Management ownership and the performance of Islamic microfinance institutions: a panel data analysis of Indonesian Islamic rural banks

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Abstract

Purpose – This study aims to analyse the relationship between management ownership and the performance of Islamic microfinance institutions (MFIs) using panel data from Indonesian Islamic rural banks (Bank Pembiayaan Rakyat Syariah [BPRS]).

Design/methodology/approach – This study uses unbalanced quarterly panel data from BPRS during the period from 2011 to 2016. Performance, as the dependent variable in this study, is analysed based on three sets of measures, namely, profitability, efficiency and the financing risk. Management ownership, as the independent variable in this study, is represented by ownership by the board of directors (BOD), the board of commissioners (BOC) and the sharia supervisory boards (SSB).

Findings – The results show that ownership by the BOD and BOC does not have a significant relationship with profitability and efficiency. However, the BOD ownership has a negative relationship with the financing risk and vice versa for the BOC ownership. Additionally, the study reveals that ownership by the SSB plays a positive and significant role in increasing the profitability and efficiency but does not have a significant impact on the financing risk.

Originality/value – This is one of the first studies to provide empirical results regarding the relationship between management (BOD, BOC and SSB) ownership and the performance of BPRS. The finding reveals that ownership by the SSB is very important to increase the profitability and efficiency of the BPRS.

Contribution to Impact – This study fills the gap in the literature about Islamic MFIs in Indonesia, especially the BPRS. This research also provides an insight into corporate governance practices and Islamic MFIs' performance using BPRS data. The findings provide useful information for policy makers and regulators.

Keywords Islamic microfinance institution (MFI),
Islamic rural banks (Bank Pembiayaan Rakyat Syariah-BPRS), BPRS performance,
Management ownership, Panel data

Paper type Research paper

1. Introduction

Indonesia has developed an Islamic finance industry that is relatively different in terms of its development base and characteristics, compared to other countries such as Malaysia and the Gulf Cooperation Council (GCC) countries. Malaysia and the GCC countries focus more on investment banking and Islamic financial markets/instruments, while Islamic banking and finance in Indonesia is of greater complexity as it encompasses more parts of the financial services industry and is more oriented towards the retail segment. Indonesia has developed certain features that demonstrate typical Indonesian Islamic financial characteristics, such as Islamic rural banks (*Bank Pembiayaan Rakyat Syariah*-BPRS) (OJK, 2015).

BPRS mainly target the rural society and small-medium enterprises (SME) as their customers. BPRS are experiencing a rapid growth starting with only four BPRS in 1992, continued to grow to 167 BPRS by the end of November 2017 (OJK, 2017). The total asset and total loans of BPRS increased by 10.56% and 10.49% respectively in 2020 (OJK, 2020). In Indonesia, besides being classified as banks, BPRS are also classified as Islamic microfinance institutions (MFIs) that aim to seek profits. BPRS also support the development of the social and economic aspects of society (Irfan, 2020). Accordingly, considering the important role of BPRS, understanding factors affecting BPRS performance is worth studying.

Many prior empirical studies (Abduh and Azmi Omar, 2012; Hardianto and Wulandari, 2016; Cupian and Abduh, 2017) have focused on the topic of Islamic banks in Indonesia. Those studies have examined activities, efficiency and comparison between Islamic and conventional banks. However, research into BPRS is still rarely found in the literature (Trinugroho *et al.*, 2018; Warninda, 2014; Nashihin and Harahap, 2014; Muhari and Hosen, 2015; Agustina *et al.*, 2019 and Jatmiko, 2017). Trinugroho *et al.* (2018) investigated BPRS margins, competition, and diversification; *but did not investigate management ownership*. Warninda (2014) examined the profitability determinants of BPRS using an error correction model (ECM). However, *she did not examine the ownership effect* and only used time-series data. Nashihin and Harahap (2014), Muhari and Hosen (2015), and Agustina *et al.* (2019), using the ratio of operating expenses to operating income, data envelopment analysis and stochastic frontier analysis evaluated the efficiency of BPRS. However, Nashihin and Harahap (2014) only used time-series data and Muhari and Hosen (2015) only examined six zones in Indonesia. *They also did not examine the effect of ownership on the efficiency of BPRS*. Jatmiko (2017) examined the relationship between ownership and the efficiency of BPRS and their conventional counterparts. However, *he did not investigate ownership by the board of directors (BOD), board of commissioners (BOC), and the sharia supervisory boards (SSB); nor profitability and the financing risk*. As a result, it is not clear whether management (BOD, BOC, and SSB) ownership of BPRS is associated with the performance of the BPRS. Our study aims to answer that question.

This study is important and contributes in several ways. First, this study extends the previous studies about the relationship between management ownership and efficiency (DeYoung *et al.*, 2001) and profitability (Westman, 2011) by examining the impact of management ownership (by the BOD, BOC and SSB) on the performance (profitability, operational efficiency and financing risk) of Islamic MFIs. Further, whilst the effect of the ownership structure on financial performance has been studied both for conventional banks (DeYoung *et al.*, 2001; Westman, 2011; Bokpin, 2013; Rahman and Reja, 2015) and Islamic banks (Zouari and Taktak, 2014), research into this topic using BPRS as the object, is still limited. By analysing BPRS in Indonesia, this study complements the previous studies by providing insights into the effect of ownership structures on performance in other types of financial institutions. This study aims to test the generalisability of the findings of DeYoung *et al.* (2001), Westman (2011), and Zouari and Taktak (2014) into a different context, namely, BPRS. Generalisability is a very important aspect for knowledge development.

Second, this study is among the first studies to analyse the relationship between management ownership and BPRS performance. Therefore, our main contribution is to investigate the effect of ownership by the BOD, BOC and SSB on profitability, efficiency and risk, which has not been studied before. Indeed, the SSB is the main variable which distinguishes between this study and that of Jatmiko (2017). This study is expected to fill the gap and contribute to the literature on Islamic rural banks.

Finally, by analysing the relationship between management ownership and the performance of Islamic MFIs in Indonesia, this study supplements the research related to ownership structure on performance in different places, such as the United States (DeYoung *et al.*, 2001), Europe (Westman, 2011), Spain (Garcıa-Cestona and Surroca, 2008), Jordan (Tomar and Bino, 2012), Ghana (Bokpin, 2013), Malaysia (Rahman and Reja, 2015) and many other countries (Zouari and Taktak, 2014). This study focuses on one country, Indonesia, which has the largest number of Muslims in the world and has an Islamic financial system that is different from those found in other countries. Although previous studies using data from different countries, such as that conducted by Zouari and Taktak (2014) can provide stronger insights, research into a single economic context is still important because economic conditions in certain countries have unique national characteristics. Indonesia has a relatively different institutional environment to other Muslim countries. Focusing on a single country is advantageous as it eliminates possible confounding effects, such as culture and institutional structures, compared to cross-country studies (Hanafi *et al.*, 2013).

The rest of the paper is organised as follows. Section 2 is the literature review and hypotheses development. That will be followed by the research method, the results and discussion in Sections 3 and 4. That will be followed with the conclusion and implications in Section 5. The paper ends with limitations and suggestions for future research in Section 6.

2. Literature review and hypotheses development

The agency theory proposed by Jensen and Meckling (1976) is probably the most widely used theory to explain the relationship between owners (principals) and management (agents). The concept of agency theory is based on the underlying problem that a company's owner does not always manage the company. There are two agency problems in the relationship between the principal and agent: first, asymmetric information where the agent has more infomation regarding the company's financial performance; second, the conflict of interest between the manager and the owner because the manager will seek personal benefits from any high-risk projects. Based on this theory, it is believed that, in order to reduce the agency problems and to improve the financial performance, good corporate governance must be implemented, such as with the establishment of a BOC or a SSB.

Previous research, for example Hartarska (2005), Bakker *et al.* (2014), Wamba *et al.* (2018), Hasan *et al.* (2019), Iqbal *et al.* (2019) and Jatmiko (2017), have studied the governance, ownership and performance of MFIs. Hartarska (2005) examined the impact of all the governance mechanisms on MFIs, yet she did not analyse the ownership due to the lack of data. Bakker *et al.* (2014) and Wamba *et al.* (2018) investigated the influence of governance mechanisms on the performance of MFIs. Using a sample of 68 MFIs from Bangladesh, Hasan *et al.* (2019) investigated the impact of various governance attributes on financial performance. Iqbal *et al.* (2019) examined the relationship between corporate governance and the financial performance of MFIs in Asia. With regard to Islamic MFIs, which in this case are Islamic rural banks (BPRS), Jatmiko (2017) examined the effect of the ownership structure, represented by the ownership concentration and type of ownership, on the efficiency of conventional rural banks (BPR) and Islamic rural banks (BPRS). He found that the ownership concentration positively affected the inefficiency of BPRS, but not BPR. However, he did not analyse the effect of management ownership.

2.1 Board of director ownership and performance

Studies into the relationship between ownership by the BOD and the performance of the MFI are still limited and have inconclusive results. Since MFIs are similar to banks, we use banking literature to support our hypotheses.

DeYoung *et al.* (2001) examined management ownership using 266 small banks in the United States. They found that banks can increase their profitability by recruiting managers from outside, whose interests are aligned with shareholders through ownership. Spong and Sullivan (2007) also found that boards of directors were likely to have a more positive effect on community banks' performance when the directors had a significant financial interest in the bank. Garcıa-Cestona and Surroca (2008), using Spanish banks, analysed how ownership structures affected performance levels and found that insider-controlled organisations (i.e. managers and workers) tended to maximise profits and perform better. Additionally, using samples from European banks, Westman (2011) examined the impact of management ownership on profitability and found that management ownership positively affected the profitability of non-traditional banks. Gulamhussen *et al.* (2012) assessed the influence of managerial ownership on the performance and risk of 23 listed banks in 23 countries. Their results showed that managerial ownership had a positive relationship with performance. Rahman and Reja (2015) and Mnasri (2015) also examined the effect of management ownership on the return on assets (ROA) and return on equity (ROE). They found that management ownership had a significant effect on bank performance, especially for ROA. Wamba *et al.* (2018) analysed the effect of governance mechanisms on the performance of MFIs in Cameroon and found that the percentage of capital held by the manager positively and significantly affected the performance of the MFIs. Additionally, Al-Sartawi (2018) investigated the association between online financial disclosure, board characteristics and performance of listed Islamic banks in the GCC bourses and found that the director's ownership has a positive significant relationship with ROE. Tomar and Bino (2012) examined the effect of management ownership on performance using samples from 14 banks listed on the Amman Stock Exchange. Their results showed that management ownership had no effect on bank performance. Management ownership only has an effective role in improving bank performance and increasing the value of the company if the manager has a high percentage of shares in the bank. Using market-value-added (MVA) and Tobin's q to measure bank performance, Griffith *et al.* (2002) found a significant and negative relationship between management ownership and performance. By investigating the effect of the ownership structure and corporate governance on efficiency in Ghana's banking

industry, Bokpin (2013) also found that managerial ownership led to inefficient costs. He also found that banks with insider ownership were not profitable overall.

Conflict between shareholders and managers can be reduced if the interests of managers are in line with the interests of the external shareholders. The interests of managers and shareholders can be aligned through the ownership of shares/stocks or stock options by management, which can form part of the compensation package offered to bank managers (Chun *et al.*, 2011). Sohail *et al.* (2017) found that the role of managerial ownership became more significant if they retained more shares; when the interests of both (shareholders and managers) were aligned, the agency problems would reduce. Also, based on the agency theory, managerial share ownership would be expected to improve bank performance (Orazalin *et al.*, 2016). Therefore, BOD ownership is expected to reduce the conflict between shareholders and boards of directors so as to improve BPRS performance. Based on the agency theory and previous studies, the hypothesis is formulated as follows:

H1. BOD ownership has a positive relationship with BPRS performance.

2.2 Board of commissioner ownership and performance

The BOC represents the shareholders and has an advisory and monitoring role for the firm's management (Darmadi, 2013). Empirical studies indicate that BOC ownership has a positive impact on the commissioners' activities (Westman, 2011). Using samples from small banks in the United States, DeYoung *et al.* (2001) found that banks with higher profit efficiency have greater and more concentrated BOC ownership. Moreover, Spong and Sullivan (2007) found that the BOC tended to have a more positive influence on bank performance when they had a significant financial interest in the bank. Westman (2011) examined the impact of BOC ownership on profitability using samples from European banks. The results showed that BOC ownership had a positive impact on profitability in traditional banks. In addition, Tomar and Bino (2012) found that banks with BOC ownership performed better. They found that when the BOC had 20% or more of the shares in the bank, the BOC would tend to act as if they were directing their own money and increase the bank's performance. They also found that a BOC with only a few shares in the bank cannot affect the bank's performance.

The results of previous studies indicate that BOC ownership is important for banks in which security is guaranteed by the government and it is not difficult to monitor the BOC. Moreover, previous studies also showed that the BOC could improve their bank's performance when the BOC had a significant number of shares in the bank. Based on the results of previous studies, the hypothesis is formulated as follows:

H2. BOC ownership has a positive relationship with BPRS performance.

2.3 Sharia supervisory board ownership and performance

SSB are the crucial internal Islamic corporate governance structures that ensure sharia compliance, which is rooted in sharia principles and rules. The agency theory suggests that effective internal corporate governance can mitigate the agency conflict and any information asymmetry between management and shareholders by providing useful and independent supervision. In the context of Islamic governance, the SSB also play a role in monitoring and supervision to mitigate the risk of asymmetric information.

The SSB have a unique relationship with Islamic financial institutions as they are responsible for monitoring sharia compliance in transactions and the issuance of sharia products. In addition, the SSB have the authority to issue an opinion on products and

practices used by Islamic financial institutions. The SSB can be regarded as elements in the corporate governance for Islamic financial institutions. Given their vital roles, members of the SSB are directly involved in governance together with the BOD and BOC.

In Indonesia it is mandatory that each BPRS has a SSB to monitor its products' compliance with sharia principles. However, the SSB decisions vary and as a result, Islamic microfinance products may vary depending on the specific bank (Karim *et al.*, 2008). The impact of regulation and supervision is not only determined by the rules in place, but also by the strength of the regulatory authority.

Abdullah *et al.* (2015) investigated the impact of SSB on corporate governance's disclosure and the quality of financial reporting. They found a positive impact of SSB on the quality of financial reporting and corporate governance. Mollah and Zaman (2015) examined the influence of SSB on performance. Their results show that SSB have a positive effect on the performance of Islamic banks when they act as supervisors, but the impact is negligible when they only have an advisory role. Haque and Brown (2017) examined the effect of banking regulation and ownership on bank efficiency in the Middle East and North Africa (MENA) region. Their results showed that the strength of the individual and interactive oversight had a positive effect on cost efficiency.

Although SSB have a positive impact on performance, previous studies have not examined the impact of SSB on performance if the SSB have shares in the Islamic financial institutions they oversee. Garas (2012), who examined conflicts of interest within the SSB, discussed the effect of ownership by the SSB on Islamic financial institutions and thought that it may cause a conflict of interests if a significant number of shares were owned. Based on previous research suggestions and empirical findings, the hypothesis is formulated as follows:

H3. SSB ownership has a positive relationship with BPRS performance.

Our conceptual framework is depicted in Figure 1.

3. Research method

3.1 Sample and data

The population in this study included 167 BPRS spread across Indonesia. The analysis was conducted using unbalanced quarterly panel data from 2011 to 2016. Sample criteria used in this study were BPRS that provided financial statements from 2011 to 2016 and had at least two years (eight quarters) of financial reports. The samples that fit the criteria were 156 BPRS from 23 provinces in Indonesia, which gave a total of 3,210 observations.

Financial data were obtained from the website of the Financial Services Authority (*Otoritas Jasa Keuangan*-OJK), while the ownership data were hand-collected from the quarterly reports of each BPRS on the OJK website by matching the names of the
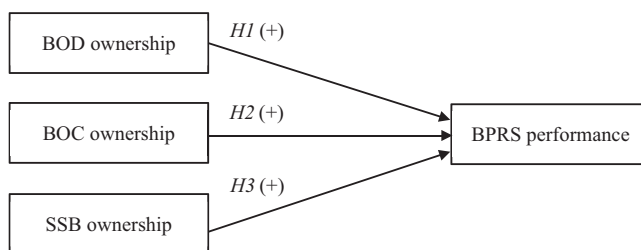

Figure 1.
Theoretical framework

shareholders and the management (BOD, BOC, and SSB). We used data from Statistics Indonesia for the macroeconomic data.

3.2 Definition of variables

Performance, as the dependent variable in this study, was analysed based on three sets of measures, namely profitability, efficiency, and financing risk. In defining the performance variables, we relied on accounting data. Market-based performance measures could not be used in our context since BPRS are not listed on any stock market. The summary of the variables' definition and their measurement is presented in Table 1.

We employed the return on assets (ROA) as the profitability variable. ROA reflects the ability of a bank's management to generate profits from the bank's assets. It shows the profits earned per Indonesian rupiah of assets and indicates how effectively the bank's assets have been managed to generate revenues (Bank Indonesia, 2007; Westman, 2011). We also added the operational efficiency ratio (OER) as the efficiency variable. OER is measured by the ratio of total operating costs to operating income after any profit-sharing distribution (Bank Indonesia, 2007). To measure financing risk we used the ratio of non-performing financing to total financing (NPF) (Haryono et al., 2016).

Management ownership (OWN), as the independent variable in this study, was represented by the percentage of shares held by the BOD, BOC and SSB. This study also used four internal control variables that reflect the specific characteristics of Islamic MFIs, namely firm size, deposit ratio, capital ratio and financing ratio. Firm size (SIZE) is measured by the natural logarithm of total assets (Hartarska, 2005; Bukair and Rahman, 2015), deposit ratio (DEPO) is measured by the ratio of total deposits divided by total assets (Hanafi et al., 2013; Warninda, 2014), capital ratio (ETA) is measured by the ratio of total equity divided by total assets (Jatmiko, 2017), and financing ratio (FIN) is measured by the ratio of total financing to total assets. In addition, this study also used macroeconomic variables, commonly used as external control variables, namely the growth rate of the gross domestic product (GDP) and the inflation rate (INF) (Hartarska, 2005; Sufian and Noor, 2012; Zouari and Taktak, 2014).

3.3 Model specification

In the model's specification, we examined the impact of management ownership (OWN) on the performance (P) of Islamic Rural Bank (BPRS) i at a particular time t in equation (1), following the model from Westman (2011), where P_{it} was the performance measurement ROA, OER, or NPF. The management ownership variable, vector OWN, consisted of the ownership by the BOD, BOC and the SSB. We used MFI-specific control variables (vector MFI), namely firm size (SIZE), deposit ratio (DEPO), capital ratio (ETA), financing ratio (FIN) and macroeconomic factors as the control variables (vector $MACRO$), namely the growth rate of the gross domestic product (GDP) and inflation rate (INF). ε_{it} was a random error term: $E(\varepsilon_{it}) \sim N(0, \sigma^2)$:

$$P_{it} = \alpha + \beta 1^* \left[OWN\right]_{it} + \beta 2^* \left[MFI\right]_{it} + \beta 3^* \left[MACRO\right]_{it} + \varepsilon_{it} \qquad (1)$$

There are several methods to estimate equation (1) using panel data techniques, namely the pooled least squares model, the random effect model, and the fixed effect model. In this study, we investigated the appropriate model for our panel data using the Breusch and Pagan Lagrangian multiplier test, and the Hausman test. After obtaining the appropriate model, we then performed various diagnostic checks for the classical assumptions, namely multicollinearity, heteroscedasticity and serial correlation. To check the multicollinearity,

Variable	Indicator	Definition and measurement
Performance (P)		
Return on assets	ROA	To measure performance which is a percentage of net income (earnings before tax and *zakah*) to total assets
Operational efficiency ratio	OER	To measure the efficiency which is a percentage of operating costs to operating income after profit-sharing distributions
Non-performing financing	NPF	Non-performing financing/total financing
Management ownership (OWN)		
BOD ownership	BOD	The percentage of shares owned by BOD
BOC ownership	BOC	The percentage of shares owned by BOC
SSB ownership	SSB	The percentage of shares owned by SSB
MFI-specific control (MFI)		
Firm size	SIZE	To measure the size of the institution which is the natural logarithm of total assets
Deposit ratio	DEPO	The ratio of total deposits to total assets
Capital ratio	ETA	The ratio of total equity to total assets
Financing ratio	FIN	The ratio of total financing to total assets
Macroeconomic control (MACRO)		
Gross domestic product	GDP	The growth rate of gross domestic product (%)
Inflation	INF	The rate of inflation (%)

Table 1.
Summary of definitions and operationalisation of variables

heteroscedasticity and serial correlation, we used the variance inflation factor (VIF), modified Wald, and Wooldridge, respectively.

4. Empirical results

4.1 Descriptive statistics

In this section, we explore the descriptive statistics of BPRS in Indonesia. Table 2 shows the descriptive statistics for each variable from the dataset. The performance variables, namely ROA, OER and NPF had an average value of 0.73%, 95.97% and 10.80%, respectively. It means that BPRS have a low profitability, high costs, and high risk. The average of the shares held by the BOC is 24.36%, while the averages held by the BOD and SSB are less than 2% each. This implies that the BOD and SSB have no significant ownership.

Using R software, we described the scatter plot for all the dependent and independent variables. Figure 2 shows the scatter plot of all the variables from the study with the y-axis being ROA, OER, and NPF while the x-axis is all the independent variables. The majority of the variables are concentrated in the middle area of the mean value. However, there are some outliers. We treated the outliers using Cook's distance to make our estimation results more robust.

4.2 Choosing the best model and diagnostic checking

Noting that equation (1) consists of three dependent variables, we made separate estimates of the three models to choose the best model to use for the panel data estimation [see equations (2) to (4)]. For this purpose, we performed a two-stage test. First, we tested each model using the Breusch and Pagan Lagrangian test to compare the best results between pooled least squares (PLS) and random effect (RE). Second, if the result from the first test indicated that the best model was RE, we used the Hausman test to compare between the models for random effect and fixed effect (FE):

$$ROA_{it} = \alpha + \beta1 * [OWN] + \beta2 * [MFI]_{it} + \beta3 * [MACRO]_{it} + \varepsilon_{it} \tag{2}$$

| Variables	Mean	SD	Minimum	Maximum
Performance				
ROA	0.726	3.663	−18.426	7.653
OER	95.969	53.366	46.682	417.255
NPF	10.800	11.246	0	56.62
Management ownership				
BOD	1.026	4.058	0	35
BOC	24.362	30.570	0	100
SSB	1.321	4.783	0	53.5
MFI-specific control				
SIZE	16.730	1.118	13.260	20.471
DEPO	60.651	19.832	12.512	92.653
ETA	18.435	13.126	3.357	73.987
FIN	73.600	12.887	17.048	101.725
Macroeconomic control				
GDP	1.370	3.268	−9.471	15.141
INF	1.273	1.339	−26.884	7.442

Table 2.
Descriptive statistics
of variables
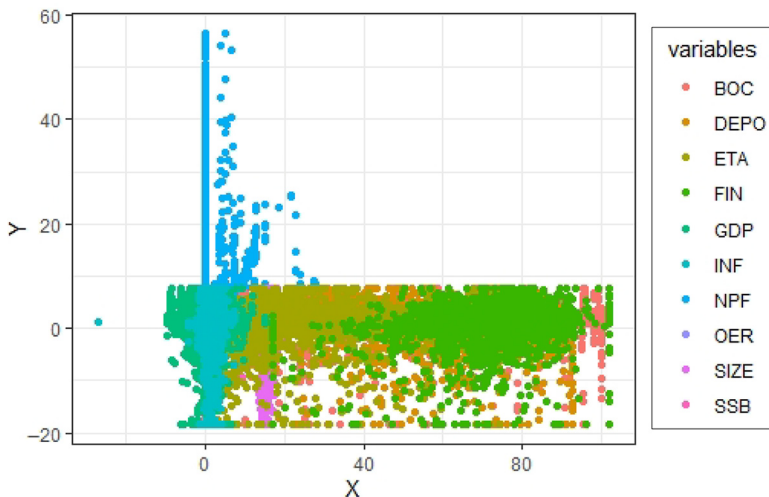
Figure 2.
Scatter plot variables

$$OER_{it} = \alpha + \beta1 * [OWN] + \beta2 * [MFI]_{it} + \beta3 * [MACRO]_{it} + \varepsilon_{it} \tag{3}$$

$$NPF_{it} = \alpha + \beta1 * [OWN] + \beta2 * [MFI]_{it} + \beta3 * [MACRO]_{it} + \varepsilon_{it} \tag{4}$$

Table 3 illustrates the summary of the panel data tests using the Lagrangian and Hausman tests. Based on the statistical results, we concluded that the best panel model for our dataset was the fixed effect model.

Further, we conducted a diagnostic check on the fixed effect regression model. Table 4 illustrates the results of the diagnostic check for the three classical assumption tests. Based

Model	PLS and Random Effect Breusch and Pagan Lagrangian Test	Random Effect and Fixed Effect Hausman Test	The Best Model
Equation 2	2,560.37***	99.04***	Fixed effect
Equation 3	129.58**	50.05***	Fixed effect
Equation 4	7,555.18***	22.67***	Fixed effect

Notes: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

Table 3.
Summary of panel data tests

Model	Multicollinearity Test Variance Inflation Factor	Heteroscedasticity Test Modified Wald	Serial Correlation Test Wooldridge
Equation 2	1.15	3.885***	12.830***
Equation 3	1.15	7.137***	113.096***
Equation 4	1.15	4.567***	71.973***

Notes: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

Table 4.
Diagnostic check

on the results of the variance inflation factor (VIF), the three regression models consistently did not suffer from multicollinearity problems, since the mean value of VIF was under 10. On the other hand, all the models had a problem with heteroscedasticity and serial correlation, as the results of the modified Wald and Wooldridge tests showed the significance level at 1%. Therefore, we rectified the heteroscedasticity and serial correlation issues using a robust cluster, a robust heteroscedasticity and a serial correlation, and a robust standard error (SE) for the cross-sectional dependence.

4.3 Regression results

From Table 5, we can see when using the fixed effect model (see column 1) without the robustness of the standard error, that ownership by the SSB had a positive significant impact on the profitability of BPRS in Indonesia, with the significance level at 1%. When we employed various levels of robustness for the standard errors to handle the serial correlation and heteroscedasticity, the significance value from the variable changed. According to columns (2) to (4), we empirically found that ownership by the SSB had a positive and significant impact on profitability but the significance level decreased to 5%, whilst ownership by the BOD or BOC did not affect the profitability of the BPRS.

Table 6 illustrates the results of the relationship of management ownership and operational efficiency. We found a negative and significant effect of ownership by the SSB on OER consistently in all the columns at the 5% significance level. From the regression results, the negative sign of the coefficient implied that ownership by the SSB could increase the banks' efficiency due to lower costs. This result highlights new insights into the role of the SSB, especially ownership by the SSB. On the other hand, we also find that there is no significant impact of ownership by BOD and BOC on the efficiency of the BPRS.

Table 7 illustrates the results of the relationship between management ownership and financing risk. From the regression results (see column 4), ownership by the BOD had a negative and significant relationship with NPF at the 1% significance level, which implies that the higher the percentage of ownership by the BOD, the lower the risk is for the BPRS. On the other hand,

Equation 2: Profitability = ROA	(1) Fixed effect	(2) Robust cluster	(3) Robust heteroscedasticity and serial correlation	(4) Robust SE for cross-sectional dependence
BOD	−0.0045 (0.0220)	−0.0045 (0.0157)	−0.0045 (0.0157)	−0.0045 (0.0135)
BOC	−0.0025 (0.0055)	−0.0025 (0.0110)	−0.0025 (0.0110)	−0.0025 (0.0083)
SSB	0.0597*** (0.0210)	0.0597** (0.0259)	0.0597** (0.0259)	0.0597** (0.0268)
SIZE	1.6270*** (0.1430)	1.6270*** (0.3290)	1.6270*** (0.3290)	1.6270*** (0.3580)
DEPO	−0.0392*** (0.0062)	−0.0392*** (0.0124)	−0.0392*** (0.0124)	−0.0392*** (0.0107)
ETA	0.0621*** (0.0087)	0.0621** (0.0239)	0.0621** (0.0239)	0.0621*** (0.0192)
FIN	0.0450*** (0.0059)	0.0450*** (0.0118)	0.0450*** (0.0118)	0.0450*** (0.0095)
GDP	−0.0518*** (0.0148)	−0.0518*** (0.0120)	−0.0518*** (0.0120)	−0.0518* (0.0251)
INF	0.0565 (0.0355)	0.0565* (0.0313)	0.0565* (0.0313)	0.0565 (0.0450)
Constant	−28.5900*** (2.5750)	−28.5900*** (5.8740)	−28.5900*** (5.8740)	−28.5900*** (6.6990)
Observations	3,210	3,210	3,210	3,210
R-squared	0.087	0.087	0.087	0.087

Notes: Standard errors in parentheses, ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

Table 5.
The impact of management ownership on BPRS profitability

Equation 3: Efficiency = OER	(1) Fixed effect	(2) Robust cluster	(3) Robust heteroscedasticity and serial correlation	(4) Robust SE for cross-sectional dependence
BOD	−0.0023 (0.0025)	−0.0023 (0.0022)	−0.0023 (0.0022)	−0.0023 (0.0017)
BOC	−0.0008 (0.0006)	−0.0008 (0.0010)	−0.0008 (0.0010)	−0.0008 (0.0007)
SSB	−0.0054** (0.0024)	−0.0054** (0.0027)	−0.0054** (0.0027)	−0.0054** (0.0024)
SIZE	−0.1700*** (0.0166)	−0.1700*** (0.0399)	−0.1700*** (0.0399)	−0.1700*** (0.0336)
DEPO	0.0038*** (0.0007)	0.0038** (0.0015)	0.0038** (0.0015)	0.0038*** (0.0012)
ETA	−0.0021** (0.0010)	−0.0021 (0.0021)	−0.0021 (0.0021)	−0.0021 (0.0020)
FIN	−0.0066*** (0.0007)	−0.0066*** (0.0018)	−0.0066*** (0.0018)	−0.0066*** (0.0009)
GDP	0.0008 (0.0017)	0.0008 (0.0018)	0.0008 (0.0018)	0.0008 (0.0027)
INF	−0.0033 (0.0041)	−0.0033 (0.0033)	−0.0033 (0.0033)	−0.0033 (0.0036)
Constant	3.0420*** (0.2990)	3.0420*** (0.7150)	3.0420*** (0.7150)	3.0420*** (0.6290)
Observations	3,210	3,210	3,210	3,210
R-squared	0.075	0.075	0.075	0.075

Table 6.
The impact of ownership on BPRS efficiency

Notes: Standard errors in parentheses, ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

Equation 4: Risk = NPF	(1) Fixed effect	(2) Robust cluster	(3) Robust heteroscedasticity and serial correlation	(4) Robust SE for cross-sectional dependence
BOD	−0.1320** (0.0617)	−0.1320 (0.0893)	−0.1320 (0.0893)	−0.1320*** (0.0399)
BOC	0.0655*** (0.0155)	0.0655 (0.0542)	0.0655 (0.0542)	0.0655** (0.0307)
SSB	−0.0320 (0.0588)	−0.0320 (0.1880)	−0.0320 (0.1880)	−0.0320 (0.0751)
SIZE	−2.1980*** (0.4010)	−2.1980* (1.2120)	−2.1980* (1.2120)	−2.1980 (1.3430)
DEPO	0.1400*** (0.0173)	0.1400*** (0.0471)	0.1400*** (0.0471)	0.1400*** (0.0217)
ETA	−0.1780*** (0.0243)	−0.1780*** (0.0616)	−0.1780*** (0.0616)	−0.1780*** (0.0579)
FIN	−0.0343** (0.0165)	−0.0343 (0.0475)	−0.0343 (0.0475)	−0.0343 (0.0243)
GDP	0.0845** (0.0414)	0.0845** (0.0348)	0.0845** (0.0348)	0.0845 (0.0866)
INF	−0.0500 (0.0994)	−0.0500 (0.0706)	−0.0500 (0.0706)	−0.0500 (0.1190)
Constant	43.4400*** (7.2160)	43.4400** (20.9600)	43.4400** (20.9600)	43.4400* (24.3100)
Observations	3,210	3,210	3,210	3,210
R-squared	0.067	0.067	0.067	0.067

Table 7.
The impact of ownership on financing risk of BPRS

Notes: Standard errors in parentheses, ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

ownership by the BOC had a positive relationship with NPF at the 5% significance level, which implies that the greater the percentage ownership by the BOC, the higher the risk is for the BPRS.

4.4 Discussions
Our results show that ownership by the BOD and the BOC does not have a relationship with profitability and operational efficiency. This result is in line with Tomar and Bino (2012) who found that the BOD and BOC can only have an effective role in improving bank performance and increasing the value of the company if the BOC has a high percentage of the shares in the bank. Further, we find that ownership by the BOD has a negative and significant relationship with NPF, thus increasing the performance in terms of lowering the risk. Therefore, we can conclude that *H1* is partially supported.

Meanwhile, ownership by the BOC has a positive and significant relationship with NPF, which implies that the higher the percentage of shares held by the BOC, the higher the risk

for the BPRS, thus decreasing the performance. This finding contradicts most of the previous studies which argued that the lower the quality of the corporate governance mechanism in an Islamic bank, the higher the level of the financing risk for the Islamic bank (Rama and Novela, 2015; Budiman, 2016). However, we might argue that the previous studies used Islamic banks in which the supervisory function by the BOC was well established, compared to the current study which used BPRS. Additionally, informal discussions between one of the authors with the management of an Islamic rural bank revealed that the BOC, which is usually also the owner of the bank, was very aggressive in financing customers. Therefore, we can conclude that *H2* is not supported.

On the other hand, our results show that ownership by the SSB has a positive impact on the profitability and efficiency of the BPRS. This finding suggests that the ownership by the SSB plays an important role in the success of the BPRS, by increasing their profits and reducing costs. This result is in line with Mollah and Zaman (2015) and Haque and Brown (2017). Ownership by the SSB, however, does not have a significant impact on the financing risk. We speculate this is because the SSB are not directly involved in any financing activities. According to Bank Indonesia (the central bank of Indonesia) Regulation Number 11/33/PBI/2009 and OJK Regulation Number 18/POJK.03/2014, the main function of the SSB are to ensure sharia compliance. Therefore, we can conclude that ownership by the SSB has a relationship with the performance of the BPRS, in terms of higher ROA and lower OER, but not with the financing risk. Thus, *H3* is partially supported.

Regarding the control variables, firm size (SIZE) has a highly significant positive relationship with performance, which confirms the results of Bukair and Rahman (2015). The finding indicates that large BPRS have higher profitability and efficiency and have lower levels of risk, resulting in better performance. Furthermore, the deposit ratio (DEPO) has a highly significant negative effect on performance, and the finding is inconsistent with previous studies (Hanafi *et al.*, 2013; Warninda, 2014) which found that more depositor funds increase profitability. This is because the larger the deposits the more the bank can disburse financing that generates more returns. Since this study finds that the more deposits there are the lower the performance is, this may indicate that BPRS do not make loans to the correct type of customers and/or invest properly. The capital ratio (ETA) and financing ratio (FIN) have a significant positive relationship with the performance of the BPRS. This indicates that BPRS with higher capital ratios and higher financing ratios have greater profitability, more efficiency, and lower risks resulting in better performance. For the macroeconomic control variables, GDP has a negative effect on the performance of the BPRS, but inflation does not affect their performance.

5. Conclusion and implications
The aim of this study is to analyse the relationship between management (BOD, BOC, and SSB) ownership on the performance of Islamic MFIs using quarterly panel data from 156 Islamic rural banks (BPRS) spread across 23 provinces in Indonesia during the period from 2011 to 2016. The fixed effect model is used to test such a relationship. The findings show that ownership by the BOD and BOC does not have a significant impact on profitability and efficiency. However, ownership by the BOD has a negative impact on NPF, which implies that the higher the percentage of ownership by the BOD, the lower the risk is for the BPRS. Therefore, we can conclude that there is a relationship between ownership by the BOD and performance, in terms of lowering the risk. On the other hand, ownership by the BOC has a positive impact on NPF, which implies that the higher the percentage of ownership by the BOC, the higher the financing risk is for the BPRS, thus decreasing the performance of the BPRS. With regard to ownership by the SSB, it has a positive and significant effect on

profitability and efficiency, but does not have a significant impact on the financing risk. It can be concluded that ownership by the SSB has a relationship with performance, in terms of higher profitability and lower cost.

The implication of this study is that our findings support the current regulatory corporate governance reforms that place emphasis on the importance of mitigating the financial risk with good corporate governance. In particular, the regulator might undertake a fundamental review of corporate governance codes for the BPRS with a special emphasis on tightening the level of ownership by the BOC and relaxing the regulation to enhance the level of ownership by the BOD. Currently the regulation limits ownership by the BOD to no more than 25%. Additionally, this study suggests that the policy makers and regulators should support ownership by the SSB, as it has a positive and significant effect on profitability and efficiency. Furthermore, since size, the capital ratio and the financing ratio have a positive relationship with performance, the policy makers and regulators should set regulations that support the development of the BPRS. Additionally, support for the BPRS is very important as they are not affected by inflation. The managerial implication of this study is that management of BPRS should allow SSB to have greater ownership. This can be done, for example, by giving priority to SSB to invest in the BPRS. Another managerial implication is that management of BPRS should increase the size of their BPRS by inviting investors to provide more capital. Finally, management of BPRS should be more selective in financing.

6. Limitations and suggestions for future research

This study has its own limitations that provide opportunities for future research. Although the model has explored a significant part of management ownership in the performance of the BPRS, the major factors in the model are unexplained due to the limitations of the available data. As such, future research may use other ownerships, including ownership concentration and institutional ownership and include other corporate governance variables. Finally, as the topic is intensively studied, future research should integrate and compare the results using a meta-analysis or integrative data analysis (IDA) approach.

References

Abduh, M. and Azmi Omar, M. (2012), "Islamic banking and economic growth: the Indonesian experience", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 5 No. 1, pp. 35-47.

Abdullah, W.A.W., Percy, M. and Stewart, J. (2015), "Determinants of voluntary corporate governance disclosure: evidence from Islamic banks in the Southeast Asian and the Gulf cooperation council regions", *Journal of Contemporary Accounting and Economics*, Vol. 11 No. 3, pp. 262-279.

Agustina, D., Sholihin, M. and Fithria, A. (2019), "The efficiency of Indonesian Islamic rural banks: a stochastic frontier analysis", *International Journal of Islamic Economics and Finance (IJIEF)*, Vol. 1 No. 2, pp. 229-248.

Al-Sartawi, A.M.A.M. (2018), "Online financial disclosure, board characteristics and performance of Islamic banks", *Journal of Economic Cooperation and Development*, Vol. 39 No. 3, pp. 93-114.

Bakker, A., Schaveling, J. and Nijhof, A. (2014), "Governance and microfinance institutions", *Corporate Governance*, Vol. 14 No. 5, pp. 637-652.

Bank Indonesia (2007), *Surat Edaran BI No. 9/24/DPbS tentang Sistem Penilaian Kesehatan Bank Umum Berdasarkan Prinsip Syariah*.

Bokpin, G.A. (2013), "Ownership structure, corporate governance and bank efficiency: an empirical analysis of panel data from the banking industry in Ghana", *Corporate Governance: The International Journal of Business in Society*, Vol. 13 No. 3, pp. 274-287.

Budiman, F. (2016), "Pengaruh Kualitas Penerapan Good Corporate Governance (GCG) Terhadap Tingkat Pengembalian dan Risiko Pembiayaan Bank Syariah di Indonesia", *Muqtasid: Jurnal Ekonomi dan Perbankan Syariah*, Vol. 7 No. 2, pp. 1-21.

Bukair, A.A. and Rahman, A.A. (2015), "Bank performance and board of directors attributes by Islamic banks", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 8 No. 3, pp. 291-309.

Chun, S.E., Nagano, M. and Lee, M.H. (2011), "Ownership structure and risk-taking behavior: evidence from banks in Korea and Japan", *Asian Economic Journal*, Vol. 25 No. 2, pp. 151-175, available at: http://mpra.ub.uni-muenchen.de/25334/

CupianAbduh, M. (2017), "Competitive condition and market power of Islamic banks in Indonesia", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 10 No. 1, pp. 77-91.

Darmadi, S. (2013), "Corporate governance disclosure in the annual report: an exploratory study on Indonesian Islamic banks", *Humanomics*, Vol. 29 No. 1, pp. 4-23.

DeYoung, R., Spong, K. and Sullivan, R.J. (2001), "Who's minding the store? Motivating and monitoring hired managers at small, closely held commercial banks", *Journal of Banking and Finance*, Vol. 25 No. 7, pp. 1209-1243.

Garas, S.N. (2012), "The conflicts of interest inside the Shari'a supervisory board", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 5 No. 2, pp. 88-105, doi: 10.1108/17538391211233399.

Garcıa-Cestona, M. and Surroca, J. (2008), "Multiple goals and ownership structure: effects on the performance of Spanish savings banks", *European Journal of Operational Research*, Vol. 187 No. 2, pp. 582-599.

Griffith, J.M., Fogelberg, L. and Weeks, H.S. (2002), "CEO ownership, corporate control, and bank performance", *Journal of Economics and Finance*, Vol. 26 No. 2, pp. 170-183.

Gulamhussen, M.A., Pinheiro, C. and Sousa, R. (2012), "The influence of managerial ownership on bank market value, performance, and risk: evidence from banks listed on the Stoxx global index", *Journal of International Financial Management and Accounting*, Vol. 23 No. 2, pp. 121-153.

Hanafi, M.M., Santi, F. and Muazaroh (2013), "The impact of ownership concentration, commissioners on bank risk and profitability: evidence from Indonesia", *Eurasian Economic Review*, Vol. 3 No. 2, pp. 183-202.

Haque, F. and Brown, K. (2017), "Bank ownership, regulation and efficiency: perspectives from the Middle East and North Africa (MENA) region", *International Review of Economics and Finance*, Vol. 47, pp. 273-293.

Hardianto, D.S. and Wulandari, P. (2016), "Islamic bank vs conventional bank: intermediation, fee based service activity and efficiency", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 9 No. 2, pp. 296-311.

Hartarska, V. (2005), "Governance and performance of microfinance institutions in central and Eastern Europe and the newly independent states", *World Development*, Vol. 33 No. 10, pp. 1627-1643.

Haryono, Y., Ariffin, N.M. and Hamat, M. (2016), "Factors affecting credit risk in Indonesian Islamic banks", *Journal of Islamic Finance*, Vol. 5 No. 1, pp. 12-25.

Hasan, T., Quayes, S. and Khalily, B. (2019), "Role of governance on performance of microfinance institutions in Bangladesh", *Eurasian Economic Review*, Vol. 9 No. 1, pp. 91-106.

Iqbal, S., Nawaz, A. and Ehsan, S. (2019), "Financial performance and corporate governance in microfinance: evidence from Asia", *Journal of Asian Economics*, Vol. 60, pp. 1-13.

Irfan, M. (2020), "A meta-analysis of Islamic microfinance: case based evidence from India", *Journal of Islamic Monetary Economics and Finance*, Vol. 6 No. 1, pp. 21-50.

Jatmiko, W. (2017), "Efficiency and ownership structure: evidence from rural banks in Indonesia", *International Journal of Economics, Management and Accounting*, Vol. 25 No. 2, pp. 355-380.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.

Karim, N., Tarazi, M. and Reille, X. (2008), "Islamic microfinance: an emerging market niche", *CGAP Focus Note*, No. 49, pp. 1-16.

Mnasri, K. (2015), "Ownership structure, board structure and performance in the Tunisian banking industry", *Asian Academy of Management Journal of Accounting and Finance*, Vol. 11 No. 2, pp. 57-82.

Mollah, S. and Zaman, M. (2015), "Shari'ah supervision, corporate governance and performance: conventional vs Islamic banks", *Journal of Banking and Finance*, Vol. 58, pp. 418-435.

Muhari, S. and Hosen, M.N. (2015), "Efficiency of the Islamic rural bank in six zones of Indonesia: using non-parametric and parametric method", *Journal of Islamic Banking and Finance*, Vol. 23 No. 3, pp. 51-65.

Nashihin, M. and Harahap, L. (2014), "The analyis of the efficiency of BPR-S: production function approach vs financial ratios approach", *Procedia - Social and Behavioral Sciences*, Vol. 115, pp. 188-197.

OJK (2015), *Roadmap Perbankan Syariah Indonesia 2015-2019*, Departemen Perbankan Syariah, Otoritas Jasa Keuangan, Jakarta.

OJK (2017), *Statistik Perbankan Syariah: November 2017*, Otoritas Jasa Keuangan, Jakarta.

OJK (2020), "Snapshot Perbankan Syariah Indonesia 2020: Posisi Juni 2020", available at: www.ojk.go.id/id/kanal/syariah/berita-dan-kegiatan/publikasi/Pages/Snapshot-Perbankan-Syariah-Juni-2020.aspx

Orazalin, N., Mahmood, M. and Jung Lee, K. (2016), "Corporate governance, financial crises and bank performance: lessons from top Russian banks", *Corporate Governance: The International Journal of Business in Society*, Vol. 16 No. 5, pp. 798-814.

Rahman, A.N.A.A. and Reja, B.A.F.M. (2015), "Ownership structure and bank performance", *Journal of Economics, Business and Management*, Vol. 3 No. 5, pp. 483-488.

Rama, A. and Novela, Y. (2015), "Shariah Governance dan Kualitas Tata Kelola Perbankan Syariah", *Signifikan: Jurnal Ilmu Ekonomi*, Vol. 4 No. 2, pp. 111-126.

Sohail, S., Rasul, F. and Fatima, U. (2017), "Is internal and external mechanism of governance enriching the performance of the banking sector of Pakistan?", *Corporate Governance: The International Journal of Business in Society*, Vol. 17 No. 4, pp. 629-642.

Spong, K.R. and Sullivan, R.J. (2007), "Corporate governance and bank performance", pp. 1-28, available at: https://ssrn.com/abstract=1011068

Sufian, F. and Noor, M.A.N.M. (2012), "Determinants of bank performance in a developing economy: does bank origins matters?", *Global Business Review*, Vol. 13 No. 1, pp. 1-23.

Tomar, S. and Bino, A. (2012), "Corporate governance and bank performance: evidence from Jordanian banking industry", *Jordan Journal of Business Administration*, Vol. 8 No. 2, pp. 353-372.

Trinugroho, I., Risfandy, T. and Ariefianto, M.D. (2018), "Competition, diversification, and bank margins: evidence from Indonesian Islamic rural banks", *Borsa Istanbul Review*, Vol. 18 No. 4, pp. 349-358.

Wamba, L.D., Bengono, I.B., Sahut, J.M. and Teulon, F. (2018), "Governance and performance of MFIs: the Cameroon case", *Journal of Management and Governance*, Vol. 22 No. 1, pp. 7-30.

Warninda, T.D. (2014), "Islamic rural bank profitability: evidence from Indonesia", *Journal of Islamic Economics, Banking and Finance*, Vol. 10 No. 3, pp. 109-122.

Westman, H. (2011), "The impact of management and board ownership on profitability in banks with different strategies", *Journal of Banking and Finance*, Vol. 35 No. 12, pp. 3300-3318.

Zouari, S.B.S. and Taktak, N.B. (2014), "Ownership structure and financial performance in Islamic banks: does bank ownership matter?", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 7 No. 2, pp. 146-160.