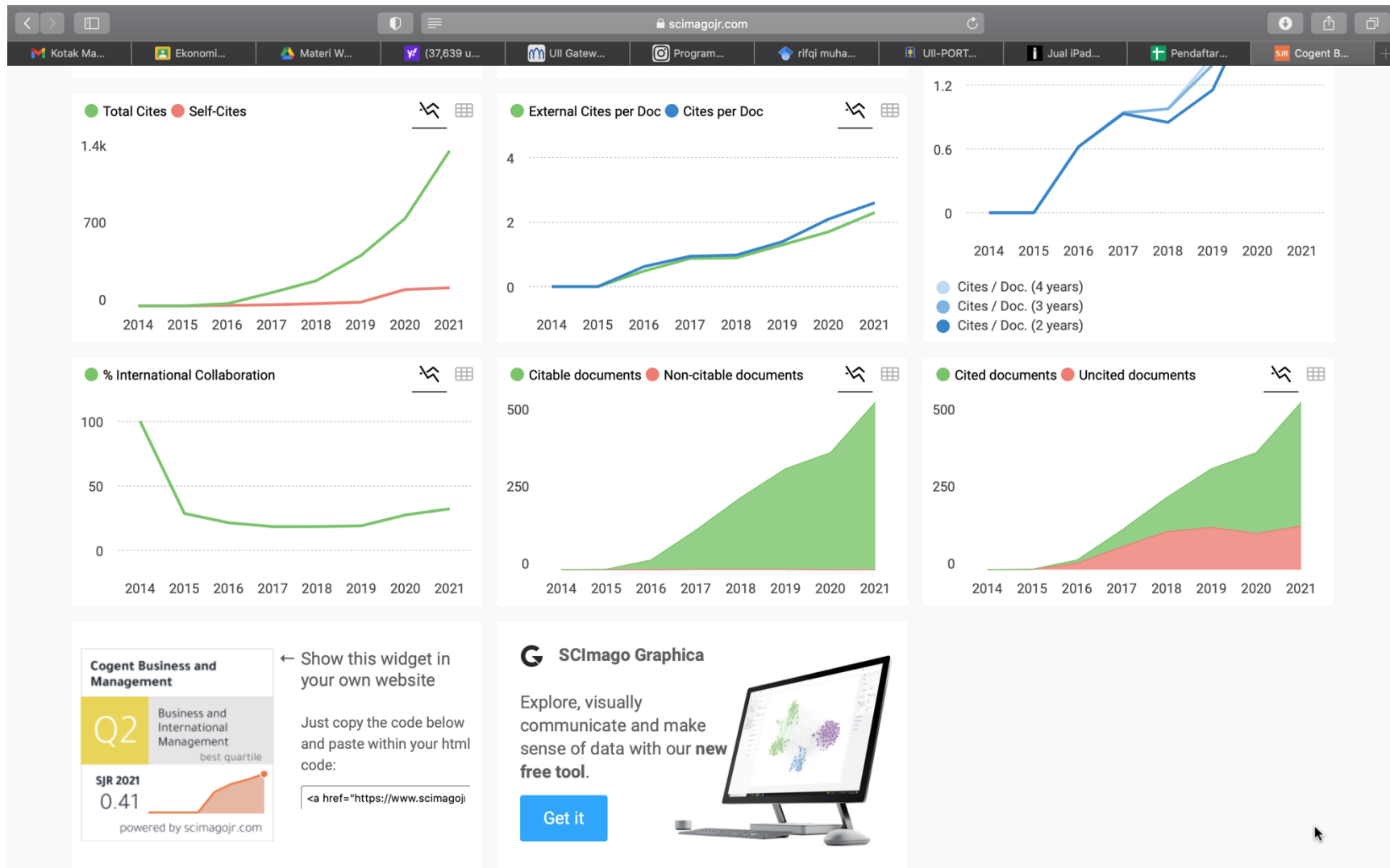


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Comments to the author

Reviewer 1: I think the paper is interesting while it requires major revisions, and the authors should carefully modify the manuscript based on the following suggestions.

1. In Section 3, they conducted tests to choose the models for fitting the data, and the test statistics should be shown in the paper.
2. The authors use the term "NPF" while most papers use "NPL". Please explain the reason why you prefer "NPF".
3. The authors should enrich their literature reviews related to banking industry, and then modify the research design and data analysis.
4. The data analysis and discussion should be strengthened. Currently, the paper concentrates on data, while the possible explanation should be provided.
5. The conclusion section should consist of policy implications based on results, and it is the aim of the paper and shows your contributions in this field.

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Action	Manuscript Number	Title	Initial Date Submitted	Status Date	Current Status	Date Final Disposition Set	Final Disposition
Action Links	COGENTBUSINESS-2020-0194	Internal Factors and Non-Performing Financing in Indonesian Islamic Rural Banks	Mar 17, 2020	Sep 11, 2020	Completed Accept	Sep 11, 2020	Accept
Action Links	COGENTBUSINESS-2021-0133	The Influence of the SSB's Characteristics toward Sharia Compliance of Islamic banks	Feb 01, 2021	May 10, 2021	Completed Accept	May 10, 2021	Accept

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## Author's Response To Reviewer Comments

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These are our responses according to suggestions from the reviewer. We have added the explanation (in yellow colour) related to those comments:

1. In Section 3, they conducted tests to choose the models for fitting the data, and the test statistics should be shown in the paper.

answer:

We have added the explanation on page 6:

There are three types of approaches in panel data regression, namely Common Effects Model (CEM), Fixed Effects Model (FEM) and Random Effects Model (REM). First two steps of analysis were carried out to select the best model. First, the Chow-test was undertaken to compare FEM with CEM (FEM is selected if p-value < 0.05). Second, the Hausman-test was carried out, which compares FEM and REM (FEM is selected if p-value < 0.05). The next test uses Lagrange Multiplier (LM) test to compare CEM and REM. LM-test is conducted if Chow-test and Hausman-test above have different results. The results of the test can be seen as follows:.....

2. The authors use the term "NPF" while most papers use "NPL". Please explain the reason why you prefer "NPF".

answer:

We have added the explanation on page 3:

.....Poor financing issue in banking industry is known as Non-performing financing (NPF) or non performing loan (NPL). The terms have similar meaning, but NPF is usually used in discussing Islamic banks while NPL is familiar in conventional bank.....

3. The authors should enrich their literature reviews related to banking industry, and then modify the research design and data analysis.

answer:

We have added the explanation on page 2-4:

Murabahah financing is the highest financing distributed by Islamic banks. Some reasons are because it has low risk and certain return. Murabahah is trading contract which the seller states the selling price and margin for the products. Otherwise, .....

4. The data analysis and discussion should be strengthened. Currently, the paper concentrates on data, while the possible explanation should be provided.

answer:

We have added the explanation on page 6-8, for example:

page 6:

.....There are two possibilities about the result. First, IRB not only focuses on financing but also other sources in getting the income. Havidz & Setiawan (2015) stated that banks' income was derived not merely from distributed financing but also investment in BI or investment in the financial market. Therefore, Islamic banks are concerned not only with the total amount of financing distributed to the community but will also seek to select financing that has a high chance of delivering a profit. Second, .....

5. The conclusion section should consist of policy implications based on results, and it is the aim of the paper and shows your contributions in this field.

answer:

We have added the explanation on page 8, for example:

.....Moreover, the management of Islamic rural banks should be careful in selecting the potential customers in order to avoid the bad quality of financing. For the existing customers, they have to always evaluate and monitor the customers' performance regularly.

Furthermore, policy makers should immediately formulate risk mitigation policies related to the high NPF in the IRBs industry because it is feared that it will increase and will have an impact on the possibility of a higher bank failure rate. Moreover, these IRBs serve more people with lower levels of banking access so that it can have an impact on the macro slowdown in the growth of small and medium enterprises. Policy makers in the financial sector need to collaborate with policy makers in the field of fostering small and medium enterprises to provide an understanding of good financial management so that small and medium entrepreneurs have better financial management skills and prioritize productive expenditures compared to consumptive ones.

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# Internal Factors and Non-Performing Financing in Indonesian Islamic Rural Banks

## ARTICLE INFO

*Article history:*  
*Received*  
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*JEL Classification:*

### **Keywords:**

*NPF, Internal Factors, Islamic Rural Banks*

## ABSTRACT

*This study aims to analyse the influence of banks' internal factors on Non-Performing Finance (NPF) at Islamic rural banks (IRBs) in Indonesia. The internal factors consist of the Financing to Deposit Ratio (FDR), Return on Assets (ROA), Capital Adequacy Ratio (CAR), Bank size and third-party funds (TPF). The sample in this study comprised 162 IRBs using quarter-year financial reports and examined using panel data regression. The statistical results show that ROA, CAR and bank size have a significant negative effect on NPF, while FDR and TPF have no impact on NPF in IRBs. This study may contribute to the evaluation of the financial performance of IRBs in managing their financing risk.*

## 1. INTRODUCTION

Law of Republic of Indonesia number 21 year 2018 concerning Islamic Banking defines a bank as an entity that collects funds from the community in the form of deposits and distributes them back to the community in the form of financing or other types with the aim of improving the community's living standard. Meanwhile, Islamic bank refers to a type of bank that runs its business according to Islamic principles. There are two kinds of Islamic banks, namely Islamic commercial banks (fully fledged Islamic banks) and Islamic rural banks (IRBs). The existence of a dual banking system enables conventional banks to operate an Islamic business unit, which is a division within the headquarters of an Islamic commercial bank that serves as the home office of its Islamic subsidiaries or Islamic unit.

Currently, Islamic commercial banks and Islamic business units are the market leaders of Islamic financing in Indonesia. However,

these entities tend to focus on financing mid-large-scale funding. Meanwhile, the existence of IRBs has become essential in the national economy due to their respective emphasis on small-mid-scale financing. Therefore, IRBs offer the ability for all levels of the community, including small and medium-sized enterprises, to fulfil their capital needs.

IRBs have demonstrated relatively good rates of growth. Data from the financial services authority (FSA) of Indonesia show that as of December 2017, there were 167 IRBs in Indonesia that had growing levels of assets and funding distributed.

Table 1 displays the assets of IRBs, which increased slightly from 2012 to 2017. In 2012, total IRB assets rose significantly from Rp 4.7tn to Rp 5.8tn (or 19.45%). The table also indicates the growth in assets every year. Thus, IRBs had assets of Rp 6.6tn in 2014, Rp 7.7tn in 2015, Rp 9.1tn in 2016 and Rp 10.8tn in 2017. The level of financing also increased in

\* Corresponding author, email address: <sup>1</sup> rifqimuhammad@uui.ac.id

line with banks' asset levels. Thus, for 2012, financing stood at Rp 3.5tn, increasing to Rp 4.4tn in 2013, an annual growth rate of 19.8%. The figure continued to rise in 2014, 2015, 2016 and 2017, to Rp 5tn in 2014, Rp 5.7tn in 2015, Rp 6.6tn in 2016 and Rp 7.7tn in 2017.

**Table 1**  
Assets and Financing Development of Islamic Rural Banks, 2012-2017

Year	Assets*	Funding*	NPF (%)
2012	4,698,952	3,553,520	6.15
2013	5,833,488	4,433,492	6.5
2014	6,573,331	5,004,909	7.89
2015	7,739,270	5,765,171	8.2
2016	9,157,801	6,662,556	8.63
2017	10,840,375	7,763,951	9.68

Note: \* in million rupiahs

One of the problems encountered by Islamic banking in Indonesia is that of non-performing loans (NPL) or non-performing financing (NPF). The NPL element of NPF refers to a condition in which money lent to debtors cannot be collected at a specified period (Rivai & Arifin, 2010). The Central Bank of Indonesia (Bank Indonesia/BI) set a maximum level of NPF for banking at 5%. Unfortunately, FSA data show there has been a gradual increase in IRBs' level of NPF. Table 1 shows the annual increase in NPF; throughout the period, the percentage of NPF was over 5%. Moreover, it reached 8.20% and 8.63% in 2015 and 2016 respectively. The NPF level therefore requires attention as it has consistently exceeded the BI threshold. As such, NPF should be properly managed in order to prevent losses and maintain the credibility of Islamic banks.

Previous studies have stated that internal factors can influence banks' level of NPF. These are related to the characteristics of IRBs such as the bank size, their return on assets (ROA), Financing to Deposit Ratio (FDR) and Capital Adequacy Ratio (CAR).

Havidz and Setiawan (2015) found that ROA had a negative effect on NPF, while CAR and FDR had no effect on NPF in Islamic banks. Sukmana (2015) stated that CAR has a negative effect on NPF. Purnamasari and Musdholifah (2016) argued that bank size has a positive influence, ROA has a negative influence and CAR has no influence on the NPF level in Islamic commercial banks in Indonesia. Supriani and Sudarsono (2018) revealed that in the long term, CAR and FDR have a positive effect on NPF, while in the short term, ROA has a positive effect on NPF in Islamic banks in Indonesia.

This study aims to analyse the internal factors of firms that may influence the NPF level of IRBs in Indonesia. NPF at IRBs in Indonesia is a very interesting area in which to conduct research due to the important role played by IRBs. Moreover, most of the studies carried out to date have concerned Islamic commercial banks (Purnamasari & Musdholifah, 2016; Sukmana, 2015; Supriani & Sudarsono, 2018). This study is expected to contribute to IRB development in Indonesia based on the following points: first of all, IRBs make an essential contribution to the development of small and medium-sized enterprises. As mentioned previously, the role of the IRB is to provide financing to the community, especially small and micro enterprises in both rural and urban areas. In 2016, IRBs contributed 3.57 trillion rupiahs' worth of financing to small-mid-sized enterprises out of a total financing amount of Rp 6.66 trillion, or approximately 53.59%. Second, IRBs have a very high level of NPF, exceeding the provisions of the Central Bank of Indonesia. The management of NPF will thus play an important role in terms of maintaining the survival of a particular bank. Research into the factors that affect the level of NPF will help the related parties to anticipate and manage the financial ratios of the Islamic bank.

## 2. THEORETICAL FRAMEWORK AND HYPOTHESES

### Agency Theory

Agency theory was introduced by Jensen and Meckling (1976), who defined the relationship between principals and agents in carrying out work. A principal gives authority to an agent to manage the company. The principal also supervises the agent to focus on achieving the principal's desired goal.

Agency theory has been used in banking research for two main reasons (Demsetz et al., 1997). First, the protection of the customer by a bank's governance reduces the opportunity for a bank to engage in risky financing and thus reduces the motivation of the shareholder to control and restrict risk-taking. Second, segregation between the principal and agent may boost the manager in reaching his own goals by sacrificing the shareholders' interest.

Credit risk is a type of operational risk that can affect bank performance (Catanach, 1993, cited in Donnellan & Rutledge, 2016). Excellent and healthy banking performance is undoubtedly the primary expectation among stakeholders in the banking industry. Islamic banks have performed better than conventional banks with respect to credit risk management (Alsyaahrin, Atahau, & Robiyanto, 2018). However, the management of an Islamic bank must be capable of achieving an optimal or ideal level of financial performance (as represented by its financial ratios).

### Financing at Islamic Banks and Non-Performing Financing (NPF)

One of the tasks of an IRB is to provide funding and the placement of funds based on Islamic principles (Muhammad, 2019). Islamic banks divide the principles of financing into three: the buying and selling principle (murabahah, istishna and salam), rent principle (ijarah and ijarah muntahiya bi tamlik) and profit-sharing principle (mudharabah and musyarakah).

The return, which is derived from the financing distributed by an Islamic bank, is one source of a bank's income, in addition to the revenue it earns from the services it provides to its customers. Banks can use their returns to fund customer profit-sharing or to finance

their operational activities. In addition to income, Islamic banks must deal with the risk associated with the financing they distribute, namely NPF. Islamic banks should maintain the quality of financing in order to minimise the loss and maintain the sustainability of the business (Bank Indonesia, 2011).

NPF is defined as the ratio between poor financing and total financing distributed by Islamic banks. Poor financing is credit/financing that has been distributed to the customer by the bank but which the customer is unable to make repayment on, either in full or in instalments, including the principal instalment and the interest or profit-sharing from the investments made under the agreement (Ismail, 2010). The distribution of financing without proper risk management will create an impact with respect to increasing NPF (Ibrahim & Rahmati, 2017). Five areas of financing quality are assessed with respect to customers' ability to make repayments or instalments. These are performing-loan (making repayments on time), special attention (up to 90 days), substandard (90–180 days), doubtful (180–270 days) and non-performing (over 270 days). The category of poor financing includes substandard, doubtful and NPF.

### Hypothesis Development

#### Financing to Deposit Ratio and Non-Performing Financing

The *FDR* is a comparison between the amount of financing given by the bank and the amount of third-party funds (TPF) collected by the bank. In conventional banking, *FDR* is known as the *Loan to Deposit Ratio* (LDR). A high *FDR* indicates sufficient capability to distribute financing on the part of the Islamic bank. Therefore, *FDR* can be used to measure the effectiveness of the funding supply. As *FDR* increases, a bank's profits increase accordingly, based on the assumption that banks are able to supply the financing effectively.

A high FDR, however, may also indicate a significant contribution to the NPF level of Islamic banking as a result of a rise in poor financing (Poetry & Sanrego, 2011). There is potential for this to occur when the distribution of funding is not supported by prudence and proper supervision. Previous research shows that FDR positively affects NPF, in both the short term and long term (Supriani & Sudarsono, 2018). Suryanto (2015), who conducted research into regional development banks, found that LDR significantly affects NPF. Therefore, the hypothesis for this variable is:  
H1: Financing to Deposit Ratio has a positive effect on Non-Performing Financing.

#### **Return on Assets and Non-Performing Financing**

ROA is used to measure management's ability to earn an overall profit (Dendawijaya, 2003). The greater a bank's ROA, the larger the profit it will earn and the better the bank's position in terms of its use of assets (Dendawijaya, 2003). A high ROA indicates excellent performance on the part of a bank in terms of generating a high income. One source of a bank's revenue is the profit-sharing it obtains through financing distribution. A high ROA shows that the bank is able to optimise the financing to gain profits. Therefore, the hypothesis for this variable is:  
H2: Return on Assets has a negative effect on Non-Performing Financing.

#### **Capital Adequacy Ratio and Non-Performing Financing**

Capital is one of the crucial factors for a bank to develop its business and accommodate the risk of loss. The capital of a bank must principally be sufficient to cover the entire business risks that it faces. A bank's capital is represented by the CAR, which is used as an indicator of the ability of the bank's assets to cover the potential risks financed by its capital. CAR is also a crucial indicator of the

bank's ability to handle a reduction in assets as a result of losses arising from its risky assets (Dendawijaya, 2003).

A higher CAR indicates a more significant financial resource that can be used to absorb losses and reduce the percentage of poor financing (Supriani & Sudarsono, 2018). Sukmana (2015) stated that CAR has a negative effect on NPF at Islamic banks in Indonesia. A large CAR enables banks to use information technology to fully assess the capability of prospective financing customers or to use its capital to improve the ability of risk assessors (Sukmana, 2015). Hence, the hypothesis for this variable is:  
H3: Capital Adequacy Ratio has a negative effect on Non-Performing Financing.

#### **Bank Size and Non-Performing Financing**

Bank size is one of the variables that may affect financing problems (Firmansyah, 2014). It is represented by the total assets owned by the bank. Assets are the resources controlled by the Islamic entity as the consequences of past events, from which it may gain economic benefits in the future (Muhammad, 2019). The total assets of Islamic banking consist of cash, placement at BI, placement in other banks, financing distributed, equity participation, provision of loan losses, fixed assets, and inventory and other assets.

The greater the assets owned by a bank, the greater its flexibility in using them to manage the risks arising from financing distribution. According to Havidz & Setiawan (2015), a bank with fewer assets tends to be unable to manage credit risk properly, which means its NPF is likely to be high. Therefore, the hypothesis for this variable is:  
H4: Bank size has a negative impact on Non-Performing Financing.

#### **Third-Party Funds (TPF) and Non-Performing Financing**

According to Regulation of Bank of Indonesia number 17/11/PBI/2015, TPF are banks'



responsibility to residents and non-residents in both rupiahs and foreign currencies. Meanwhile, Kuncoro & Suhardjono (2012) state that TPF are funds from the community, either individuals or business entities, which are collected by the bank through various saving products owned by the bank. Kasmir (2002) states that the funds entrusted to banks by the community may be in the form of current accounts, savings accounts and investment accounts. Moreover, Dendawijaya (2003) revealed that the TPF collected from society are banks' most reliable sources of funds (reaching 80%–90% of the total funds managed by the bank).

According to Kasmir (2002), the most significant contribution to TPF comes from various finance sources. Therefore, the amount of TPF collected by a bank will affect its ability to provide credit. Credit is accorded when debtors meet the requirements as stipulated in the agreement made between the debtors and the bank. Islamic Banking law number 21 year 2008 explains that IRBs have two methods of collecting funds from the community. First, all savings or those equalised to savings based on a wadiah agreement (a savings account managed by the bank without profit sharing) or other forms of agreement which are not contrary to Islamic principles. Second, investment in the form of deposits or savings or others that are equalised to savings based on a mudharabah agreement (an investment account managed by the bank with profit sharing) or other forms of agreement that comply with Islamic principles. The effectiveness of TPF represents the function of the bank as an intermediate party to distribute financing.

A higher level of TPF may encourage the distribution of a higher level of financing; thus, poor financing is more likely to occur. TPF is, therefore, positively significant to the NPF level in an Islamic bank. According to Sinkey & Greenawalt (1991), expansive financing growth sometimes leads to the use of a non-

strict selection process. As a result, financing is distributed to customers who are not qualified. Rahman et al. (2017) found a positive effect between the saving ratio and NPF level at a Bangladeshi bank. The hypothesis for this variable is:

H5: Third-party funds have a positive impact on Non-Performing Financing.

### 3. RESEARCH METHOD

The population of this study comprised IRBs in Indonesia. This study used data from quarterly financial reports published by IRBs during the period 2012–2016. The secondary data used in the study were obtained from sources published by the Central Bank of Indonesia and those listed on the IRBs' websites. Table 2 contains the operational definitions of each variable.

The analysis of the data in this study consists of descriptive statistics and regression analysis. Descriptive statistics are used to describe the data and include the mean, standard deviation, and maximum and minimum values.

Regression analysis is used to understand the effect of the independent variables on the dependent variable, either partially or simultaneously. The estimation of the regression model parameter uses existing panel data. There are three types of approaches, namely Common Effects, Fixed Effects and Random Effects. Two steps of analysis were carried out to select the best model. First, the chow test was undertaken to compare the Fixed Effects method with the Common Effects. Second, the Hausman test was carried out, which compares the Fixed Effects and Random Effects.

**Table 2**  
**Operational Variables Measurement**

Variables	The Measurement of Variables
NPF	$\frac{\text{Poor Financing}}{\text{Total Financing}} \times 100\%$
FDR	$\frac{\text{Total Financing distributed}}{\text{Total Deposit}} \times 100\%$
ROA	$\frac{\text{Income After Tax}}{\text{Total Assets}} \times 100\%$
CAR	$\frac{\text{Equity}}{\text{Risk Weighted Assets}} \times 100\%$
Bank Size	The logarithm of total assets
TPF	The logarithm of (current account+ investment account + saving account)

#### 4. DATA ANALYSIS AND DISCUSSION

The sample in this study comprised 162 IRBs with quarterly financial reports from 2012 to 2016, and the total data consisted of 2424 data. Table 3 presents the result of the descriptive statistical analysis.

For the NPF variable, the mean value is 11.26429, the maximum value is 96.00000 and the minimum value is 0.000000. The mean value of FDR is 96.21144, and the maximum and minimum values are 3302 and -102 respectively. ROA has mean, maximum and minimum values of 1.528560, 969.0000 and -657.0000 respectively. The mean value of the IRBs' total assets is 16.80233, with maximum and minimum values of 20.40405 and 13.25743. The maximum and minimum values of TPF at the IRBs are 19.98702 and 6.790097 respectively, while the mean value of this variable is 16.23625. The CAR variable has a mean value of 0.197215, and the maximum and minimum values are 1.082700 and -0.582100.

Panel data regression was used to examine the three models (Common Effects Model, Fixed Effects Model and Random Effects Model) in order to identify the most efficient model. The test between these models revealed the fixed effects model to be the most appropriate for predicting the effect of FDR, ROA, CAR, bank size and TPF on NPF.

#### Analysis of Panel Data Regression with the Fixed Effects Model

Table 4 shows that the statistical result of the adjusted R-squared is 0.620882 or 62.0882%.

This means that the independent variables (FDR, ROA, CAR, Bank Size and TPF) can explain as much as 62.0882% of NPF, with the remainder explained by the other variables. The F-test result shown in Table 4 has a value of 0.00000 < alpha value 0.05. Therefore, FDR, CAR, ROA, bank size and TPF have an effect on NPF simultaneously.

Table 4 also presents the result of the t-test, which was used to examine the effect of each independent variable on NPF. The first result shows that FDR has a significance value of 0.9372, which means that FDR does not significantly affect NPF; thus, H1 is rejected. This result supports the study by Havidz & Setiawan (2015). Havidz & Setiawan (2015) stated that banks' income was derived not merely from distributed financing but also investment in BI or investment in the financial market. Therefore, Islamic banks are concerned not only with the total amount of financing distributed to the community but will also seek to select financing that has a high chance of delivering a profit.

On the other hand, ROA had a regression coefficient of -0.012953 and a significance value of 0.0070 > 0.05. This means that ROA has a negative effect on the NPF of IRBs and, thus, H2 is accepted. The result in this study contrasts with those found in previous studies by Havidz & Setiawan (2015) and Supriani & Sudarsono (2018), who found that ROA did not affect NPF over the long term. A rise in ROA is indicative of an excellent performance by banks in managing their financing to gain profit.

The CAR variable has a significance value of 0.0000 with a coefficient value of -34.57156. The statistical result indicates that CAR has a negative effect on NPF and therefore, H3 is accepted. The result obtained for this variable supports those found in the studies by Sukmana (2015) and Effendi et al. (2017). CAR is one of the indicators used by the Central Bank of Indonesia to measure banking performance. A high CAR indicates

that a bank has the ability to both manage its capital risks and anticipate the financing risks.

**Table 3**  
**Descriptive Statistics Analysis Result**

<b>Values</b>	<b>NPF</b>	<b>FDR</b>	<b>ROA</b>	<b>Bank Size</b>	<b>TPF</b>	<b>CAR</b>
Mean	11.26429	96.21144	1.52856	16.80233	16.23625	0.197215
Maximum	96	3302	969	20.40405	19.98702	1.0827
Minimum	0	-102	-657	13.25743	6.790097	-0.5821
Std. Dev.	11.81803	84.69499	33.54491	1.092054	1.226054	0.185092

Source: processed data

**Table 4**  
**Regression Result of the Fixed Effects Model**

<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
C	140.9011	8.704798	16.1866	0
FDR	0.000164	0.00208	0.078855	0.9372
ROA	-0.012953	0.004797	-2.700045	0.007
CAR	-34.57156	2.366265	-14.61018	0
Bank size	-6.531779	0.70769	-9.22972	0
TPF	-0.810372	0.541399	-1.496812	0.1346
Adjusted R-squared	0.620882			
F-statistic	23.20906			
Prob. (F-statistic)	0			

Source: Processed data

The statistical test for bank size shows that bank size has a significance value of  $0.0000 < 0.005$ , and the coefficient value is  $-6.531779$ . This indicates that bank size negatively affects NPF in IRBs; thus, H4 is accepted. The result of this study is in line with those in Effendi et al. (2017) and Havidz & Setiawan (2015). As such, banks with higher total assets are more likely to manage their financing risks more flexibly and may be better at addressing their level of NPF than those with lower total assets.

The TPF variable has a coefficient value of  $0.810372$  and a significance value of  $0.1346 > 0.05$ . This means that TPF does not have a significant effect on NPF. These results differ from those by Rahman et al. (2017), who found that the value of TPF has a positive effect on NPF. This may occur when high deposits do not affect the amount of financing channelled by the bank. The raw data show that a high FDR level does not always follow a rise in TPF. A high level of NPF will lead to banks becoming more careful with respect to adding new financing, with the effect that its deposits will be managed carefully.

#### 5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study aimed to determine the effect of banks' internal factors on NPF in IRBs in Indonesia. Analysis of the panel data regression results showed that ROA, CAR and bank size had a significant negative effect on NPF, while FDR and TPF did not influence NPF. The study may contribute to the evaluation of the financial performance of IRBs in managing their financing risks. IRBs should pay attention to high levels of NPF in their financing by prudently selecting those who will receive financing or controlling the financing distributed. Banks should seek to boost the internal factors that can affect the level of NPF and contribute to poor financing management. The level of NPF can affect the performance of Islamic banks as they contribute to a poor financial ratio. The financial ratio is an indicator of financial performance and provides a means by which stakeholders can assess the performance of an Islamic bank.

A limitation of this research concerns the variables, which consist of internal factors only. Future studies can be expected to add more internal factors such as Net Income Margin or Productive Assets Quality and include external factors such as the rate level, interest rate and exchange rate, which may affect NPF. They may also observe the management of the trend in NPF through the additions of the period.

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# Internal Factors and Non-Performing Financing in Indonesian Islamic Rural Banks

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## ABSTRACT

This study aims to analyse the influence of banks' internal factors on Non-Performing Finance (NPF) at Islamic rural banks (IRBs) in Indonesia. The internal factors consist of the Financing to Deposit Ratio (FDR), Return on Assets (ROA), Capital Adequacy Ratio (CAR), Bank size and third-party funds (TPF). The sample in this study comprised 162 IRBs using quarter-year financial reports and examined using panel data regression. The statistical results show that ROA, CAR and bank size have a significant negative effect on NPF, while FDR and TPF have no impact on NPF in IRBs. This study may contribute to the evaluation of the financial performance of IRBs in managing their financing risk.

## 1. INTRODUCTION

Law of Republic of Indonesia number 21 year 2018 concerning Islamic Banking defines a bank as an entity that collects funds from the community in the form of deposits and distributes them back to the community in the form of financing or other types with the aim of improving the community's living standard. Meanwhile, Islamic bank refers to a type of bank that runs its business according to Islamic principles. There are two kinds of Islamic banks, namely Islamic commercial banks (fully fledged Islamic banks) and Islamic rural banks (IRBs). The existence of a dual banking system enables conventional banks to operate an Islamic business unit, which is a division within the headquarters of an Islamic commercial bank that serves as the home office of its Islamic subsidiaries or Islamic unit.

Currently, Islamic commercial banks and Islamic business units are the market leaders of Islamic financing in Indonesia. However, these

entities tend to focus on financing mid–large-scale funding. Meanwhile, the existence of IRBs has become essential in the national economy due to their respective emphasis on small–mid-scale financing. Therefore, IRBs offer the ability for all levels of the community, including small and medium-sized enterprises, to fulfil their capital needs.

IRBs have demonstrated relatively good rates of growth. Data from the financial services authority (FSA) of Indonesia show that as of December 2017, there were 167 IRBs in Indonesia that had growing levels of assets and funding distributed.

Table 1 displays the assets of IRBs, which increased slightly from 2012 to 2017. In 2012, total IRB assets rose significantly from Rp 4.7tn to Rp 5.8tn (or 19.45%). The table also indicates the growth in assets every year. Thus, IRBs had assets of Rp 6.6tn in 2014, Rp 7.7tn in 2015, Rp 9.1tn in 2016 and Rp 10.8tn in 2017. The level of financing also increased in line with banks'

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asset levels. Thus, for 2012, financing stood at Rp 3.5tn, increasing to Rp 4.4tn in 2013, an annual growth rate of 19.8%. The figure continued to rise in 2014, 2015, 2016 and 2017, to Rp 5tn in 2014, Rp 5.7tn in 2015, Rp 6.6tn in 2016 and Rp 7.7tn in 2017.

Table 1  
Assets and Financing Development of Islamic Rural Banks, 2012–2017

Year	Assets*	Funding*	NPF (%)
2012	4,698,952	3,553,520	6.15
2013	5,833,488	4,433,492	6.5
2014	6,573,331	5,004,909	7.89
2015	7,739,270	5,765,171	8.2
2016	9,157,801	6,662,556	8.63
2017	10,840,375	7,763,951	9.68

Note: \* in million rupiahs

One of the problems encountered by Islamic banking in Indonesia is that of non-performing loans (NPL) or non-performing financing (NPF). The NPL element of NPF refers to a condition in which money lent to debtors cannot be collected at a specified period (Rivai & Arifin, 2010). The Central Bank of Indonesia (Bank Indonesia/BI) set a maximum level of NPF for banking at 5%. Unfortunately, FSA data show there has been a gradual increase in IRBs' level of NPF. Table 1 shows the annual increase in NPF; throughout the period, the percentage of NPF was over 5%. Moreover, it reached 8.20% and 8.63% in 2015 and 2016 respectively. The NPF level therefore requires attention as it has consistently exceeded the BI threshold. As such, NPF should be properly managed in order to prevent losses and maintain the credibility of Islamic banks.

Previous studies have stated that internal factors can influence banks' level of NPF. These are related to the characteristics of IRBs such as the bank size, their return on assets (ROA), Financing to Deposit Ratio (FDR) and Capital Adequacy Ratio (CAR). Havidz and Setiawan

(2015) found that ROA had a negative effect on NPF, while CAR and FDR had no effect on NPF in Islamic banks. Sukmana (2015) stated that CAR has a negative effect on NPF. Purnamasari and Musdholifah (2016) argued that bank size has a positive influence, ROA has a negative influence and CAR has no influence on the NPF level in Islamic commercial banks in Indonesia. Supriani and Sudarsono (2018) revealed that in the long term, CAR and FDR have a positive effect on NPF, while in the short term, ROA has a positive effect on NPF in Islamic banks in Indonesia.

This study aims to analyse the internal factors of firms that may influence the NPF level of IRBs in Indonesia. NPF at IRBs in Indonesia is a very interesting area in which to conduct research due to the important role played by IRBs. Moreover, most of the studies carried out to date have concerned Islamic commercial banks (Purnamasari & Musdholifah, 2016; Sukmana, 2015; Supriani & Sudarsono, 2018). This study is expected to contribute to IRB development in Indonesia based on the following points: first of all, IRBs make an essential contribution to the development of small and medium-sized enterprises. As mentioned previously, the role of the IRB is to provide financing to the community, especially small and micro enterprises in both rural and urban areas. In 2016, IRBs contributed 3.57 trillion rupiahs' worth of financing to small–mid-sized enterprises out of a total financing amount of Rp 6.66 trillion, or approximately 53.59%. Second, IRBs have a very high level of NPF, exceeding the provisions of the Central Bank of Indonesia. The management of NPF will thus play an important role in terms of maintaining the survival of a particular bank. Research into the factors that affect the level of NPF will help the related parties to anticipate and manage the financial ratios of the Islamic bank.

## 2. THEORETICAL FRAMEWORK AND HYPOTHESES

### Agency Theory



Agency theory was introduced by Jensen and Meckling (1976), who defined the relationship between principals and agents in carrying out work. A principal gives authority to an agent to manage the company. The principal also supervises the agent to focus on achieving the principal's desired goal.

Agency theory has been used in banking research for two main reasons (Demsetz et al., 1997). First, the protection of the customer by a bank's governance reduces the opportunity for a bank to engage in risky financing and thus reduces the motivation of the shareholder to control and restrict risk-taking. Second, segregation between the principal and agent may boost the manager in reaching his own goals by sacrificing the shareholders' interest.

Credit risk is a type of operational risk that can affect bank performance (Catanach, 1993, cited in Donnellan & Rutledge, 2016). Excellent and healthy banking performance is undoubtedly the primary expectation among stakeholders in the banking industry. Islamic banks have performed better than conventional banks with respect to credit risk management (Alsahrin, Atahau, & Robiyanto, 2018). However, the management of an Islamic bank must be capable of achieving an optimal or ideal level of financial performance (as represented by its financial ratios).

#### Financing at Islamic Banks and Non-Performing Financing (NPF)

One of the tasks of an IRB is to provide funding and the placement of funds based on Islamic principles (Muhammad, 2019). Islamic banks divide the principles of financing into three: the buying and selling principle (murabahah, istishna and salam), rent principle (ijarah and ijarah muntahiya bi tamlik) and profit-sharing principle (mudharabah and musyarakah).

The return, which is derived from the financing distributed by an Islamic bank, is one source of a bank's income, in addition to the revenue it earns from the services it provides to its customers. Banks can use their returns to fund customer profit-sharing or to finance their operational activities. In addition to income, Islamic banks must deal with the risk associated

with the financing they distribute, namely NPF. Islamic banks should maintain the quality of financing in order to minimise the loss and maintain the sustainability of the business (Bank Indonesia, 2011).

NPF is defined as the ratio between poor financing and total financing distributed by Islamic banks. Poor financing is credit/financing that has been distributed to the customer by the bank but which the customer is unable to make repayment on, either in full or in instalments, including the principal instalment and the interest or profit-sharing from the investments made under the agreement (Ismail, 2010). The distribution of financing without proper risk management will create an impact with respect to increasing NPF (Ibrahim & Rahmati, 2017). Five areas of financing quality are assessed with respect to customers' ability to make repayments or instalments. These are performing-loan (making repayments on time), special attention (up to 90 days), substandard (90–180 days), doubtful (180–270 days) and non-performing (over 270 days). The category of poor financing includes substandard, doubtful and NPF.

#### Hypothesis Development

##### Financing to Deposit Ratio and Non-Performing Financing

The *FDR* is a comparison between the amount of financing given by the bank and the amount of third-party funds (TPF) collected by the bank. In conventional banking, *FDR* is known as the *Loan to Deposit Ratio* (*LDR*). A high *FDR* indicates sufficient capability to distribute financing on the part of the Islamic bank. Therefore, *FDR* can be used to measure the effectiveness of the funding supply. As *FDR* increases, a bank's profits increase accordingly, based on the assumption that banks are able to supply the financing effectively.

A high *FDR*, however, may also indicate a significant contribution to the NPF level of Islamic banking as a result of a rise in poor financing (Poetry & Sanrego, 2011). There is

potential for this to occur when the distribution of funding is not supported by prudence and proper supervision. Previous research shows that FDR positively affects NPF, in both the short term and long term (Supriani & Sudarsono, 2018). Suryanto (2015), who conducted research into regional development banks, found that LDR significantly affects NPF. Therefore, the hypothesis for this variable is:  
H1: Financing to Deposit Ratio has a positive effect on Non-Performing Financing.

#### Return on Assets and Non-Performing Financing

ROA is used to measure management's ability to earn an overall profit (Dendawijaya, 2003). The greater a bank's ROA, the larger the profit it will earn and the better the bank's position in terms of its use of assets (Dendawijaya, 2003). A high ROA indicates excellent performance on the part of a bank in terms of generating a high income. One source of a bank's revenue is the profit-sharing it obtains through financing distribution. A high ROA shows that the bank is able to optimise the financing to gain profits. Therefore, the hypothesis for this variable is:  
H2: Return on Assets has a negative effect on Non-Performing Financing.

#### Capital Adequacy Ratio and Non-Performing Financing

Capital is one of the crucial factors for a bank to develop its business and accommodate the risk of loss. The capital of a bank must principally be sufficient to cover the entire business risks that it faces. A bank's capital is represented by the CAR, which is used as an indicator of the ability of the bank's assets to cover the potential risks financed by its capital. CAR is also a crucial indicator of the bank's ability to handle a reduction in assets as a result of losses arising from its risky assets (Dendawijaya, 2003). A higher CAR indicates a more significant financial resource that can be used to absorb losses and reduce the percentage of poor financing (Supriani & Sudarsono, 2018).

Sukmana (2015) stated that CAR has a negative effect on NPF at Islamic banks in Indonesia. A large CAR enables banks to use information technology to fully assess the capability of prospective financing customers or to use its capital to improve the ability of risk assessors (Sukmana, 2015). Hence, the hypothesis for this variable is:

H3: Capital Adequacy Ratio has a negative effect on Non-Performing Financing.

#### Bank Size and Non-Performing Financing

Bank size is one of the variables that may affect financing problems (Firmansyah, 2014). It is represented by the total assets owned by the bank. Assets are the resources controlled by the Islamic entity as the consequences of past events, from which it may gain economic benefits in the future (Muhammad, 2019). The total assets of Islamic banking consist of cash, placement at BI, placement in other banks, financing distributed, equity participation, provision of loan losses, fixed assets, and inventory and other assets.

The greater the assets owned by a bank, the greater its flexibility in using them to manage the risks arising from financing distribution. According to Havidz & Setiawan (2015), a bank with fewer assets tends to be unable to manage credit risk properly, which means its NPF is likely to be high. Therefore, the hypothesis for this variable is:

H4: Bank size has a negative impact on Non-Performing Financing.

#### Third-Party Funds (TPF) and Non-Performing Financing

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H5: Third-party funds have a positive impact on Non-Performing Financing.

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The population of this study comprised IRBs in Indonesia. This study used data from quarterly financial reports published by IRBs during the period 2012–2016. The secondary data used in the study were obtained from sources published by the Central Bank of Indonesia and those listed on the IRBs' websites. Table 2 contains the operational definitions of each variable.

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Regression analysis is used to understand the effect of the independent variables on the dependent variable, either partially or simultaneously. The estimation of the regression model parameter uses existing panel data. There are three types of approaches, namely Common Effects, Fixed Effects and Random Effects. Two steps of analysis were carried out to select the best model. First, the chow test was undertaken to compare the Fixed Effects method with the Common Effects. Second, the Hausman test was carried out, which compares the Fixed Effects and Random Effects.

Table 2

Operational Variables Measurement

Variables	The Measurement of Variables
NPF	$\frac{\text{Poor Financing}}{\text{Total Financing}} \times 100\%$
FDR	$\frac{\text{Total Financing distributed}}{\text{Total Deposit}} \times 100\%$
ROA	$\frac{\text{Income After Tax}}{\text{Total Assets}} \times 100\%$
CAR	$\frac{\text{Equity}}{\text{Risk Weighted Assets}} \times 100\%$
Bank Size	The logarithm of total assets
TPF	The logarithm of (current account+ investment account + saving account)

#### 4. DATA ANALYSIS AND DISCUSSION

The sample in this study comprised 162 IRBs with quarterly financial reports from 2012 to 2016, and the total data consisted of 2424 data. Table 3 presents the result of the descriptive statistical analysis.

For the NPF variable, the mean value is 11.26429, the maximum value is 96.00000 and the minimum value is 0.000000. The mean value of FDR is 96.21144, and the maximum and minimum values are 3302 and -102 respectively. ROA has mean, maximum and minimum values of 1.528560, 969.0000 and -657.0000 respectively. The mean value of the IRBs' total assets is 16.80233, with maximum and minimum values of 20.40405 and 13.25743. The maximum and minimum values of TPF at the IRBs are 19.98702 and 6.790097 respectively, while the mean value of this variable is 16.23625. The CAR variable has a mean value of 0.197215, and the maximum and minimum values are 1.082700 and -0.582100.

Panel data regression was used to examine the three models (Common Effects Model, Fixed Effects Model and Random Effects Model) in order to identify the most efficient model. The test between these models revealed the fixed effects model to be the most appropriate for predicting the effect of FDR, ROA, CAR, bank size and TPF on NPF.

Analysis of Panel Data Regression with the Fixed Effects Model

Table 4 shows that the statistical result of the adjusted R-squared is 0.620882 or 62.0882%. This means that the independent variables (FDR, ROA, CAR, Bank Size and TPF) can explain as much as 62.0882% of NPF, with the remainder explained by the other variables. The F-test result shown in Table 4 has a value of  $0.00000 < \alpha$  value 0.05. Therefore, FDR, CAR, ROA, bank size and TPF have an effect on NPF simultaneously.

Table 4 also presents the result of the t-test, which was used to examine the effect of each independent variable on NPF. The first result shows that FDR has a significance value of 0.9372, which means that FDR does not significantly affect NPF; thus, H1 is rejected. This result supports the study by Havidz & Setiawan (2015). Havidz & Setiawan (2015) stated that banks' income was derived not merely from distributed financing but also investment in BI or investment in the financial market. Therefore, Islamic banks are concerned not only with the total amount of financing distributed to the community but will also seek to select financing that has a high chance of delivering a profit.

On the other hand, ROA had a regression coefficient of -0.012953 and a significance value of  $0.0070 > 0.05$ . This means that ROA has a negative effect on the NPF of IRBs and, thus, H2 is accepted. The result in this study contrasts with those found in previous studies by Havidz & Setiawan (2015) and Supriani & Sudarsono (2018), who found that ROA did not affect NPF over the long term. A rise in ROA is indicative of an excellent performance by banks in managing their financing to gain profit.

The CAR variable has a significance value of 0.0000 with a coefficient value of -34.57156. The statistical result indicates that CAR has a negative effect on NPF and therefore, H3 is accepted. The result obtained for this variable supports those found in the studies by Sukmana (2015) and Effendi et al. (2017). CAR is one of the indicators used by the Central Bank of Indonesia to measure banking performance.

A high CAR indicates that a bank has the ability to both manage its capital risks and anticipate the financing risks.

Table 3  
Descriptive Statistics Analysis Result

Values	NPF	FDR	ROA	Bank Size	TPF	CAR
Mean	11.26429	96.21144	1.52856	16.80233	16.23625	0.197215
Maximum	96	3302	969	20.40405	19.98702	1.0827
Minimum	0	-102	-657	13.25743	6.790097	-0.5821
Std. Dev.	11.81803	84.69499	33.54491	1.092054	1.226054	0.185092

Source: processed data

Table 4  
Regression Result of the Fixed Effects Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	140.9011	8.704798	16.1866	0
FDR	0.000164	0.00208	0.078855	0.9372
ROA	-0.012953	0.004797	-2.700045	0.007
CAR	-34.57156	2.366265	-14.61018	0
Bank size	-6.531779	0.70769	-9.22972	0
TPF	-0.810372	0.541399	-1.496812	0.1346
Adjusted R-squared		0.620882		
F-statistic		23.20906		
Prob. (F-statistic)		0		

Source: Processed data

The statistical test for bank size shows that bank size has a significance value of  $0.0000 < 0.005$ , and the coefficient value is  $-6.531779$ . This indicates that bank size negatively affects NPF in IRBs; thus, H4 is accepted. The result of this study is in line with those in Effendi et al. (2017) and Havidz & Setiawan (2015). As such, banks with higher total assets are more likely to manage their financing risks more flexibly and may be better at addressing their level of NPF than those with lower total assets.

The TPF variable has a coefficient value of  $0.810372$  and a significance value of  $0.1346 > 0.05$ . This means that TPF does not have a significant effect on NPF. These results differ from those by Rahman et al. (2017), who found that the value of TPF has a positive effect on NPF. This may occur when high deposits do not affect the amount of financing channelled by the bank. The raw data show that a high FDR level does not always follow a rise in TPF. A high level of NPF will lead to banks becoming more careful with respect to adding new financing, with the effect that its deposits will be managed carefully.

#### 5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study aimed to determine the effect of banks' internal factors on NPF in IRBs in Indonesia. Analysis of the panel data regression results showed that ROA, CAR and bank size had a significant negative effect on NPF, while FDR and TPF did not influence NPF. The study may contribute to the evaluation of the financial performance of IRBs in managing their financing risks. IRBs should pay attention to high levels of NPF in their financing by prudently selecting those who will receive financing or controlling the financing distributed. Banks should seek to boost the internal factors that can affect the level of NPF and contribute to poor financing management. The level of NPF can affect the performance of Islamic banks as they contribute to a poor financial ratio. The financial ratio is an indicator of financial performance and provides a means by which stakeholders can assess the performance of an Islamic bank.

A limitation of this research concerns the variables, which consist of internal factors only. Future studies can be expected to add more internal factors such as Net Income Margin or Productive Assets Quality and include external factors such as the rate level, interest rate and exchange rate, which may affect NPF. They may also observe the management of the trend in NPF through the additions of the period.

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Comments to the author

Reviewer 1: I think the paper is interesting while it requires major revisions, and the authors should carefully modify the manuscript based on the following suggestions.

1. In Section 3, they conducted tests to choose the models for fitting the data, and the test statistics should be shown in the paper.

2. The authors use the term "NPF" while most papers use "NPL". Please explain the reason why you prefer "NPF".

3. The authors should enrich their literature reviews related to banking industry, and then modify the research design and data analysis.

- credit risk and financial performance

4. The data analysis and discussion should be strengthened. Currently, the paper concentrates on data, while the possible explanation should be provided.

5. The conclusion section should consist of policy implications based on results, and it is the aim of the paper and shows your contributions in this field.

Please submit your revision by **Aug 11, 2020**



## Internal Factors and Non-Performing Financing in Indonesian Islamic Rural Banks

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### ABSTRACT

*This study aims to analyse the influence of banks' internal factors on Non-Performing Finance (NPF) at Islamic rural banks (IRBs) in Indonesia. The internal factors consist of the Financing to Deposit Ratio (FDR), Return on Assets (ROA), Capital Adequacy Ratio (CAR), Bank size and third-party funds (TPF). The sample in this study comprised 162 IRBs using quarter-year financial reports and examined using panel data regression. The statistical results show that ROA, CAR and bank size have a significant negative effect on NPF, while FDR and TPF have no impact on NPF in IRBs. This study may contribute to the evaluation of the financial performance of IRBs in managing their financing risk.*

### 1. INTRODUCTION

Law of Republic of Indonesia number 21 year 2018 concerning Islamic Banking defines a bank as an entity that collects funds from the community in the form of deposits and distributes them back to the community in the form of financing or other types with the aim of improving the community's living standard. Meanwhile, Islamic bank refers to a type of bank that runs its business according to Islamic principles. There are two kinds of Islamic banks, namely Islamic commercial banks (fully fledged Islamic banks) and Islamic rural banks (IRBs). The existence of a dual banking system enables conventional banks to operate an Islamic business unit, which is a division within the headquarters of an Islamic commercial bank that serves as the home office of its Islamic subsidiaries or Islamic unit.

Currently, Islamic commercial banks and Islamic business units are the market leaders of

Islamic financing in Indonesia. However, these entities tend to focus on financing mid–large-scale funding. Meanwhile, the existence of IRBs has become essential in the national economy due to their respective emphasis on small–mid-scale financing. Therefore, IRBs offer the ability for all levels of the community, including small and medium-sized enterprises, to fulfil their capital needs.

IRBs have demonstrated relatively good rates of growth. Data from the financial services authority (FSA) of Indonesia show that as of December 2017, there were 167 IRBs in Indonesia that had growing levels of assets and funding distributed.

Table 1 displays the assets of IRBs, which increased slightly from 2012 to 2017. In 2012, total IRB assets rose significantly from Rp 4.7tn to Rp 5.8tn (or 19.45%). The table also indicates the growth in assets every year. Thus, IRBs had

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assets of Rp 6.6tn in 2014, Rp 7.7tn in 2015, Rp 9.1tn in 2016 and Rp 10.8tn in 2017. The level of financing also increased in line with banks' asset levels. Thus, for 2012, financing stood at Rp 3.5tn, increasing to Rp 4.4tn in 2013, an annual growth rate of 19.8%. The figure continued to rise in 2014, 2015, 2016 and 2017, to Rp 5tn in 2014, Rp 5.7tn in 2015, Rp 6.6tn in 2016 and Rp 7.7tn in 2017.

**Table 1**  
Assets and Financing Development of Islamic Rural Banks, 2012-2017

Year	Assets*	Funding*	NPF (%)
2012	4,698,952	3,553,520	6.15
2013	5,833,488	4,433,492	6.5
2014	6,573,331	5,004,909	7.89
2015	7,739,270	5,765,171	8.2
2016	9,157,801	6,662,556	8.63
2017	10,840,375	7,763,951	9.68

Note: \* in million rupiahs

One of the problems encountered by Islamic banking in Indonesia is that of non-performing loans (NPL) or non-performing financing (NPF). The NPL element of NPF refers to a condition in which money lent to debtors cannot be collected at a specified period (Rivai & Arifin, 2010). The Central Bank of Indonesia (Bank Indonesia/BI) set a maximum level of NPF for banking at 5%. Unfortunately, FSA data show there has been a gradual increase in IRBs' level of NPF. Table 1 shows the annual increase in NPF; throughout the period, the percentage of NPF was over 5%. Moreover, it reached 8.20% and 8.63% in 2015 and 2016 respectively. The NPF level therefore requires attention as it has consistently exceeded the BI threshold. As such, NPF should be properly managed in order to prevent losses and maintain the credibility of Islamic banks.

Previous studies have stated that internal factors can influence banks' level of NPF. These are related to the characteristics of IRBs such as the bank size, their return on

assets (ROA), Financing to Deposit Ratio (FDR) and Capital Adequacy Ratio (CAR). Havidz and Setiawan (2015) found that ROA had a negative effect on NPF, while CAR and FDR had no effect on NPF in Islamic banks. Sukmana (2015) stated that CAR has a negative effect on NPF. Purnamasari and Musdholifah (2016) argued that bank size has a positive influence, ROA has a negative influence and CAR has no influence on the NPF level in Islamic commercial banks in Indonesia. Supriani and Sudarsono (2018) revealed that in the long term, CAR and FDR have a positive effect on NPF, while in the short term, ROA has a positive effect on NPF in Islamic banks in Indonesia.

This study aims to analyse the internal factors of firms that may influence the NPF level of IRBs in Indonesia. NPF at IRBs in Indonesia is a very interesting area in which to conduct research due to the important role played by IRBs. Moreover, most of the studies carried out to date have concerned Islamic commercial banks (Purnamasari & Musdholifah, 2016; Sukmana, 2015; Supriani & Sudarsono, 2018). This study is expected to contribute to IRB development in Indonesia based on the following points: first of all, IRBs make an essential contribution to the development of small and medium-sized enterprises. As mentioned previously, the role of the IRB is to provide financing to the community, especially small and micro enterprises in both rural and urban areas. In 2016, IRBs contributed 3.57 trillion rupiahs' worth of financing to small-mid-sized enterprises out of a total financing amount of Rp 6.66 trillion, or approximately 53.59%. Second, IRBs have a very high level of NPF, exceeding the provisions of the Central Bank of Indonesia. The management of NPF will thus play an important role in terms of maintaining the survival of a particular bank. Research into the factors that affect the level of NPF will help the related parties to anticipate and manage the financial ratios of the Islamic bank.

## 2. THEORETICAL FRAMEWORK AND HYPOTHESES

### Agency Theory

Agency theory was introduced by Jensen and Meckling (1976), who defined the relationship between principals and agents in carrying out work. A principal gives authority to an agent to manage the company. The principal also supervises the agent to focus on achieving the principal's desired goal.

Agency theory has been used in banking research for two main reasons (Demsetz et al., 1997). First, the protection of the customer by a bank's governance reduces the opportunity for a bank to engage in risky financing and thus reduces the motivation of the shareholder to control and restrict risk-taking. Second, segregation between the principal and agent may boost the manager in reaching his own goals by sacrificing the shareholders' interest.

Credit risk is a type of operational risk that can affect bank performance (Catanach, 1993, cited in Donnellan & Rutledge, 2016). Excellent and healthy banking performance is undoubtedly the primary expectation among stakeholders in the banking industry. Islamic banks have performed better than conventional banks with respect to credit risk management (Alsyaahrin, Atahau, & Robiyanto, 2018). However, the management of an Islamic bank must be capable of achieving an optimal or ideal level of financial performance (as represented by its financial ratios).

### Financing at Islamic Banks and Non-Performing Financing (NPF)

One of the tasks of an IRB is to provide funding and the placement of funds based on Islamic principles (Muhammad, 2019). Islamic banks divide the principles of financing into three: the buying and selling principle (murabahah, istishna and salam), rent principle (ijarah and ijarah muntahiya bi tamlik) and profit-sharing principle (mudharabah and musyarakah).

The return, which is derived from the financing distributed by an Islamic bank, is one source of a bank's income, in addition to the revenue it earns from the services it provides to its customers. Banks can use their returns to

fund customer profit-sharing or to finance their operational activities. In addition to income, Islamic banks must deal with the risk associated with the financing they distribute, namely NPF. Islamic banks should maintain the quality of financing in order to minimise the loss and maintain the sustainability of the business (Bank Indonesia, 2011).

NPF is defined as the ratio between poor financing and total financing distributed by Islamic banks. Poor financing is credit/financing that has been distributed to the customer by the bank but which the customer is unable to make repayment on, either in full or in instalments, including the principal instalment and the interest or profit-sharing from the investments made under the agreement (Ismail, 2010). The distribution of financing without proper risk management will create an impact with respect to increasing NPF (Ibrahim & Rahmati, 2017). Five areas of financing quality are assessed with respect to customers' ability to make repayments or instalments. These are performing-loan (making repayments on time), special attention (up to 90 days), substandard (90–180 days), doubtful (180–270 days) and non-performing (over 270 days). The category of poor financing includes substandard, doubtful and NPF.

### Hypothesis Development

#### Financing to Deposit Ratio and Non-Performing Financing

The *FDR* is a comparison between the amount of financing given by the bank and the amount of third-party funds (TPF) collected by the bank. In conventional banking, *FDR* is known as the *Loan to Deposit Ratio* (*LDR*). A high *FDR* indicates sufficient capability to distribute financing on the part of the Islamic bank. Therefore, *FDR* can be used to measure the effectiveness of the funding supply. As *FDR* increases, a bank's profits increase accordingly, based on the assumption that banks are able to supply the financing effectively.

A high FDR, however, may also indicate a significant contribution to the NPF level of Islamic banking as a result of a rise in poor financing (Poetry & Sanrego, 2011). There is potential for this to occur when the distribution of funding is not supported by prudence and proper supervision. Previous research shows that FDR positively affects NPF, in both the short term and long term (Supriani & Sudarsono, 2018). Suryanto (2015), who conducted research into regional development banks, found that LDR significantly affects NPF. Therefore, the hypothesis for this variable is:  
H1: Financing to Deposit Ratio has a positive effect on Non-Performing Financing.

#### **Return on Assets and Non-Performing Financing**

ROA is used to measure management's ability to earn an overall profit (Dendawijaya, 2003). The greater a bank's ROA, the larger the profit it will earn and the better the bank's position in terms of its use of assets (Dendawijaya, 2003). A high ROA indicates excellent performance on the part of a bank in terms of generating a high income. One source of a bank's revenue is the profit-sharing it obtains through financing distribution. A high ROA shows that the bank is able to optimise the financing to gain profits. Therefore, the hypothesis for this variable is:  
H2: Return on Assets has a negative effect on Non-Performing Financing.

#### **Capital Adequacy Ratio and Non-Performing Financing**

Capital is one of the crucial factors for a bank to develop its business and accommodate the risk of loss. The capital of a bank must principally be sufficient to cover the entire business risks that it faces. A bank's capital is represented by the CAR, which is used as an indicator of the ability of the bank's assets to cover the potential risks financed by its capital. CAR is also a crucial indicator of the bank's ability to handle a reduction in assets as a result

of losses arising from its risky assets (Dendawijaya, 2003).

A higher CAR indicates a more significant financial resource that can be used to absorb losses and reduce the percentage of poor financing (Supriani & Sudarsono, 2018). Sukmana (2015) stated that CAR has a negative effect on NPF at Islamic banks in Indonesia. A large CAR enables banks to use information technology to fully assess the capability of prospective financing customers or to use its capital to improve the ability of risk assessors (Sukmana, 2015). Hence, the hypothesis for this variable is:

H3: Capital Adequacy Ratio has a negative effect on Non-Performing Financing.

#### **Bank Size and Non-Performing Financing**

Bank size is one of the variables that may affect financing problems (Firmansyah, 2014). It is represented by the total assets owned by the bank. Assets are the resources controlled by the Islamic entity as the consequences of past events, from which it may gain economic benefits in the future (Muhammad, 2019). The total assets of Islamic banking consist of cash, placement at BI, placement in other banks, financing distributed, equity participation, provision of loan losses, fixed assets, and inventory and other assets.

The greater the assets owned by a bank, the greater its flexibility in using them to manage the risks arising from financing distribution. According to Havidz & Setiawan (2015), a bank with fewer assets tends to be unable to manage credit risk properly, which means its NPF is likely to be high. Therefore, the hypothesis for this variable is:

H4: Bank size has a negative impact on Non-Performing Financing.

#### **Third-Party Funds (TPF) and Non-Performing Financing**

According to Regulation of Bank of Indonesia number 17/11/PBI/2015, TPF are banks' responsibility to residents and non-residents in

both rupiahs and foreign currencies. Meanwhile, Kuncoro & Suhardjono (2012) state that TPF are funds from the community, either individuals or business entities, which are collected by the bank through various saving products owned by the bank. Kasmir (2002) states that the funds entrusted to banks by the community may be in the form of current accounts, savings accounts and investment accounts. Moreover, Dendawijaya (2003) revealed that the TPF collected from society are banks' most reliable sources of funds (reaching 80%–90% of the total funds managed by the bank).

According to Kasmir (2002), the most significant contribution to TPF comes from various finance sources. Therefore, the amount of TPF collected by a bank will affect its ability to provide credit. Credit is accorded when debtors meet the requirements as stipulated in the agreement made between the debtors and the bank. Islamic Banking law number 21 year 2008 explains that IRBs have two methods of collecting funds from the community. First, all savings or those equalised to savings based on a wadiah agreement (a savings account managed by the bank without profit sharing) or other forms of agreement which are not contrary to Islamic principles. Second, investment in the form of deposits or savings or others that are equalised to savings based on a mudharabah agreement (an investment account managed by the bank with profit sharing) or other forms of agreement that comply with Islamic principles. The effectiveness of TPF represents the function of the bank as an intermediate party to distribute financing.

A higher level of TPF may encourage the distribution of a higher level of financing; thus, poor financing is more likely to occur. TPF is, therefore, positively significant to the NPF level in an Islamic bank. According to Sinkey & Greenawalt (1991), expansive financing growth sometimes leads to the use of a non-strict selection process. As a result, financing is

distributed to customers who are not qualified. Rahman et al. (2017) found a positive effect between the saving ratio and NPF level at a Bangladeshi bank. The hypothesis for this variable is:

H5: Third-party funds have a positive impact on Non-Performing Financing.

### 3. RESEARCH METHOD

The population of this study comprised IRBs in Indonesia. This study used data from quarterly financial reports published by IRBs during the period 2012–2016. The secondary data used in the study were obtained from sources published by the Central Bank of Indonesia and those listed on the IRBs' websites. Table 2 contains the operational definitions of each variable.

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#### 4. DATA ANALYSIS AND DISCUSSION

The sample in this study comprised 162 IRBs with quarterly financial reports from 2012 to 2016, and the total data consisted of 2424 data. Table 3 presents the result of the descriptive statistical analysis.

For the NPF variable, the mean value is 11.26429, the maximum value is 96.00000 and the minimum value is 0.000000. The mean value of FDR is 96.21144, and the maximum and minimum values are 3302 and -102 respectively. ROA has mean, maximum and minimum values of 1.528560, 969.0000 and -657.0000 respectively. The mean value of the IRBs' total assets is 16.80233, with maximum and minimum values of 20.40405 and 13.25743. The maximum and minimum values of TPF at the IRBs are 19.98702 and 6.790097 respectively, while the mean value of this variable is 16.23625. The CAR variable has a mean value of 0.197215, and the maximum and minimum values are 1.082700 and -0.582100.

Panel data regression was used to examine the three models (Common Effects Model, Fixed Effects Model and Random Effects Model) in order to identify the most efficient model. The test between these models revealed the fixed effects model to be the most appropriate for predicting the effect of FDR, ROA, CAR, bank size and TPF on NPF.

#### Analysis of Panel Data Regression with the Fixed Effects Model

Table 4 shows that the statistical result of the adjusted R-squared is 0.620882 or 62.0882%.

This means that the independent variables (FDR, ROA, CAR, Bank Size and TPF) can explain as much as 62.0882% of NPF, with the remainder explained by the other variables. The F-test result shown in Table 4 has a value of 0.00000 < alpha value 0.05. Therefore, FDR, CAR, ROA, bank size and TPF have an effect on NPF simultaneously.

Table 4 also presents the result of the t-test, which was used to examine the effect of each independent variable on NPF. The first result shows that FDR has a significance value of 0.9372, which means that FDR does not significantly affect NPF; thus, H1 is rejected. This result supports the study by Havidz & Setiawan (2015). Havidz & Setiawan (2015) stated that banks' income was derived not merely from distributed financing but also investment in BI or investment in the financial market. Therefore, Islamic banks are concerned not only with the total amount of financing distributed to the community but will also seek to select financing that has a high chance of delivering a profit.

On the other hand, ROA had a regression coefficient of -0.012953 and a significance value of 0.0070 > 0.05. This means that ROA has a negative effect on the NPF of IRBs and, thus, H2 is accepted. The result in this study contrasts with those found in previous studies by Havidz & Setiawan (2015) and Supriani & Sudarsono (2018), who found that ROA did not affect NPF over the long term. A rise in ROA is indicative of an excellent performance by banks in managing their financing to gain profit.

The CAR variable has a significance value of 0.0000 with a coefficient value of -34.57156. The statistical result indicates that CAR has a negative effect on NPF and therefore, H3 is accepted. The result obtained for this variable supports those found in the studies by Sukmana (2015) and Effendi et al. (2017). CAR is one of the indicators used by the Central Bank of Indonesia to measure banking performance. A high CAR indicates that a bank has the ability

to both manage its capital risks and anticipate the financing risks.

**Table 3**  
**Descriptive Statistics Analysis Result**

<b>Values</b>	<b>NPF</b>	<b>FDR</b>	<b>ROA</b>	<b>Bank Size</b>	<b>TPF</b>	<b>CAR</b>
Mean	11.26429	96.21144	1.52856	16.80233	16.23625	0.197215
Maximum	96	3302	969	20.40405	19.98702	1.0827
Minimum	0	-102	-657	13.25743	6.790097	-0.5821
Std. Dev.	11.81803	84.69499	33.54491	1.092054	1.226054	0.185092

Source: processed data

**Table 4**  
**Regression Result of the Fixed Effects Model**

<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
C	140.9011	8.704798	16.1866	0
FDR	0.000164	0.00208	0.078855	0.9372
ROA	-0.012953	0.004797	-2.700045	0.007
CAR	-34.57156	2.366265	-14.61018	0
Bank size	-6.531779	0.70769	-9.22972	0
TPF	-0.810372	0.541399	-1.496812	0.1346
Adjusted R-squared	0.620882			
F-statistic	23.20906			
Prob. (F-statistic)	0			

Source: Processed data

The statistical test for bank size shows that bank size has a significance value of  $0.0000 < 0.005$ , and the coefficient value is  $-6.531779$ . This indicates that bank size negatively affects NPF in IRBs; thus, H4 is accepted. The result of this study is in line with those in Effendi et al. (2017) and Havidz & Setiawan (2015). As such, banks with higher total assets are more likely to manage their financing risks more flexibly and may be better at addressing their level of NPF than those with lower total assets.

The TPF variable has a coefficient value of  $0.810372$  and a significance value of  $0.1346 > 0.05$ . This means that TPF does not have a significant effect on NPF. These results differ from those by Rahman et al. (2017), who found that the value of TPF has a positive effect on NPF. This may occur when high deposits do not affect the amount of financing channelled by the bank. The raw data show that a high FDR level does not always follow a rise in TPF. A high level of NPF will lead to banks becoming more careful with respect to adding new financing, with the effect that its deposits will be managed carefully.

##### 5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study aimed to determine the effect of banks' internal factors on NPF in IRBs in Indonesia. Analysis of the panel data regression results showed that ROA, CAR and bank size had a significant negative effect on NPF, while FDR and TPF did not influence NPF. The study may contribute to the evaluation of the financial performance of IRBs in managing their financing risks. IRBs should pay attention to high levels of NPF in their financing by prudently selecting those who will receive financing or controlling the financing distributed. Banks should seek to boost the internal factors that can affect the level of NPF and contribute to poor financing management. The level of NPF can affect the performance of Islamic banks as they contribute to a poor financial ratio. The financial ratio is an indicator of financial performance and provides a means by which stakeholders can assess the performance of an Islamic bank.

A limitation of this research concerns the variables, which consist of internal factors only. Future studies can be expected to add more internal factors such as Net Income Margin or Productive Assets Quality and include external factors such as the rate level, interest rate and exchange rate, which may affect NPF. They may also observe the management of the trend in NPF through the additions of the period.

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# Cogent Business & Management

## Internal Factors and Non-Performing Financing in Indonesian Islamic Rural Banks --Manuscript Draft--

<b>Full Title:</b>	Internal Factors and Non-Performing Financing in Indonesian Islamic Rural Banks
<b>Manuscript Number:</b>	COGENTBUSINESS-2020-0194R1
<b>Article Type:</b>	Research Article
<b>Section/Category:</b>	Banking & Finance
<b>Keywords:</b>	NPF; Internal Factors; Islamic Rural Banks; Financial Performance; Credit Risk
<b>Manuscript Classifications:</b>	50.6.3.3 Banking; 50.6.3.5 Investment & Securities; 50.6.4 Business, Management and Accounting
<b>Abstract:</b>	<p>This study aims to analyse the influence of banks' internal factors on Non-Performing Finance (NPF) at Islamic rural banks (IRBs) in Indonesia. IRBs has important factor in the economic activities in Indonesia because they provide small-mid-scale financing. The internal factors consist of the Financing to Deposit Ratio (FDR), Return on Assets (ROA), Capital Adequacy Ratio (CAR), Bank size and third-party funds (TPF). The sample in this study comprised 162 IRBs using quarter-year financial reports and examined using panel data regression. The statistical results show that ROA, CAR and bank size have a significant negative effect on NPF, while FDR and TPF have no impact on NPF in IRBs. This study may contribute to the evaluation of the financial performance of IRBs in managing their financing risk.</p>
<b>Response to Reviewers:</b>	<p>These are our responses according to suggestions from the reviewer. We have added the explanation (in yellow colour) related to those comments:</p> <p>1. In Section 3, they conducted tests to choose the models for fitting the data, and the test statistics should be shown in the paper.</p> <p>answer: We have added the explanation on page 6: There are three types of approaches in panel data regression, namely Common Effects Model (CEM), Fixed Effects Model (FEM) and Random Effects Model (REM). First two steps of analysis were carried out to select the best model. First, the Chow-test was undertaken to compare FEM with CEM (FEM is selected if p-value &lt; 0.05). Second, the Hausman-test was carried out, which compares FEM and REM (FEM is selected if p-value &lt; 0.05). The next test uses Lagrange Multiplier (LM) test to compare CEM and REM. LM-test is conducted if Chow-test and Hausman-test above have different results. The results of the test can be seen as follows:.....</p> <p>2. The authors use the term "NPF" while most papers use "NPL". Please explain the reason why you prefer "NPF".</p> <p>answer: We have added the explanation on page 3: .....Poor financing issue in banking industry is known as Non-performing financing (NPF) or non performing loan (NPL). The terms have similar meaning, but NPF is usually used in discussing Islamic banks while NPL is familiar in conventional bank.....</p> <p>3. The authors should enrich their literature reviews related to banking industry, and then modify the research design and data analysis.</p> <p>answer: We have added the explanation on page 2-4: Murabahah financing is the highest financing distributed by Islamic banks. Some reasons are because it has low risk and certain return. Murabahah is trading contract which the seller states the selling price and margin for the products. Otherwise, .....</p>

4. The data analysis and discussion should be strengthened. Currently, the paper concentrates on data, while the possible explanation should be provided.

answer:

We have added the explanation on page 6-8, for example:

page 6:

.....There are two possibilities about the result. First, IRB not only focuses on financing but also other sources in getting the income. Havidz & Setiawan (2015) stated that banks' income was derived not merely from distributed financing but also investment in BI or investment in the financial market. Therefore, Islamic banks are concerned not only with the total amount of financing distributed to the community but will also seek to select financing that has a high chance of delivering a profit. Second, .....

5. The conclusion section should consist of policy implications based on results, and it is the aim of the paper and shows your contributions in this field.

answer:

We have added the explanation on page 8, for example:

.....Moreover, the management of Islamic rural banks should be careful in selecting the potential customers in order to avoid the bad quality of financing. For the existing customers, they have to always evaluate and monitor the customers' performance regularly.

Furthermore, policy makers should immediately formulate risk mitigation policies related to the high NPF in the IRBs industry because it is feared that it will increase and will have an impact on the possibility of a higher bank failure rate. Moreover, these IRBs serve more people with lower levels of banking access so that it can have an impact on the macro slowdown in the growth of small and medium enterprises. Policy makers in the financial sector need to collaborate with policy makers in the field of fostering small and medium enterprises to provide an understanding of good financial management so that small and medium entrepreneurs have better financial management skills and prioritize productive expenditures compared to consumptive ones.

# Internal Factors and Non-Performing Financing in Indonesian Islamic Rural Banks

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**Abstract:** This study aims to analyse the influence of banks' internal factors on Non-Performing Finance (NPF) at Islamic rural banks (IRBs) in Indonesia. IRBs has important factor in the economic activities in Indonesia because they provide small-mid-scale financing. The internal factors consist of the Financing to Deposit Ratio (FDR), Return on Assets (ROA), Capital Adequacy Ratio (CAR), Bank size and third-party funds (TPF). The sample in this study comprised 162 IRBs using quarter-year financial reports and examined using panel data regression. The statistical results show that ROA, CAR and bank size have a significant negative effect on NPF, while FDR and TPF have no impact on NPF in IRBs. This study may contribute to the evaluation of the financial performance of IRBs in managing their financing risk

**Subjects:** Banking, Business & Industry, Finance, Financial Services Industry

**Keywords:** NPF, Internal Factors, Islamic Rural Banks, financial performance, credit risk

**JEL classifications:** G21, G32

## 1. Introduction

Law of Republic of Indonesia number 21 year 2018 concerning Islamic Banking defines a bank as an entity that collects funds from the community in the form of deposits and distributes them back to the community in the form of financing or other types with the aim of improving the community's living standard. Meanwhile, Islamic bank refers to a type of bank that runs its business according to Islamic principles. There are two kinds of Islamic banks, namely Islamic commercial banks (fully fledged Islamic banks) and Islamic rural banks (IRBs). The existence of a dual banking system enables conventional banks to operate an Islamic business unit, which is a division within the headquarters of an Islamic commercial bank that serves as the home office of its Islamic subsidiaries or Islamic unit.

Currently, Islamic commercial banks and Islamic business units are the market leaders of Islamic financing in Indonesia. However, these entities tend to focus on financing mid-large-scale funding. Meanwhile, the existence of IRBs has become essential in the national economy due to their respective emphasis on small-mid-scale financing. Therefore, IRBs offer the ability for all levels of the community, including small and medium-sized enterprises, to fulfil their capital needs.

IRBs have demonstrated relatively good rates of growth. Data from the financial services authority (FSA) of Indonesia show that as of December 2017, there were 167 IRBs in Indonesia that had growing levels of assets and funding distributed.

Table 1 displays the assets of IRBs, which increased slightly from 2012 to 2017. In 2012, total IRB assets rose significantly from Rp 4.7tn to Rp 5.8tn (or 19.45%). The table also indicates the growth in assets every year. Thus, IRBs had assets of Rp 6.6tn in 2014, Rp 7.7tn in 2015, Rp 9.1tn in 2016 and Rp 10.8tn in 2017. The level of financing also increased in line with banks' asset levels. Thus, for 2012, financing stood at Rp 3.5tn, increasing to Rp 4.4tn in 2013, an annual growth rate of 19.8%. The figure continued to rise in 2014, 2015, 2016 and 2017, to Rp 5tn in 2014, Rp 5.7tn in 2015, Rp 6.6tn in 2016 and Rp 7.7tn in 2017.

**Table 1. Assets and Financing Development of Islamic Rural Banks, 2012-2017**

Year	Assets*	Funding*	NPF (%)
2012	4,698,952	3,553,520	6.15
2013	5,833,488	4,433,492	6.5

2014	6,573,331	5,004,909	7.89
2015	7,739,270	5,765,171	8.2
2016	9,157,801	6,662,556	8.63
2017	10,840,375	7,763,951	9.68

Note: \* in million rupiahs

One of the problems encountered by Islamic banking in Indonesia is that of non-performing loans (NPL) or non-performing financing (NPF). The NPL element of NPF refers to a condition in which money lent to debtors cannot be collected at a specified period (Rivai & Arifin, 2010). The Central Bank of Indonesia (Bank Indonesia/BI) set a maximum level of NPF for banking at 5%. Unfortunately, FSA data show there has been a gradual increase in IRBs' level of NPF. Table 1 shows the annual increase in NPF; throughout the period, the percentage of NPF was over 5%. Moreover, it reached 8.20% and 8.63% in 2015 and 2016 respectively. The NPF level therefore requires attention as it has consistently exceeded the BI threshold. As such, NPF should be properly managed in order to prevent losses and maintain the credibility of Islamic banks.

Previous studies have stated that internal factors can influence banks' level of NPF. These are related to the characteristics of IRBs such as the bank size, their return on assets (ROA), Financing to Deposit Ratio (FDR) and Capital Adequacy Ratio (CAR). Havidz and Setiawan (2015) found that ROA had a negative effect on NPF, while CAR and FDR had no effect on NPF in Islamic banks. Sukmana (2015) stated that CAR has a negative effect on NPF. Purnamasari and Musdholifah (2016) argued that bank size has a positive influence, ROA has a negative influence and CAR has no influence on the NPF level in Islamic commercial banks in Indonesia. Supriani and Sudarsono (2018) revealed that in the long term, CAR and FDR have a positive effect on NPF, while in the short term, ROA has a positive effect on NPF in Islamic banks in Indonesia.

This study aims to analyse the internal factors of firms that may influence the NPF level of IRBs in Indonesia. NPF at IRBs in Indonesia is a very interesting area in which to conduct research due to the important role played by IRBs. Moreover, most of the studies carried out to date have concerned Islamic commercial banks (Purnamasari & Musdholifah, 2016; Sukmana, 2015; Supriani & Sudarsono, 2018). This study is expected to contribute to IRB development in Indonesia based on the following points: first of all, IRBs make an essential contribution to the development of small and medium-sized enterprises. As mentioned previously, the role of the IRB is to provide financing to the community, especially small and micro enterprises in both rural and urban areas. In 2016, IRBs contributed 3.57 trillion rupiahs' worth of financing to small-mid-sized enterprises out of a total financing amount of Rp 6.66 trillion, or approximately 53.59%. Second, IRBs have a very high level of NPF, exceeding the provisions of the Central Bank of Indonesia. The management of NPF will thus play an important role in terms of maintaining the survival of a particular bank. Research into the factors that affect the level of NPF will help the related parties to anticipate and manage the financial ratios of the Islamic bank.

## 2. Theoretical framework and hypotheses

### Agency Theory

Agency theory was introduced by Jensen and Meckling (1976), who defined the relationship between principals and agents in carrying out work. A principal gives authority to an agent to manage the company. The principal also supervises the agent to focus on achieving the principal's desired goal.

Agency theory has been used in banking research for two main reasons (Demsetz et al., 1997). First, the protection of the customer by a bank's governance reduces the opportunity for a bank to engage in risky financing and thus reduces the motivation of the shareholder to control and restrict risk-taking. Second, segregation between the principal and agent may boost the manager in reaching his own goals by sacrificing the shareholders' interest.

Credit risk is a type of operational risk that can affect bank performance (Catanach, 1993, cited in Donnellan & Rutledge, 2016). Excellent and healthy banking performance is undoubtedly the primary expectation among stakeholders in the banking industry. Islamic banks have performed better than conventional banks with respect to credit risk management (Alsyaahrin, Atahau, & Robiyanto, 2018).

However, the management of an Islamic bank must be capable of achieving an optimal or ideal level of financial performance (as represented by its financial ratios).

### Financing at Islamic Banks and Non-Performing Financing (NPF)

One of the tasks of an IRB is to provide funding and the placement of funds based on Islamic principles (Muhammad, 2019). Islamic banks divide the principles of financing into three: the buying and selling principle (murabahah, istishna and salam), rent principle (ijarah and ijarah muntahiya bi tamlík) and profit-sharing principle (mudharabah and musyarakah).

Murabahah financing is the highest financing distributed by Islamic banks. Some reasons are because it has low risk and certain return. Murabahah is trading contract which the seller states the selling price and margin for the products. Otherwise, mudharabah financing as profit sharing financing has low distribution because of its high risk. Mudharabah financing is agreement between two parties (investor and entrepreneurs/mudharib) to share the profit based on pre-agreed ratio, which the capital is borne by investor fully. Musharakah is partnership agreement, which all the parties provide capital for a business, and the profit will be divided in the pre-agreed ratio, while the losses will be divided based on capital contribution. The nature of mudharabah is uncertain return and losses that will be borne by Islamic banks when consumers experience losses due to the force major. Those characteristics are the risks faced by Islamic banks. The financing data of IRB shows that murabahah is the highest financing compared to mudharabah financing (FSA, 2018).

**Table 2. The percentage of financing composition of Indonesian Islamic Rural banks**

Types of financing	2012	2013	2014	2015	2016
Mudharaba	0.0280	0.0241	0.0245	0.0292	0.0235
Musharaka	0.0904	0.0962	0.1134	0.1131	0.1163
Murabaha	0.8033	0.7999	0.7923	0.7791	0.7585
Salam	0.0001	0.0000	0.0000	0.0000	0.0000
Istishna	0.0058	0.0040	0.0026	0.0019	0.0014
Ijara	0.0038	0.0019	0.0010	0.0011	0.0010
Qardh	0.0230	0.0211	0.0195	0.0214	0.0219
Multi Purpose	0.0457	0.0529	0.0466	0.0541	0.0774

The percentage of Murabahah financing is more than 75% every year, while mudharabah and musharakah (PLS) financing is about 11%. Ernawati (2016) argue that PLS financing is usually avoided by Islamic banks because of its highly risk and therefore, Islamic banks more prefer to murabahah financing.

The profit, which is derived from the financing distributed by an Islamic bank, is the main source of a bank's income, in addition to the revenue earned from other services for its customers. According to Belkhaoui, Alsagr, & Hemmen (2020), the main profit in banking sector come from financing and the amount of profit will depend on the type of financing distributed. Banks can use their returns to fund customer profit-sharing or to finance their operational activities. In addition to income, Islamic banks must deal with the risk associated with the financing they distribute, namely NPF. Islamic banks should maintain the quality of financing in order to minimise the loss and maintain the sustainability of the business (Bank Indonesia, 2011).

Banking industry faces the important risk related to the financing distributed called credit risk (Adusei, 2015). Chamberlain & Khokhar (2020) argue that failure to handle credit risk will have an impact on the health of a bank and even affect the health of the banking industry as a whole. Poor financing issue in banking industry is known as Non-performing financing (NPF) or non performing loan (NPL). The terms have similar meaning, but NPF is usually used in discussing Islamic banks while NPL is familiar in conventional bank. NPF is defined as the ratio between poor financing and total financing distributed by Islamic banks. Poor financing is credit/financing that has been distributed to the customer by the bank but which the customer is unable to make repayment on, either in full or in instalments, including the principal instalment and the interest or profit-sharing from the investments made under the

agreement (Ismail, 2010). Five areas of financing quality are assessed with respect to customers' ability to make repayments or instalments. These are performing-loan (making repayments on time), special attention (up to 90 days), substandard (90–180 days), doubtful (180–270 days) and non-performing (over 270 days). The category of poor financing includes substandard, doubtful and non-performing.

The distribution of financing without proper risk management will create an impact with respect to increasing NPF (Ibrahim & Rahmati, 2017). Jabra, Mighri, & Mansouri (2017) state that NPL is indicated as one of the factors affecting the crisis of banking sustainability. Therefore, the internal characteristics of a bank can be used as an indicator to overcome NPLs, among other is financial performance.

## **Hypothesis Development**

### **Financing to Deposit Ratio and Non-Performing Financing**

FDR is a comparison between the amount of financing given by the bank and the amount of third-party funds (TPF) collected by the bank. In conventional banking, FDR is known as the Loan to Deposit Ratio (LDR). A high FDR indicates sufficient capability to distribute financing on the part of the Islamic bank. Therefore, FDR can be used to measure the effectiveness of the funding supply. As FDR increases, a bank's profits increase accordingly, based on the assumption that banks are able to supply the financing effectively.

A high FDR, however, may also indicate a significant contribution to the NPF level of Islamic banking as a result of a rise in poor financing (Poetry & Sanrego, 2011). There is potential for this to occur when the distribution of funding is not supported by prudence and proper supervision. Previous research shows that FDR positively affects NPF, in both the short term and long term (Supriani & Sudarsono, 2018). Suryanto (2015), who conducted research into regional development banks, found that LDR significantly affects NPF. Therefore, the hypothesis for this variable is:

H1: Financing to Deposit Ratio has a positive effect on Non-Performing Financing.

### **Return on Assets and Non-Performing Financing**

ROA is used to measure management's ability to earn an overall profit (Dendawijaya, 2003). The greater a bank's ROA, the larger the profit it will earn and the better the bank's position in terms of its use of assets (Dendawijaya, 2003). A high ROA indicates excellent performance on the part of a bank in terms of generating a high income. One source of a bank's revenue is the profit-sharing it obtains through financing distribution. A high ROA shows that the bank is able to optimise the financing to gain profits. Therefore, the hypothesis for this variable is:

H2: Return on Assets has a negative effect on Non-Performing Financing.

### **Capital Adequacy Ratio and Non-Performing Financing**

Capital is one of the crucial factors for a bank to develop its business and accommodate the risk of loss. The capital of a bank must principally be sufficient to cover the entire business risks that it faces. A bank's capital is represented by the CAR, which is used as an indicator of the ability of the bank's assets to cover the potential risks financed by its capital. CAR is also a crucial indicator of the bank's ability to handle a reduction in assets as a result of losses arising from its risky assets (Dendawijaya, 2003).

A higher CAR indicates a more significant financial resource that can be used to absorb losses and reduce the percentage of poor financing (Supriani & Sudarsono, 2018). Sukmana (2015) stated that CAR has a negative effect on NPF at Islamic banks in Indonesia. A large CAR enables banks to use information technology to fully assess the capability of prospective financing customers or to use its capital to improve the ability of risk assessors (Sukmana, 2015). Hence, the hypothesis for this variable is:

H3: Capital Adequacy Ratio has a negative effect on Non-Performing Financing.

### **Bank Size and Non-Performing Financing**

Bank size is one of the variables that may affect financing problems (Firmansyah, 2014). It is represented by the total assets owned by the bank. Assets are the resources controlled by the Islamic entity as the consequences of past events, from which it may gain economic benefits in the future (Muhammad, 2019). The total assets of Islamic banking consist of cash, placement at BI, placement in other banks, financing distributed, equity participation, provision of loan losses, fixed assets, and inventory and other assets.



The greater the assets owned by a bank, the greater its flexibility in using them to manage the risks arising from financing distribution. According to Havidz & Setiawan (2015), a bank with fewer assets tends to be unable to manage credit risk properly, which means its NPF is likely to be high. Therefore, the hypothesis for this variable is:

H4: Bank size has a negative impact on Non-Performing Financing.

### **Third-Party Funds (TPF) and Non-Performing Financing**

According to Regulation of Bank of Indonesia number 17/11/PBI/2015, TPF are banks' responsibility to residents and non-residents in both rupiahs and foreign currencies. Meanwhile, Kuncoro & Suhardjono (2012) state that TPF are funds from the community, either individuals or business entities, which are collected by the bank through various saving products owned by the bank. Kasmir (2002) states that the funds entrusted to banks by the community may be in the form of current accounts, savings accounts and investment accounts. Moreover, Dendawijaya (2003) revealed that the TPF collected from society are banks' most reliable sources of funds (reaching 80%-90% of the total funds managed by the bank).

According to Kasmir (2002), the most significant contribution to TPF comes from various finance sources. Therefore, the amount of TPF collected by a bank will affect its ability to provide credit. Credit is accorded when debtors meet the requirements as stipulated in the agreement made between the debtors and the bank. Islamic Banking law number 21 year 2008 explains that IRBs have two methods of collecting funds from the community. First, all savings or those equalised to savings based on a wadiah agreement (a savings account managed by the bank without profit sharing) or other forms of agreement which are not contrary to Islamic principles. Second, investment in the form of deposits or savings or others that are equalised to savings based on a mudharabah agreement (an investment account managed by the bank with profit sharing) or other forms of agreement that comply with Islamic principles. The effectiveness of TPF represents the function of the bank as an intermediate party to distribute financing.

A higher level of TPF may encourage the distribution of a higher level of financing; thus, poor financing is more likely to occur. TPF is, therefore, positively significant to the NPF level in an Islamic bank. According to Sinkey & Greenawalt (1991), expansive financing growth sometimes leads to the use of a non-strict selection process. As a result, financing is distributed to customers who are not qualified. Rahman et al. (2017) found a positive effect between the saving ratio and NPF level at a Bangladeshi bank. The hypothesis for this variable is:

H5: Third-party funds have a positive impact on Non-Performing Financing.

### **3. RESEARCH METHOD**

The population of this study comprised IRBs in Indonesia. This study used data from quarterly financial reports published by IRBs during the period 2012-2016. The secondary data used in the study were obtained from sources published by the Central Bank of Indonesia and those listed on the IRBs' websites. Table 3 contains the operational definitions of each variable.

The analysis of the data in this study consists of descriptive statistics and regression analysis. Descriptive statistics are used to describe the data and include the mean, standard deviation, and maximum and minimum values. Regression analysis is used to understand the effect of the independent variables on the dependent variable, either partially or simultaneously. The estimation of the regression model parameter uses existing panel data. Table 3 below shows the measurement of variables used in this study.

**Table 3. Operational Variables Measurement**

Variables	The Measurement of Variables
NPF	$\frac{\text{Poor Financing}}{\text{Total Financing}} \times 100\%$
FDR	$\frac{\text{Total Financing distributed}}{\text{Total Deposit}} \times 100\%$
ROA	$\frac{\text{Income After Tax}}{\text{Total Assets}} \times 100\%$
CAR	$\frac{\text{Equity}}{\text{Risk Weighted Assets}} \times 100\%$
Bank Size	The logarithm of total assets
TPF	The logarithm of (current account+ investment account + saving account)

#### 4. DATA ANALYSIS AND DISCUSSION

The sample in this study comprised 162 IRBs with quarterly financial reports from 2012 to 2016, and the total data consisted of 2424 data. Table 4 presents the result of the descriptive statistical analysis.

For the NPF variable, the mean value is 11.26429, the maximum value is 96.00000 and the minimum value is 0.000000. The mean value of FDR is 96.21144, and the maximum and minimum values are 3302 and -102 respectively. ROA has mean, maximum and minimum values of 1.528560, 969.0000 and -657.0000 respectively. The mean value of the IRBs' total assets is 16.80233, with maximum and minimum values of 20.40405 and 13.25743. The maximum and minimum values of TPF at the IRBs are 19.98702 and 6.790097 respectively, while the mean value of this variable is 16.23625. The CAR variable has a mean value of 0.197215, and the maximum and minimum values are 1.082700 and -0.582100.

There are three types of approaches in panel data regression, namely Common Effects Model (CEM), Fixed Effects Model (FEM) and Random Effects Model (REM). First two steps of analysis were carried out to select the best model. First, the Chow-test was undertaken to compare FEM with CEM (FEM is selected if p-value < 0.05). Second, the Hausman-test was carried out, which compares FEM and REM (FEM is selected if p-value < 0.05). The next test uses Lagrange Multiplier (LM) test to compare CEM and REM. LM-test is conducted if Chow-test and Hausman-test above have different results. The results of the test can be seen as follows:

Table 4. The results of Chow-test, Hausman-test and LM-test

Types of test	Test Summary		
	Statistic	d.f.	Prob.
Chow-test	20.8586	156	0.0000
	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Hausman-test	76.4064	5	0.0000
	Cross-section	Time	Both
LM-test	4244.222 (0.0000)	112.7327 (0.0000)	4356.955 (0.0000)

Table 4 shows that the probability values of all tests are below 0.05. The test between these models revealed the fixed effects model to be the most appropriate for predicting the effect of FDR, ROA, CAR, bank size and TPF on NPF.

#### Analysis of Panel Data Regression with the Fixed Effects Model

Table 5 describes the result of descriptive statistics of the data. NPF has a mean value of 11.2643%. This value is high because Indonesian central bank (BI/Bank Indonesia) assigns that NPF in banking industry is in the range of 2-5%. The mean value of FDR is 96.2114% and indicates that IRB has a good performance because its FDR is less than 110% according to Bank Indonesia regulations. ROA has mean value of 1.5286%. The small ROA may be because for certain periods, some IRBs has negative ROA and it impacts on the mean value of ROA. Bank size (log) has a mean value of 16.80233, and third party fund (log) has a

mean value of 16.23625. CAR has a mean value of 19.7215% and shows that IRB has a good CAR value because the minimum CAR set by Bank Indonesia is 8%.

Table 6 shows the result of panel data regression with the statistical result of the adjusted R-squared is 0.620882 or 62.0882%. This means that the independent variables (FDR, ROA, CAR, Bank Size and TPF) can explain as much as 62.0882% of NPF, with the remainder explained by the other variables. The F-test result shown in Table 4 has a value of 0.00000 < alpha value 0.05. Therefore, FDR, CAR, ROA, bank size and TPF have an effect on NPF simultaneously.

Table 6 also presents the result of the t-test, which was used to examine the effect of each independent variable on NPF. The first result shows that FDR has a significance value of 0.9372, which means that FDR does not significantly affect NPF; thus, H1 is rejected. This result supports the study by Havidz & Setiawan (2015). There are two possibilities about the result. First, IRB not only focuses on financing but also other sources in getting the income. Havidz & Setiawan (2015) stated that banks' income was derived not merely from distributed financing but also investment in BI or investment in the financial market. Therefore, Islamic banks are concerned not only with the total amount of financing distributed to the community but will also seek to select financing that has a high chance of delivering a profit. Second, IRB focuses more on the low risk financing such as murabahah financing than higher risk financing such as mudharabah financing. The data from FSA for the year of 2012-2016 (see table 2) show that IRB's financing is dominated by murabahah financing. It may impact on the amount of poor financing and therefore, NPF is not influenced by financing distributed (FDR).

On the other hand, ROA had a regression coefficient of -0.012953 and a significance value of 0.0070 < 0.05. This means that ROA has a negative effect on the NPF of IRBs and, thus, H2 is accepted. The result in this study contrasts with those found in previous studies by Havidz & Setiawan (2015) and Supriani & Sudarsono (2018), who found that ROA did not affect NPF over the long term. ROA indicates the return obtained by the IRB. When the IRB has a large return, it will be easier to overcome the risk of bad debt so that the NPF will decrease. A rise in ROA is indicative of an excellent performance by banks in managing their financing to gain profit.

The CAR variable has a significance value of 0.0000 with a coefficient value of -34.57156. The statistical result indicates that CAR has a negative effect on NPF and therefore, H3 is accepted. The result obtained for this variable supports those found in the studies by Sukmana (2015) and Effendi et al. (2017). CAR is one of the indicators used by the Central Bank of Indonesia to measure banking performance. A high CAR indicates that a bank has the ability to both manage its capital risks and anticipate the financing risks. Therefore, high CAR can be used to reduce NPF to manage the financing risk channeled. Otherwise, the low capital may encourage banks to do risky financing in order to increase the income (Ozili, 2017).

**Table 5. Descriptive Statistics Analysis Result**

Values	NPF	FDR	ROA	Bank Size	TPF	CAR
Mean	11.2643	96.2114	1.5286	16.8023	16.2363	19.7215
Maximum	96.0000	330.2000	558.000	20.4041	19.9870	108.2700
Minimum	0.0000	-102.000	-657.000	13.2574	6.7901	-0.5821
Std. Dev.	11.8180	84.6949	33.5449	1.0921	1.2260	0.1851

Source: processed data

**Table 6. Regression Result of the Fixed Effects Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	140.9011	8.704798	16.1866	0.0000
FDR	0.000164	0.00208	0.078855	0.9372
ROA	-0.012953	0.004797	-2.700045	0.0070
CAR	-34.57156	2.366265	-14.61018	0.0000
Bank size	-6.531779	0.70769	-9.22972	0.0000

TPF	-0.810372	0.541399	-1.496812	0.1346
Adjusted R-squared	0.620882			
F-statistic	23.20906			
Prob. (F-statistic)	0.000			

Source: Processed data

The statistical test for bank size shows that bank size has a significance value of  $0.0000 < 0.005$ , and the coefficient value is  $-6.531779$ . This indicates that bank size negatively affects NPF in IRBs; thus, H4 is accepted. The result of this study is in line with those in Effendi et al. (2017) and Havidz & Setiawan (2015). As such, banks with higher total assets are more likely to manage their financing risks more flexibly and may be better at addressing their level of NPF than those with lower total assets. Banks with the large number of assets can also more freely distribute the financing that can generate potential high profits so that the possibility of NPF can be minimized. Furthermore, the larger bank size can reflect that the organization of IRBs have solid, organized and experienced management, enabling them to be able to better monitor customer performance through various organizational instruments such as information technology and qualified human resources.

The TPF variable has a coefficient value of  $0.810372$  and a significance value of  $0.1346 > 0.05$ . This means that TPF does not have a significant effect on NPF. These results differ from those by Rahman et al. (2017), who found that the value of TPF has a positive effect on NPF. This may occur when high deposits do not affect the amount of financing channelled by the bank. The sources of financing are influenced by the amount of third party funds, capital adequacy ratio and the level of profit sharing (Amelia & Fauziah, 2017). The finding that TPF does not influence NPF may be because the percentage of TPF distributed is not so large, and IRB relies more on CAR and profit sharing received by IRB in distributing the financing. The raw data show that a high FDR level does not always follow a rise in TPF. Thus, a high level of NPF will lead to banks becoming more careful with respect to adding new financing, with the effect that its deposits will be managed carefully.

On the other hand, the TPF is more influenced by information received by customers, such as the level of profit sharing, service, reputation and accessibility of Islamic banks. Moreover, information related to FDR is sometimes not the focus of customers if it is not widely published through the media because it is only a limited publication. Therefore, FDR and TPF cannot linearly describe conditions that influence each other.

## 5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study is an attempt to explain the factors influencing non-performing financing of Islamic rural banks in Indonesia. Islamic banks in Indonesia are growing fast including Islamic full-fledges, Islamic windows, and Islamic rural banks. IRBs has important factor in the economic activities of a country because their focus on small-mid-scale financing. Therefore, IRBs offer the ability for all levels of the community, including small and medium-sized enterprises, to fulfil their capital needs.

However, the main problem of Islamic banks is a high level of non-performing financing. Therefore, this research tried to explain the internal potential factors that influencing the problem. This study measures some indicators such as: liquidity (FDR), profitability (ROA), capital (CAR), size, and third-party funds that potentially contribute to the non-performing financing. Analysis of the panel data regression results showed that ROA, CAR and bank size had a significant negative effect on NPF, while FDR and TPF did not influence NPF.

This study provides the insights for the management of Islamic rural banks to pay more attention to the high level of non-performing financing since it could give bad impact to the future operation. Banks should seek to boost the internal factors that can affect the level of NPF and contribute to poor financing management. The level of NPF can affect the performance of Islamic banks as they contribute to a poor financial ratio. The financial ratio is an indicator of financial performance and provides a means by which stakeholders can assess the performance of an Islamic bank. Moreover, the management of Islamic rural banks should be careful in selecting the potential customers in order to avoid the bad quality of financing. For the existing customers, they have to always evaluate and monitor the customers' performance regularly.

Furthermore, policy makers should immediately formulate risk mitigation policies related to the high NPF in the IRBs industry because it is feared that it will increase and will have an impact on the possibility of a higher bank failure rate. Moreover, these IRBs serve more people with lower levels of banking access so that it can have an impact on the macro slowdown in the growth of small and medium enterprises. Policy makers in the financial sector need to collaborate with policy makers in the field of fostering small and medium enterprises to provide an understanding of good financial management so that small and medium entrepreneurs have better financial management skills and prioritize productive expenditures compared to consumptive ones.

A limitation of this research concerns the variables, which consist of internal factors only. Future studies can be expected to add more internal factors such as Net Income Margin or Productive Assets Quality and include external factors such as the rate level, interest rate and exchange rate, which may affect NPF. They may also observe the management of the trend in NPF through the additions of the period.

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This study is an attempt to explain the factors influencing non-performing financing of Islamic rural banks in Indonesia. Islamic banks in Indonesia are growing fast including Islamic full-fledged, Islamic windows, and Islamic rural banks. However, the main problem of Islamic banks is a high level of non-performing financing. Therefore, this research tried to explain the internal potential factors that influencing the problem of that. This study measures some indicators such as: liquidity, profitability, capital, size, and third-party funds that potentially contribute to the non-performing financing. This study provides the insights for the management of Islamic rural banks to pay more attention to the high level of non-performing financing since it could give bad impact to the future operation. Moreover, the management of Islamic rural banks should be careful in selecting the potential customers in order to avoid the bad quality of financing. For the existing customers, they have to always evaluate and monitor the customers' performance regularly.

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