings of the community in a bank, the consequence is the greater the risk that must be borne by the bank concerned. So that it will cause the greater possibility of NPL occurrence (Misra & Dhal, 2014)).

Operation Cost to Operation Income (BOPO)

This ratio is used to measure the comparison of operating costs or intermediation costs to operating income obtained by the bank. Higher BOPO suggests a lower efficiency of the bank. This inefficiency may lead to the declining quality of financing and the increasing of NPF. According to (Berger & Deyoung (1997), Low cost efficiency is positively associated with increases in future NPLs. The proposed justification links 'bad' management with poor skills in credit scoring, appraisal of pledged collaterals and monitoring borrowers. Banks give credits with bad qualities and do not use sophisticated evaluation methods to detect in advance the insolvent creditors (Abid, Ouertani, & Zouari-Ghorbel, 2014).

Methods

This study analyzes the influence of macroeconomic factors which include the inflation variable (INF) and Bank Indonesia Sharia Certificate (SBIS) on Nonperforming Financing (NPF) in Islamic Commercial Banks in Indonesia. Bank specific factors also included in this analysis include variables of Capital Adequacy Ratio (CAR), Return on Assets (ROA), Operations Expenses to Operations Income (BOPO), and Financing to Deposit Ratio (FDR). This study uses monthly aggregate data for the period of January 2011 to December 2017. Data obtained from the official website of Bank Indonesia and the Indonesian Financial Services Authority. This study uses multiple regression analysis. Equation models in this study are:

$$NPF = a + \beta 1 INF + \beta 2 SBIS + \beta 3 CAR + \beta 4 ROA + \beta 5 FDR + \beta 6 BOPO + e$$

The accuracy of the sample regression function in estimating the actual value can be measured by the goodness of fit. Statistically, at least this can be measured by the value of the coefficient of determination, the statistical value of F, and the statistical value t. The statistical calculation is called statistically significant if the statistical test value is in a critical area (the area where Ho is rejected). On the contrary it is not significant if the statistical test value is in the area where Ho is accepted (Ghozali, 2013).

The coefficient of determination (R^2) essentially measures how far the ability of the model in explaining the variation of the dependent variable. The coefficient of determination is between zero and one. In general the coefficient of determination for cross section is relatively low because of the large variation between each observation, while for time series data usually has a high determination coefficient value.
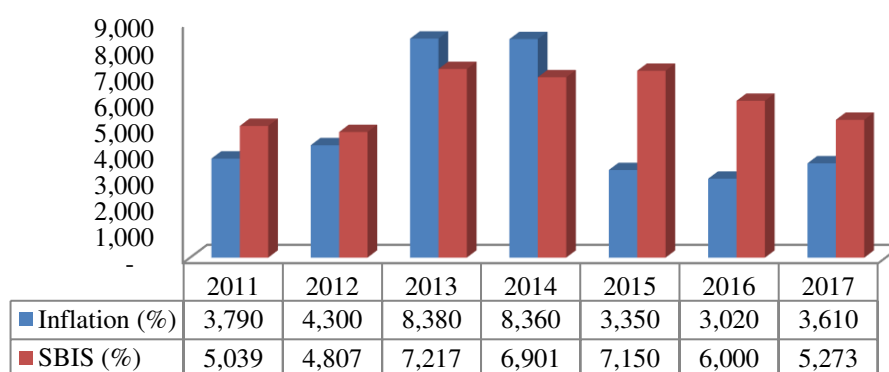
Statistical F test shows whether all independent variables included in the model have a joint effect on the dependent variable. The null hypothesis (Ho) states that all the independent variables included in the model do not have a simultaneous effect on the dependent variable, whereas Ha states that all independent variables have a significant influence on the dependent variable. The decision-making criteria in the F statistical test is to reject the null hypothesis if the significant value (P-value) F test is < 0,05.

Statistical t test shows how far the influence of an independent variable individually in explaining the variation of the dependent variable. The null hypothesis (Ho) that is to be tested is whether a parameter (bi) is equal to zero or the alternative hypothesis (Ha) parameter of a variable is

not equal to zero. The decision making criteria in the t statistic test is to reject the null hypothesis if the significant value of the value (P-value) t test < 0,05.
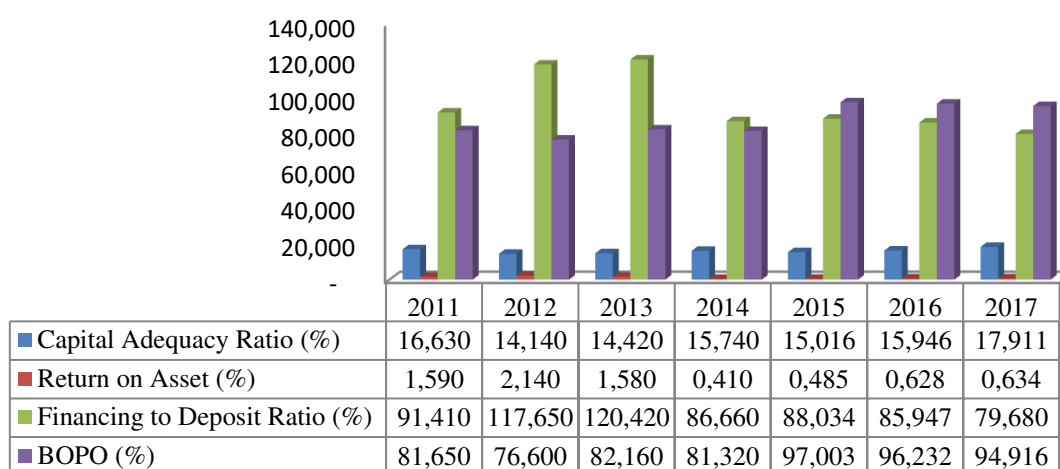
Results and Discussion

Variables in macroeconomic factors including inflation and Bank Indonesia Sharia Certificates can be seen in the figure below. The highest inflation rate occurred in 2013 and shows an improved figure in 2015 2017. SBIS experienced a fluctuating increase and decline, the highest in 2013 and the lowest in 2012, in general SBIS has decreased since 2013.

	2011	2012	2013	2014	2015	2016	2017
■ Inflation (%)	3,790	4,300	8,380	8,360	3,350	3,020	3,610
■ SBIS (%)	5,039	4,807	7,217	6,901	7,150	6,000	5,273

Source: Indonesia Banking Statistics, Otoritas Jasa Keuangan.
Figure 3. Macroeconomic Factors in Indonesia Sharia Commercial Bank

A description of the bank's specific factor variables can be seen in the picture below.

	2011	2012	2013	2014	2015	2016	2017
■ Capital Adequacy Ratio (%)	16,630	14,140	14,420	15,740	15,016	15,946	17,911
■ Return on Asset (%)	1,590	2,140	1,580	0,410	0,485	0,628	0,634
■ Financing to Deposit Ratio (%)	91,410	117,650	120,420	86,660	88,034	85,947	79,680
■ BOPO (%)	81,650	76,600	82,160	81,320	97,003	96,232	94,916

Source: Indonesia Banking Statistics, Otoritas Jasa Keuangan.
Figure 4. Bank Specific Factors in Indonesia Sharia Commercial Bank

According to Bank Indonesia regulations, the value of CAR has a minimum value of eight percent (8%). The condition of CAR in Islamic banks in Indonesia can be seen in the picture above, which shows that this ratio is above the standard of Bank Indonesia. A high CAR Ratio in a bank is a financial resource that can be used for business development purposes and can cover risks or potential losses arising from credit disbursement.

The ROA standard according to Bank Indonesia is 1.5%. The general condition of ROA in Islamic banks in Indonesia is above the standard in 2011 s.d. 2013 and is far below the standard in 2014 2017. The smaller ROA indicates the lack of bank management capacity in terms of managing assets to increase revenue and or reduce costs. The higher ROA, the greater the profit level achieved by the bank so that the possibility of the bank to be unhealthy will be smaller.

According to Bank Indonesia, the amount of BOPO is ≤ 94%. Based on the data above, the magnitude of the BOPO ratio in Islamic banks in Indonesia is above the standard for the 2011 to 2014

which indicates that Islamic banks in Indonesia are healthy (efficient). In 2015 to 2017 ratios are above the standard which indicates that banks are increasingly unhealthy (inefficient).

FDR value determined by Bank Indonesia in accordance with regulation No. 15/7/PBI/2013 which is 78% - 92%. The amount of FDR in Islamic banks in Indonesia shows that the state of this ratio is still above the standard even though it has decreased to 79.68% in 2017. The low FDR indicates that banks are in a liquid state, the more liquid banks show idle funds. Idle funds indicates that the bank has a small opprotunity to earn the greater income.

Determination Coefficient (R^2)

The coefficient of determination (R^2) measures how far the ability of the model in explaining the variation of the dependent variable. The results of the determination coefficient of this research model are explained in the table below.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.924[a]	0.853	0.842	0.430565	0.770

a. Predictors: (Constant), FDR, INF, CAR, BOPO, ROA, SBIS

b. Dependent Variable: NPF

From the SPSS output, the R Square is 0,853. This means that 85,30% of NPF variables can be explained by variations of the six independent variables namely Inflation, SBIS, CAR, ROA, BOPO, and FDR while the remaining 14,70% is explained by other causes outside the model.

Simultaneous Significance Test (Test Statistics F)

The statistical test F basically shows whether all the independent variables included in the model have a joint influence on the dependent variable.

Table 2. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	83.102	6	13.850	74.711	0.000[a]
Residual	14.275	77	0.185		
Total	97.377	83			

a. Predictors: (Constant), FDR, INF, CAR, BOPO, ROA, SBIS

b. Dependent Variable: NPF

From the ANOVA Test or F test above, the calculated F value is 74,711 with a probability of 0,000. This means that Inflation, SBIS, CAR, ROA, BOPO, and FDR together affect NPF.

Significant Test of Individual Parameters

Statistical t test shows how far the influence of an independent variable individually in explaining the variation of the dependent variable. The results of the statistical t test can be seen in the table below.

Table 3. Coefficients for The Regression Analysis

Variable	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
INF	-0.032	0.042	-0.049	-0.762	0.448
SBIS	0.094	0.082	0.086	1.155	0.252
CAR	-0.173	0.050	-.201	-3.443	0.001
ROA	-0.545	0.147	-0.274	-3.705	0.000
BOPO	0.031	0.010	0.224	3.124	0.003
FDR	-0.038	0.007	-0.506	-5.139	0.000

Dependent Variable: NPF

From the regression results it was found that the variables of macro factors namely Inflation and SBIS did not have an effect on NPF while the variables of micro factors such as CAR, ROA, and FDR had a negative effect while BOPO had a positive effect on NPF.

Effect of Inflation on Nonperforming Financing

This study found that inflation did not affect NPF. This study is in line with the work of Khemraj & Pasha (2009), Castro (2013), Haniifah, (2015), and Wan (2018). The higher the inflation rate the problematic financing level in a bank will remain stable and indicate that the debtor feels a responsibility or commitment to fulfill his obligations in terms of repaying his loan to the bank, so that even if inflation rises, nonperforming loans also increase (Haniifah, 2015). Changes in the rising inflation rate do not directly dampen people's desire to keep abreast of needs or the public will reduce consumption so that the impact of financing risk can still be controlled.

Effect of Sharia Bank Indonesia Certificates on Nonperforming Financing

This study found that SBIS had no effect on NPF. SBIS issued by Bank Indonesia using the Ju'alah contract. ju'alah agreement is a promise or commitment (iltizam) to provide certain rewards ('iwadh/ju'l) for the achievement of results (natijah) determined from a job. This result is in line with (Poetry & Sanrego, 2011) which indicate that the NPF in Islamic banking is more stable or recovered from the shock of SBIS sharia monetary instruments.

Effect of Capital Adequacy Ratio on Nonperforming Financing

This research is in line with Rahman, Asaduzzaman, & Hossin (2017) and Setiawan & Bagaskara (2016) which obtained CAR results negatively affected NPF. The presence of large amount of NPLs is responsible for the decline in the profit margin of many banks (Rahman, Asaduzzaman, & Hossin, 2017). The higher the CAR level, the banks will be more cautious to provide financing which in turn will reduce the NPF level of Islamic Commercial Banks in Indonesia.

The increased CAR will make Islamic banks feel safe to channel financing. However, this has caused Islamic banks to be more lenient in the provision of financing. If this condition occurs, then the risk of financing given to customers who are not feasible will be even greater, and if there is an uncollectible financing, it will increase the NPF. The increase in the NPF ratio in this condition is indicated more due to irregularities in the implementation of credit procedures (Poetry & Sanrego, 2011).

Effect of Return on Assets on Nonperforming Financing

This study found that ROA had a negative and significant effect on NPF. The results of this study are in line with Makri, Tsagkanos, & Bellas (2014), Curak, Pepur, & Poposki (2013), Messai & Jouini (2013), Dimitrios, Helen, & Mike (2016), Anjom & Karim (2016), and Ghosh (2017). It indicates a deterioration of profitability ratio to increase in nonperforming loans, confirming the risk-taking behavior of banks. Bad management leads to riskier activities and weak performance *(Makri et al.*, 2014).

NPL growth reduces interest income capacity because of the non-recognition of interest and on the other hand the provision for NPL increases interest suspense but reduces the realized profit (Godlewski, 2005). In fact, a bank with strong profitability has less incentive to generate income and therefore less constrained to engage in risky activities such as risky loans. Instead, inefficient banks were obliged to grant credits considered risky and subsequently achieved high levels of impaired loans (Messai & Jouini, 2013). Higher profitability makes bank managers less effective in creating revenue from credit activities and thus, there is less exposure to credit risk. The relationship could be explained from bank efficiency perspective. Namely, banks that are less efficient in credit analysis and monitoring loans and thus increase the quality of assets, in comparison to more efficient banks (Curak *et al.*, 2013).

Effect of Financing to Deposit Ratio on Nonperforming Financing

This study found that FDR had a negative and significant effect on NPF. This result is in line with Akbar (2016). FDR is a division between financing provided by banks and third party funds managed by banks. The size of the FDR shows the level of bank liquidity. Good liquidity for a bank indicates that the bank has sufficient sources of funds available to fulfill all obligations. So that the higher the liquidity of a bank will reduce the risk of financing problems. The results of the study indicate that the financing channeled by Islamic banking to each of its customers is of good quality, so that the expansion of financing carried out by Islamic banks can increase bank returns, and reduce the level of NPF.

Financing channeled by Islamic banking to each of its customers is of good quality, so that expansion of financing expansion by Islamic banks can improve banking returns, and reduce the level of its NPF (Poetry & Sanrego, 2011).

Effect of Operations Expenses to Operations Income on Nonperforming Financing

This study found that BOPO had a positive and significant effect on NPF. This research is in line with the findings of Louzis, Vouldis, & Metaxas (2012), Abid *et al.* (2014), Anjom & Karim (2016), Setiawan & Bagaskara (2016), and Wan (2018). The efficiency index has a positive and statistically significant thus lending support to the 'bad management' hypothesis. Bad management hypothesis is positively associated with increases in future nonperforming loans. The proposed justification links 'bad management with poor skills in credit scoring, appraisal of pledged collaterals and monitoring borrowers (Louzis, Vouldis, & Metaxas, 2012) NPLs will increase with high operating costs or low cost efficiency. An efficient bank will be careful in managing the structure of bank fees that can result in cost efficiency. Inefficient banks fail to screen and monitor borrowers properly. That is why banks with high operating ratios to the ratio of operating income face a higher level of nonperforming loans (Anjom & Karim, 2016).

Conclusions

The cause of the nonperforming financing (NPF) can be due to various problems such as macro economic problems and problems with the performance of the bank itself. This study analyzes the influence of macroeconomic factors including inflation (INF) and Bank Indonesia Certificates Sharia (SBIS). Bank specific factors in this study involve variables of Capital Adequacy Ratio (CAR), Return on Assets (ROA), Operations Expenses to Operational Income (BOPO), and Financing to Deposit Ratio (FDR). The results showed that all variables of macro factors both inflation and SBIS had no effect on the occurrence of NPF. All variables included in bank specific factors have a significant effect on NPF. CAR, ROA, and FDR have a negative effect on NPF while BOPO has a positive effect on NPF.

The bank's specific factors are very important indicators for the attention of banks in maintaining financial performance in accordance with the standards set by Bank Indonesia and setting the right financial policies especially for ROA ratios because they are below standard and experience a decrease and BOPO variables that show the ratio in on standards that indicate that banks are not efficient in managing operational costs. This research is limited to Islamic Commercial Banks without involving Sharia Business Units and Sharia Rural Banks so that it can be added to further research.

Subsequent research can also add other variables both macroeconomic factors and bank specific factors.

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