NON PERFORMING FINANCING AND EFFICIENCY OF ISLAMIC BANKS IN INDONESIA

Purwanto [1], Afifah Helga Fairuz [2]

[1,2,3] Faculty of Business, President University, Bekasi, Indonesia

Corresponding author:

Abstract

This research objective is to empirically investigate factors that decisively affect Non-Performing Financing (NPF) of Islamic banks partially and simultaneously; the performance of Islamic banks through observing the efficiency by applying Data Envelopment Analysis (DEA) approach; and the intertemporal relationship between NPF and efficiency of Islamic banks by employing VAR model to test the hypothesis of 'Bad Management' and 'Bad Luck.' This research uses the purposive sampling method and panel data, where data is collected from the official website of each Bank and Bank of Indonesia. This study adopts quantitative research and has 72 observations from four banks in five quarterly years. Empirical evidence of this research indicates that partially FDR, ROA, and Exchange rate significantly negatively influence NPF, while BI rate has a significant favorable influence on NPF. However, CAR and Inflation have an insignificant effect on NPF. Simultaneously, all independent variables have a significant effect on NPF, described by the value of 74.92%. The findings of DEA show that the average value of Islamic banks in Indonesia is 92.85% which means Islamic Banks in Indonesia are not fully efficient. The finding also indicates that Islamic banks in Indonesia support the "Bad Luck" hypothesis. The NPF and inefficiency of Islamic banks in Indonesia can be linked to external factors beyond management control rather than internal factors.

Keywords: NPF, FDR, CAR, ROA, BI rate, Inflation, Exchange Rate, Efficiency.

Introduction

A bank is a supporting tool that is vital to support the continuity of the economy as a financial mediator in charge of collecting and distributing public funds. As a profit maximizer that can manage finances effectively and efficiently, banks are like the basic needs of society that must be met. Financial institutions have experienced very tight competition in recent years. Islamic banks are one of the fastest-growing institutions, growing around the world by providing an alternative system suited to the needs of Muslims but universally accepted. Currently, in more than 50 countries globally, Islamic banks are still operating and competing with conventional banks (Ahmad and Prentice, 2015). Islamic banks stood efficiently in the subprime crisis of 2008 to 2009 in the scene of a significant financial crisis that has plagued the conventional financial system as a whole. Coupled with the crisis in 2008, data from Bank Indonesia showed an increase in Islamic bank financing performance until February 2009 with good financing performance where NPF is below 5%. Financing distribution by Islamic banks as of February 2009 has consistently increased by 33.3% in February 2008 to 47.3¬% in February 2009. Meanwhile, the value of financing disbursed by Islamic banks reached 40.2 trillion rupiahs (Bank Indonesia, 2009).

The Islamic financial system has been overgrown in Indonesia and has a steady capacity over the past two decades or in the last 25 years. Data from the Badan Pusat Statistik stated that 90% of the 250 million people in Indonesia are Muslim, and Indonesia is a country that holds 13% of the total Muslim population in the world. While Malaysia has a 20% market share, 61% of the population is Muslim. Meanwhile, in Saudi Arabia, which has the most prominent Islamic financial industry globally, their Islamic banks have more than 50% of total banking assets in Indonesia (Indonesia Investment, 2015).
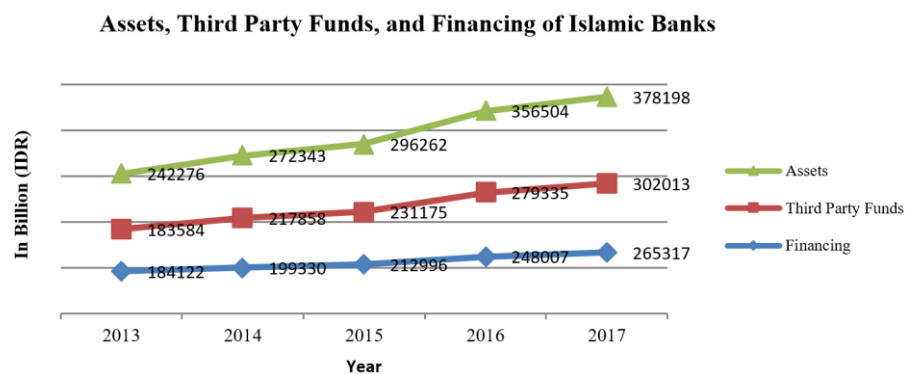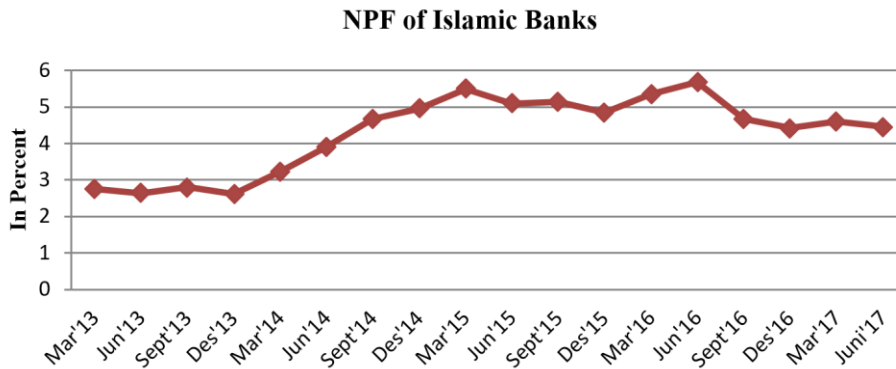

Source: Otoritas Jasa Keuangan, 2017

Figure 1. Assets, Third Party Funds, and Financing of Islamic Banks

Assets growth and Islamic banking activities show resilience with the ongoing global financial crisis and show tremendous growth and good performance achievement. However, the development of Islamic banks is getting stronger. Moreover, data showing continued growth in assets is followed by financing risk growth over 2013 to 2017, reflected by the volatile Non Performing Financing Ratio that increases year by year.

Source: Otoritas Jasa Keuangan, 2017

Figure 2. NPF of Islamic Banks in Indonesia

In Islamic bank principles, the term credit is not used. However, it is replaced by the term financing that prioritizes the elements of agreement and transparency to maintain Islamic values. In operation, there is bad quality of financing or problematic financing called Non-Performing Financing. According to Regulation of Bank Indonesia No. 6/9/PBI/2004/2004, the Non-Performing Financing ratio's maximum permitted is 5%. However, data have shown that the NPF ratio of Islamic banks in Indonesia is close to 5% in 2014 and even above 5% in 2015 and 2016. If the problem financing exceeds the limit, then the bank profitability will be disrupted, affecting the health of the Bank and impact on the state economy.

The cause of NPF in the Islamic banking sector can be grouped into an internal factor of bank-related to policy and strategy pursued by Bank, and external factor related to economy and competition. Internally, Islamic banking can be analyzed by looking at financial ratios based on financial statements (Wijaya, 2007). The efficiency and resilience of the banking industry play a substantial role in the Indonesian economy, And the continuity of banking operations depends on its ability to maintain competitiveness that is reflected in operational efficiency. The excellent performance of the Bank becomes significant. There are two types of measures to measure bank performance: financial ratio measures and efficiency measures (Suzuki and Sastrosuwito, 2011).

From data provided by the Indonesian Financial Services Authority, continued growth in asset, third party funds, and financing are followed by an ever-increasing number of NPF, showed bad performance of Islamic banks in Indonesia. The growth of Islamic banks in Indonesia increases the order to measure and examine the efficiency of Islamic banks. By calculating the efficiency level of the Bank, it can be seen how much the Bank's capability in optimizing assets and resources to provide benefits to the community. Furthermore, by measuring the level of efficiency of Islamic banks, it can be seen how much Islamic bankability is in the face of tight competition in the banking industry in Indonesia (Firdaus and Hosen, 2013).

This study is focusing on Islamic banks in Indonesia. This study will assess determinants of Non-Performing Financing (NPF) of Islamic banks partially and simultaneously, the performance of Islamic banks through observing efficiency, and the intertemporal relationship between NPF and efficiency of Islamic banks. Coupled with previous studies, there are gaps between the influence of internal and external factors affecting NPF. Many studies also suggest that Islamic banks in Indonesia are not fully efficient and should manage funds efficiently and maintain efficiency persistently.

Literature Review
Non Performing Financing
According to Irham Fahmi (2014), non-performing financing is the number of troubled loans and may not be billed. The greater the value of NPF, the worse the performance of the Islamic Bank, with the problematic financing reflected in the NPF can result in the loss of opportunity to obtain income from the financing given to affect the profitability.

FDR towards NPF
Financing to Deposit Ratio is a ratio that can describe the probability of the emergence of credit. The higher the FDR ratio indicates the lower bank liquidity capability due to the number of funds needed to finance the financing becomes greater. Based on Ding Lu (2001), the financing demand provided by banks can affect the increasing NPF ratio (Padmantyo, 2011). Higher FDR indicates the high number of third-party

funds turning to finance activities. If these funds are not handled properly, this condition leads to an increase in the NPF probability.

CAR towards NPF

Dendawijaya (2009) defines Capital Adequacy Ratio as a ratio that shows how far all bank assets contain risks involved financed from own capital funds and obtaining funds from sources outside the Bank. According to commercial loan theory in a book written by Fahmi (2015), the CAR ratio is used to measure the liquidity ratio of the equity side. Declining CAR indicates the smaller banks' ability to minimize the risk of burdening financing, resulting in potentially problematic financing in banks.

ROA towards NPF

Return on Assets is the ratio used to measure the effectiveness of companies in generating profits by utilizing assets owned. According to the anticipated income theory, based on a debtor's ability to pay his loan, see the debtor's future income in question (Fahmi, 2015). The increasing profits reflect the increasing value of ROA and show the more significant revenue earned by the Bank. Finally, the reserves of funds derived from higher revenue are more significant and increasingly able to handle financing risks by utilizing the available funding reserves to facilitate loan repayment.

BI Rate towards NPF

Bank Indonesia defines the BI Rate as the policy rate reflecting the stance or stance of monetary policy stipulated by Bank Indonesia and announced to the public (Bank Indonesia, 2017). BI rate in Islamic banking acts as a comparison. Islamic banks use the operating system by referring to the Al Quran and the Hadith, which does not recognize the credit system and the interest in their business activities. When the BI Rate increases, there is an increase in the competitiveness of Islamic banks where the ratio of profit/loss sharing can compete with the higher interest rate of conventional bank loans. This resulted in the community choosing another option to make loans or financing in Islamic banks whose cost of funds is considered lower (Rustika, 2016). Based on this explanation, the BI rate has a positive influence on Non-Performing Financing.

Inflation toward NPF

Inflation is generally defined as the rise in the prices of goods and services due to more money (demand) than the number of goods or services available (supply); Inflation is the decline in the value of money. According to Keynesian theory, the inflation process is a seizure process among social groups who want a larger share than can be provided by society. This will affect the demand for goods and services that will eventually raise prices. Rising prices will reduce the people's purchasing power, which impacts reduced revenues earned by producers. Low revenues will make the return on financing from the Bank not liquid to cause a greater risk of financing borne by the Bank (Mutamimah and Chasanah, 2012).

Exchange Rate towards NPF

According to Samuelson (2004), the foreign exchange rate is the currency's unit price in other currencies. Changes in currency rates will significantly affect the smooth running of business customers. If the rupiah's value falls compared to foreign exchange and if the business is run using imported materials, it will hit the customer's business. It can increase the ratio of problem financing. It can be concluded that the increase of exchange rate of rupiah to foreign currency will increase the ratio of NPF.

The efficiency of Islamic Bank

According to Hallo and Nagy (2004), the primary function of the banking sector in the field of infrastructure is a macroeconomic policy directed to create an effective and efficient means of payment to improve the economic welfare of society. According to Farrell (1957), the discussion on efficiency in an Economic always concerns how to generate maximum output level with a certain amount of input. Several researchers have conducted studies regarding the relationship between NPF and Bank Efficiency. They are the "bad management" and "bad luck" hypotheses. Researchers Berger and De Young (1997), using the Granger causality test with the data from US commercial banks from 1985 to 1994, stated that lousy management is associated with poor management in the banking industry, leading to poor quality loan outcomes increase the level of NPL.

In contrast, the bad luck, the rise in NPL exogenous or unpredictable incidents such as economic slowdown. Williams (2004), in his study using data period between years 1990 and 1998 from European savings banks, found strong evidence of an inadequate management hypothesis. Rossi et al. (2005) studied nine Central and Eastern European countries using data from 1995 and 2002. They show evidence of a flawed luck hypothesis. The previous studies in Indonesia by Setiawan and Bagaskara (2016) and Setiawan and Putri (2013) states that the increase of NPF ratio is primarily caused by poor management rather than external factors.

Research Method
Population and Sample
This research focuses on the banking industry, specifically Islamic Commercial banks listed in the Indonesia Stock Exchange period 2017. Therefore, the population is selected to be 13 Islamic Commercial banks. Purposive sampling is used as the sampling technique. The following criteria for the sample size of this study are. There are four out of 13 Islamic Commercial Banks have selected. The data was used in this study is quarterly data period 2013-2017. The data observations have chosen to be 72 observations data as the total amount.

Table 1. Sample Proportion

No	Bank's Name	2013	2014	2015	2016	2017
1	PT. Bank Syariah Mandiri	4	4	4	4	2
2	PT. Bank BRI Syariah	4	4	4	4	2
3	PT. Bank Muamalat Indonesia	4	4	4	4	2
4	PT. Bank Victoria Syariah	4	4	4	4	2
TOTAL		16	16	16	16	8
		**72 observations data**				

Source: Islamic banking statistic, 2017

Determinants of Non-Performing Financing
The Econometric Views (Eviews) is a statistical tool used as the first instrument in this study to identify the factors that decisively affect Non-Performing Financing. Eviews help researchers get more reliable and scientific results (Schwert, 2010). The data will be processed statistically by performing normality, autocorrelation, multicollinearity, and heteroscedasticity tests to obtain correct results.

Multiple regression analysis was chosen for use in this study because this study has six independent variables. The dependent variable is the non-performing financing (Y), while the independent variables are financing to deposit ratio (X1), capital adequacy ratio (X2), the return on assets ratio (X3), BI rate (X4), inflation rate (X5), and exchange rate (X6). The effect of the independent variable on the dependent variable can be written in the linear regression equation as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

(Eq. 1)

Estimation of Efficiency
DEA–CRS or Data Envelopment Analysis–Constant Return to Scale is a statistical tool used as the second instrument in this study to estimate the bank efficiency. DEA helps researchers by input-output measurements, and ultimately the source of inefficiencies can be analyzed and calculated for each unit being evaluated (Noor, 2012). The efficiency of banking techniques is measured by calculating the ratio between output and its inputs. According to Miller and Noulas (1996), DEA will calculate banks using n inputs to produce different m outputs (Sutawijaya and Lestari, 2009):

$$h_s = \frac{\sum_{i-1}^{m} u_i y_{is}}{\sum_{j=1}^{n} v_j x_{js}}$$

(Eq. 2)

Where:
hs = bank efficiency s
m = Bank s output observed
n = input s Bank observed
y_{is} = total output i produced by Bank s
x_{js} = number of input j used by Bank s
u_i = weight of output i generated by Bank s
v_j = the input weight j given by the Bank s and i is calculated from 1 to m and j arith from 1 to n

Equation 2 shows the use of one input variable and one ouput. The efficiency ratio (hs), then maximized by the following constraints (Sutawijaya and Lestari, 2009):

$$\text{Maximize } hs = \frac{\sum_{i=1}^{m} u_i y_{is}}{\sum_{j=1}^{n} v_j x_{js}} \le 1 \; ; r = 1, \ldots, N$$

(Eq. 3)

Where u_i and $v_j \ge 0$

In equation three, where r represents the type of bank sample, and N is the number of banks in the study sample. The first inequality explains that the other UKEs ratios are no more than 1, whereas the second non-negative (positive) inequality. This ratio will differ between 0 and 1. The Bank is said to be efficient if it has a ratio close to 1 or 100 percent, whereas close to 0 indicates lower bank efficiency. At DEA, each Bank can determine the respective weights and ensure that the selected weight will produce the best performance measures (Sutawija and Lestari, 2009). The variables consist of three inputs and two outputs:

Table 2. Operational Definition for Efficiency

No	Variable Type	Variable	Definition	Scale
1	Input	Total Funds	Mudharabah saving, mudharabah deposito, and giro wadi'ah	Nominal
2	Input	Fixed Assets	Amount of physical capital and premises	Nominal
3	Input	Labor Costs	Total expense on employees	Nominal
4	Output	Total Financing	Murabahah, mudharabah, musyarakah, istishna, and qardhul hasan financing	Nominal
5	Output	Total Operational Income	Total of bank's operational income	Nominal

Sources: Adjusted by Researcher, 2017, according to Maflachatun (2010), Shafitranata (2011), and Setiawan and Sherwin (2017).

Intertemporal relationship between NPF and efficiency

To find out the intertemporal relationship between NPF and bank efficiency of Islamic banks in Indonesia, the researchers used the Vector Auto Regression model for the time series in Eviews version 9.5. Vector Auto Regression is applied to determine intertwined time series framework and dissect dynamic effects on a variable system of annoying random effects (Schwert, 2010). The general mathematical representation of VAR is calculated as:

$$NPF_{l,t} = (NPF_{i,t-1} ... NPF_{i,t-n}; \text{ef } f_{i,t-1} ... \text{ef } f_{i,t-n}) + e_{it} \qquad \textbf{(Eq. 4)}$$

$$\text{Ef } f_{l,t} = (\text{Ef } f_{i,t-1} ... \text{Ef } f_{i,t-n}; NPF_{i,t-1} ... NPF_{i,t-n}) + e_{it} \qquad \textbf{(Eq. 5)}$$

Where:

e_{it} = an innovation vector that can be simultaneously correlated but are not correlated with own lagged values and does not correlated with all right-hand variables.

Equation 4: Bad Management Hypothesis where NPF as dependent variable and efficiency is the independent variable

Equation 5: Bad Luck Hypothesis where efficiency is a dependent variable and NPF is the independent variable

Hypotheses

Hypotheses are logically expected relationships between two or more variables expressed in testable statements (Sekaran and Bougie, 2003). The hypotheses of this research are as follows:

Non- Performing Financing Determinants

The hypothesis testing would be constructed by regression using panel data. This analysis is used to test the analysis of internal and external factors towards non-performing financing of Islamic banks in Indonesia.

Hypothesis 1: There is a significant influence of FDR towards NPF of Islamic banks in Indonesia.

Hypothesis 2: There is a significant influence of CAR towards NPF of Islamic banks in Indonesia.

Hypothesis 3: There is a significant influence of ROA towards NPF of Islamic banks in Indonesia.

Hypothesis 4: There is a significant influence of BI rate towards NPF of Islamic banks in Indonesia.

Hypothesis 5: There is a significant influence of inflation rate towards NPF of Islamic banks in Indonesia.

Hypothesis 6: There is a significant influence of exchange rate towards NPF of Islamic banks in Indonesia.

Hypothesis 7: There is a significant influence of FDR, CAR, ROA, BI rate, inflation rate, and exchange rate towards NPF of Islamic banks in Indonesia.

Relationship between NPF and Technical Efficiency

Hypothesis 1: "Bad Management": The sum of the technical efficiency coefficients estimated of Islamic Bank is associated negatively with non-performing financing.

Hypothesis 2: "Bad Luck": The sum of the non-performing financing coefficients estimated of Islamic Bank is negatively associated with technical efficiency estimated of Islamic Bank.

Result and Discussion
Multiple Regression Analysis

To determine the determinants of NPF, the Common Effect Model is applied as an estimation model due to Chow test results. Table 3 describes the result of multiple regression analysis by using standard effect model explains as follows:

Table 3. Multiple Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.571376	1.766287	4.852764	0.0000
FDR____	-0.067249	0.015484	-4.343042	0.0001
CAR____	0.020456	0.040554	0.504407	0.6157
ROA____	-1.101303	0.084380	-13.05179	0.0000
BI_RATE____	0.485220	0.130407	3.720807	0.0004
INFLATION_RATE____	-0.202188	0.218093	-0.927076	0.3573
EXCHANGE_RATE____	-0.110682	0.043919	-2.520124	0.0142
R-squared	0.770418	Mean dependent var		5.250000
Adjusted R-squared	0.749226	S.D. dependent var		2.099773
S.E. of regression	1.051511	Akaike info criterion		3.030500
Sum squared resid	71.86894	Schwarz criterion		3.251842
Log likelihood	-102.0980	Hannan-Quinn criter.		3.118617
F-statistic	36.35385	Durbin-Watson stat		1.304257
Prob(F-statistic)	0.000000			

Source: Eviews 9.5

The multiple regression equations will be formulated regarding the coefficient of regression of every independent variable. Based on table 4.7, the equation of the multiple regression models are as follows:

$$Y = 8.571376 - 0.067249\ FDR + 0.020456\ CAR - 1.101303\ ROA + 0.485220\ BIR - 0.202188\ INF - 0.110682\ ER$$

(Eq. 6)

Interpretation of Result
The Influence of Financing to Deposit ratio towards NPF

The coefficient determination regression result for the NPF variable has a negative value of -0.067249 and a significant value of 0.0001. FDR has a negative and significant influence on NPF. This study rejects the existing theory that the higher amount of financing disbursed in a bank will increase the chance of NPF occurrence. Based on Ding Lu (2001), the financing demand provided by banks can affect the increasing NPF ratio (Padmantyo, 2011). Higher FDR indicates the high number of third-party funds turning to finance activities. If these funds are not handled properly, this condition leads to an increase in the NPF probability.

This study follows previous research by Setiawan and Sherwin (2017), which states that FDR has a negative and significant influence on NPF. It indicates that a large amount of financing disbursed by banks does not cause the increase of NPF in Islamic banking, which means the performance of Islamic banks in conducting financing analysis to prospective borrowers, showing the results of good performance for banks in financing. The average FDR rate of Islamic banks in Indonesia has a value in the provisions stipulated by Bank Indonesia at least 80 - 100%. This proves that Islamic banks in Indonesia have the ability to assume the risk of funds needed for financing.

The Influence of Capital Adequacy Ratio towards NPF

The coefficient determination regression result for the CAR variable has a positive value of 0.020456 and a significant value of 0.6157. CAR has a positive but not significant influence on NPF. According to commercial loan theory in a book written by Fahmi (2015), the CAR ratio is used to measure the liquidity ratio of the equity side. Decrease in CAR value due to decreased capital adequacy of banks and higher levels of risky assets. Declining capital adequacy, the smaller the banks' ability to minimize the risk of burdening financing, resulting in potentially problematic financing that occurs in banks will be higher (Purnamasari and Musdholifah, 2016).

A journal by Havidz and Setiawan (2015) also found that non-performing financing did not have a significant effect and had a positive relationship to return on assets. According to Rahmadani (2015), cited by Purnamasari and Musdholifah (2016), CAR variables that do not affect the NPF caused both the increase and decrease in NPF does not occur because of the influence of the amount of CAR. However, on the contrary, that the CAR is formed from the level of Islamic bank NPF. The increase in NPF occurs due to the inability of customers to pay their liabilities, while the CAR is only to cover the potential losses incurred in the Bank. No matter how large the CAR bank variable cannot lower the NPF level. The average rate of CAR of Islamic Bank in Indonesia has a value above the provisions stipulated by Bank Indonesia of at least 8%. This proves that Islamic banks in Indonesia have the ability to bear the risk of any financing.

The Influence of Return on Assets towards NPF

The coefficient determination regression result for the ROA variable has a negative value of -1.101303 and a significant value of 0.0000. ROA has a negative and significant influence effect on NPF. Purnamasari and Musdholifah (2016) presented the same result for the negatively significant impact from ROA to the NPF of Islamic Bank.

ROA value increases reflect the profit obtained by the higher the Bank so that the income of banks is also higher. This condition has a positive impact that will increase the bank reserve funds provided from the provision of bank income. The Bank will have sufficient funds to deal with the problematic financing conditions in several ways. The results of this study are also in line with the anticipated income theory described in the book written by Fahmi (2015), which indicates that the Bank can plan and consider the financing to be provided to its customers by looking at the future income of the customers concerned to avoid the risk of financing. When the debtor has guaranteed future income, it will better repay the loan and reduce the NPF level of the Bank.

The Influence of BI rate on NPF

The coefficient determination regression result for the BI rate variable has a positive value of 0.485220 and a significant value of 0.0004. BI rate has a positive and significant influence on NPF. Then, this result is equivalent to the theory. BI rate in Islamic banking acts as a comparison. Islamic banks use the operating system by referring to the Al Quran and the Hadith, which does not recognize the credit system and the interest in their business activities. Changes in the BI Rate will affect the level of the NPF. When the BI Rate increases and affects the increase of lending rates in conventional banks, it is advantageous for Islamic banks because the margin will be competitive with conventional banks. When the margin for Islamic bank proceeds is more competitive, the financing will increase. Islamic bank profit margin that is more competitive to conventional banks can increase demand for Islamic banking financing. When there is an increase in demand for financing, the possibility of problematic financing will be higher. This study has also supported another research from Harahap (2016), which states that the BI rate has a positive and significant effect on NPF.

The Influence of Inflation rate on NPF

The coefficient determination regression result for the inflation rate variable has a negative value of -0.202188 and a significant value of 0.3573. Inflation has a negative and insignificant influence on NPF. Then, this result is contradictory to the theory. According to Keynesian theory, the inflation process is a seizure process among social groups who want a larger share than can be provided by society. This will affect the demand for goods and services that will eventually raise prices. Rising prices will reduce the people's purchasing power, which impacts reduced revenues earned by producers. According to Mutamimah and Chasanah (2012), low revenues will make the return on financing from the Bank not liquid so that it can cause a greater risk of financing borne by the Bank.

The previous research from Rustika (2016) and Harahap (2016) discovered an insignificant negative relationship between inflation rate to NPF. Inflation rate change does not significantly affect the NPF level. The cause of Inflation does not significantly affect the NPF because the value of financing and non-performing loans in Islamic banks in nominal terms is still relatively small compared with conventional banks, so that inflation impact is not significant in NPF. In addition, Inflation occurring in the study period was not as severe as Inflation that occurred during the crisis of 1997/1998, which reached hyperinflation so that it could complicate the debtor.

The Influence of Exchange rate on NPF

The coefficient determination regression result for the exchange rate variable has a negative value of -0.110682 and a significant value of 0.0142. The exchange rate has a negative and significant influence on NPF. Then, this result is in line with the theory. Changes in currency rates will significantly affect the smooth running of business customers. According to Mutamimah and Chasanah (2012), if the rupiah's value falls compared to foreign exchange and if the business is run using imported materials, it will hit the customer's business. It can increase the ratio of problem financing. Harahap (2016) and Lubis (2015) supported this research that stated the exchange rate has a significant adverse effect on the NPF.

Simultaneous Influence of Financing to Deposit Ratio, Capital Adequacy Ratio, Return on Assets, BI Rate, Inflation Rate, and Exchange Rate towards Non-Performing Financing.

Based on F-test, a coefficient determination is 0.749226. It means there is a significant simultaneous influence of Financing to Deposit Ratio, Capital Adequacy Ratio, Return on Assets, BI Rate, Inflation Rate, and Exchange Rate towards Non-Performing Financing in Islamic banks. The movement of all variables significantly influences the movement of the NPF ratio.

The Most Significant Influence Factors towards NPF of Islamic Banks in Indonesia

The t-statistic test result will define the most influence until the most minor influence of independent variables towards dependent variables. The higher t-statistics describes it has more significance to the

dependent variable. Furthermore, the level of significant influence also can be ranked based on the value of probability in t-statistics. If the probability value is closer to 0, it significantly influences the dependent variable. However, since all the dependent variables have a probability value very close to 0, the researcher will depend more on the t-statistics value. According to the test result, the most significant variable influencing NPF of Islamic banks is the BI rate. The t-statistics value is the highest among all the independent variables, which is 3.720807. Therefore, it concludes that the Bank must pay attention to the external factor, BI rate value since it will affect the clients to put their money in the Bank.

Data Envelopment Analysis Model Result

According to DEA, Islamic Bank has an optimum technical efficiency if the output ratio to input ratio with the price of input defined is equal to one. It signifies that the economic activities of the Bank in managing the technology have resulted in optimum output. On the other hand, Islamic Bank is inefficient if the efficiency score is between zero and one.

The comparative result is used to find the most efficient Bank in managing the technology for each quarter. Each Bank is arranged in a row for each quarter before the program runs with a specific final goal to get a comparison result. This action measure yields a relative efficiency score with the most efficient bank benchmark of the quarter. From all the quarter technical efficiency scores, the result shows the most efficient Bank in managing its technical compare with others banks is Bank Muamalat Indonesia, which is efficient in 11 quarters of 18 quarter and with an efficiency score of 0.98139 or 98.13%. Bank Rakyat Indonesia Syariah has the second position with the amount of 0.96806 or 96.80% for technical efficiency score. According to the result, Bank Syariah Mandiri has the third position with an efficiency score of 0.89447 or 89.44%. In addition, Bank Victoria Syariah is the most inefficient compared with other banks in all quarters, which only show 0.87026 or 87.06% technical efficiency score.

Every Bank measured with the benchmark of the best technical efficiency in a specific period to discover the time of the Bank that had ideal technical efficiency. Based on the result, Islamic banks' average efficiency in this study sample is 0.9285 or 92.85%. These results show that Islamic banks are still not fully efficient and using only 92.85% input to produce output. Most banks have inefficiency issues on the input side rather than the output side. Therefore, Islamic banks should pay more attention to managing the input side by reducing non-urgent costs. As a result, the Bank can run more optimally in serving its customers.

VAR Model Testing Result

Researchers will utilize Vector Auto Regression with 2, 3, and 4 lag. Nevertheless, to estimate and prove the "bad management" hypothesis or the "bad luck" hypothesis in Islamic banks in Indonesia.

Table 4. Bad Management Hypothesis

	Sum of Coefficient	Sum of Standard Error	Sum of t-ratio	R-squared of NPF	F-statistic of NPF
		Dependent: NPF			
EFF Lag 2	1.055126	-4.13432	0.52755	0.659136	28.52235
EFF Lag 3	1.574741	-7.00601	0.74889	0.645982	16.11833
EFF Lag 4	1.165359	-10.58861	0.872626	0.618988	9.544457

Source: Data processed by Author, 2017

Table 5. Bad Luck Hypothesis

	Sum of Coefficient	Sum of Standard Error	Sum of t-ratio	R-squared of EFF	F-statistic of EFF
		Dependent: EFF			
NPF Lag 2	-0.000628	-0.01816	-0.0518	0.400099	9.837409
NPF Lag 3	-0.000206	-0.03158	0.06243	0.390976	5.670757
NPF Lag 4	-0.002124	-0.05004	-0.39809	0.341513	3.046968

Source: Data processed by Author, 2017

The results in table 4 exhibit that the amount of efficiency coefficient is positively related to NPF. These findings refer that the decrease in bank technical efficiency is in line with the reduced NPF. This result rejects the "bad management" hypothesis, indicating that an increase of Non-Performing Financing generally follows the score of bank efficiency decrease. Furthermore, the negative relationship in table 5 indicates that the NPF increase tends to be followed by a decrease in bank efficiency, the high level of financing problem causing banks to increase spending on implementation, sale of financing, and monitoring. This study supports the "bad luck" hypothesis because the estimated sum of the coefficient of NPF of Islamic banks is negatively related to bank efficiency.

Briefly, this research found no evidence for the "bad management" hypothesis and only found evidence for the "bad luck" hypothesis, where bad exogenous financing leads to inefficiency. The results show that the

inefficiency of Islamic banks in Indonesia can be attributed to uncontrollable external factors and beyond management control, such as environmental conditions, crime rates, and others. This result suggests that bank supervision and research should consider NPF as a factor that affects the bank efficiency of Islamic banks. In addition, the results show that the inefficiency of Islamic banks in Indonesia can be attributed to external factors in line with the regression result that BI rate is the most significant variable that influences NPF of Islamic banks.

Conclusion

FDR has a negative and significant influence on NPF. This indicates that a large amount of financing disbursed by banks does not cause financing problems which means the performance of Islamic banks shows good performance in conducting financing analysis to prospective borrowers. CAR has a positive but insignificant influence on NPF. Indicates the insignificant influence caused both the increase and decrease in NPF does not occur because of the influence of CAR. The increase in NPF occurs due to the inability of customers to pay their liabilities, while the CAR is only to cover the potential losses incurred in the Bank. ROA has a negative and significant influence on NPF. ROA value increases reflect the profit obtained by the higher the Bank so that the income of banks is also higher. The result indicates that the Bank can plan and consider the financing to be provided to its customers by looking at the future income of the customers concerned to avoid the risk of financing. BI Rate has a positive and significant influence on NPF. The result explains that where the BI rate is growing up, NPF will increase as well. Islamic bank profit margin that is more competitive to conventional banks can increase demand for Islamic banking financing. When there is an increase in demand for financing, the possibility of problematic financing will be higher. Inflation has a negative and insignificant influence on NPF. The cause of Inflation does not significantly affect the NPF because the value of financing and non-performing financing in Islamic banks in nominal terms is still relatively small compared with conventional banks, so that inflation impact is not significant in NPF. The exchange rate has a negative and significant influence on NPF. When the rupiah exchange rate against the dollar increases, the rupiah exchange rate depreciates. The price of foreign currency will be much higher so that the demand for foreign currency financing will decrease, and the probability of NPF will decrease.

Based on F-test, there is a significant simultaneous influence of Financing to Deposit Ratio, Capital Adequacy Ratio, Return on Assets, BI Rate, Inflation Rate, and Exchange Rate towards Non-Performing Financing in Islamic banks. Therefore, NPF is affected by all the independent variables simultaneously. It describes 74.92% of the dependent variable, while the remaining 25.08% is explained by other factors which are excluded in this research. Based on the Data Envelopment Analysis Model result, the average Islamic bank's efficiency equals 92.85%. It illustrates that operating only used 92.85% of inputs to reach optimum output, which means Islamic Banks in Indonesia are not fully efficient.¬¬ According to the VAR Model Testing result, the relationship between NPF and efficiency, with a sum of efficiency that shows a negative relationship, indicates that Islamic banks in Indonesia support the "Bad Luck" hypothesis. The results show that the inefficiency of Islamic banks in Indonesia can be attributed to external factors that are not controlled and beyond management control.

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