Sharia Board Characteristics, Macroeconomic Factors, and Non-performing Financing of Indonesian Islamic banks

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Abstract

This study examines the impact of Islamic board characteristics (SB) and macroeconomic factors on the Non-performing financing (NPF) of Islamic commercial banks (ICB). The sample of this study consisted of 14 ICBs in Indonesia from 2010 to 2021. In this study, data estimation used a one-step GMM System model. SB features such as SB Size and SB Woman were found to have a detrimental impact on NPF. GDP per capita, for example, negatively affects NPF, while inflation has a positive impact. However, this study could not show the impact of SB characteristics such as expertise and proximity of SB to NPF. The study also found that macroeconomic factors such as annual open unemployment and interest rates showed an insignificant negative influence on NFP. The findings of this study help regulators, investors, and management of Islamic banks better understand the impact of SB characteristics and macroeconomic factors on Non-performing financing (NPF) of Islamic banks, especially in the context of ICB in Indonesia. In addition, it is expected to inspire similar research in the future.

Keywords: Islamic commercial banks, macroeconomic indicators, non-performing financing, Sharia board

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INTRODUCTION

An increase in Non-performing loans (NPLs) indicates a decline in the bank's credit portfolio quality, which will cause significant losses for further bank lending and may result in drastically reduced bank capital (Šulganová, 2016). Therefore, checking and controlling NPLs is the most critical issue for supervisory authorities concerned with financial stability and bank management. Since the financial crisis in 2008, Islamic banks have proliferated and have attracted a lot of attention from academics and practitioners because Islamic banks are considered to have high resistance in the face of the 2008 crisis (Smaoui et al., 2020). However, like its conventional bank counterpart, Islamic banks also face Non-performing financing (NPF). Wasiaturrahma et al. (2020) show that high NPFs reduce the breadth of financial services of sharia cooperatives operating in East Java province, Indonesia. High NPF is related to the low financial performance of Bank Jabar Banten Syariah (BJBS) in Indonesia (Buchory, 2017). As a result, minimizing NPFs is a critical issue, as NPFs are one of the key financial performance measures for Islamic banks, and controlling NPFs means maintaining their viability (Priyadi et al., 2021).

Referring to the explanation above, it is understood that minimizing credit risk (NPL) often suffered by conventional banks and financing risk (NPF) that burdens Islamic banks so far is necessary, thus encouraging academics and practitioners to try to find the leading causes of the high ratio of NPL and NPF. The existing literature distinguishes three main factors that are considered responsible for increasing the NPL ratio of conventional banks, namely macroeconomic factors, factors owned by the bank itself, and corporate governance applied by conventional banks (Sinkey & Greenawalt, 1991; Tarchouna et al., 2018). However, research on NPF in Islamic banks is still limited and focuses more on bank-specific factors as the main determinants of NPF (Ilmi, 2018; Fianto et al., 2019; Muhammad et al., 2020). Therefore, research on NPF in Islamic banks needs to be developed.

Islamic banks embrace social justice, whose presence and function differ from conventional banks. Running a fair income through profit sharing (PLS) is the main principle of Islamic banks. In addition, no *Riba* (interest), no *Gharar* (uncertainty), and *Maysir* (gambling or speculation) are allowed. According to Choi et al. (2018), all Islamic bank operations must be based on Islamic philosophy, namely the Quran and Al-Sunnah. Furthermore, an additional board has emerged to ensure Islamic banks' compliance with Sharia law, namely the Sharia Board (SB). Therefore, an

additional board was formed to govern Islamic banks, namely the Sharia Board (SB). According to Alman (2012), SB is the most essential part of the internal governance mechanism, and it plays a role in monitoring and controlling Sharia bank operations in accordance with Sharia provisions. (Baklouti, 2020) argues that Islamic banks' non-compliance with Sharia law poses reputational risks that can reduce the trust of depositors, customers, investors, and other stakeholders. Thus, financing as the core business of Islamic banks that are run in better compliance with Sharia provisions supervised and controlled by SB is expected to have higher Sharia quality, one of which is indicated by lower NPFs. This is because Sharia principles prohibit Islamic banks from taking excessive risks, especially their financing risks.

Macroeconomic considerations are among the most essential elements influencing conventional bank NPLs (Szarowska, 2018). However, research into the relationship between macroeconomic parameters and NPFs in Islamic banks is scarce. Meanwhile, various studies suggest that the presence of Islamic banks is related to and favorably contributes to economic growth (Lebdaoui & Wild, 2016; Tabash & Anagreh, 2017).

This study examines the impact of SB characteristics and macroeconomic factors on ICB NPFs in Indonesia. The characteristics of SB in this study are proxied by the size of SB, the proportion of expertise of SB members, the proportion of female SB, and frequent SB meetings. Macroeconomic factors include GDP per capita, unemployment, inflation, and interest rates. This study is probably one of the first studies to examine the impact of SB characteristics and macroeconomic factors on ICB NPFs, particularly in the Indonesian context.

The Sharia Board (SB) is an independent body often referred to as Sharia governance consisting of *Muamalat Fiqh* scholars who ensure that Islamic financial institutions, including Islamic banks, comply with Sharia principles (AAOIFI, 2015). According to (Baklouti, 2020), SB is an internal governance mechanism whose duties and functions include monitoring and controlling Islamic banks' compliance with sharia principles and ensuring that the bank's operations follow sharia rules. The existing literature provides several theories that can explain the characteristics of the board, including the characteristics of SB and company performance. In this context, there are two most appropriate theories: the theory of agency and the theory of resource dependence (Mohammed & Muhammed, 2017).

Referring to the view of agency theory (Panda & Leepsa, 2017) explains that managers who act as agents tend to make decisions that only concern themselves without considering the interests of shareholders. In the context of this negative role of managers, empirical work on board effectiveness is focused on board independence in improving company performance (Musallam, 2020). SB is an independent board that is in line with agency theory in considering the effectiveness of the board combined with the achievement of company performance. Thus, in addition to strongly encouraging Islamic bank management to comply with Sharia principles, SB also indirectly, in the sense of compliance with Sharia rules, puts pressure on management to improve the quality of bank financing. Resource dependency theory views governance structure and board composition as resources that have great potential to add value to the company (Jamil et al., 2021). According to (Khalil & Taktak, 2020), the critical role that SB can play in providing the resources needed by Islamic banks is through their excellent relationship with the external environment; this is in line with the perspective of resource dependence theory. Citing the view of SB resource dependence theory is an appropriate means to provide better access to the bank's external environment to increase the chances of securing necessary resources for Islamic banks (Elamer et al., 2019).

According to Szarowska (2018), macroeconomic factors proxied with variables of annual gross domestic product (GDP) real growth, annual inflation rate or change, annual open unemployment rate, and high interest rates are some of the main factors that can affect conventional bank NPLs. However, the relationship between macroeconomic factors and NPFs of Islamic banks' date seems to have rarely been explored. Meanwhile, existing literature documents that Islamic banks contribute to a country's economic growth (Tabash & Anagreh, 2017). Islamic banks contribute significantly to Indonesia's short- and long-term economic growth (Anwar et al., 2020). Therefore, this study examines the relationship of macroeconomic factors (i.e., GDP, inflation rate, unemployment rate, and interest rate) with NPF using a sample of Islamic commercial banks (ICBs) in Indonesia.

METHOD

This research is an explanatory research that uses quantitative data from secondary sources. In this study, 14 Islamic commercial banks (ICB) were determined in the Financial Services Authority (OJK) directory between 2010 and

2021, resulting in 151 bank-year observations that formed an unbalanced data panel. Non-Performing Financing (NPF) data, SB characteristics, and control variables are obtained from information in the ICB annual report, which can be accessed on the OJK website. Data on macroeconomic parameters and annual GDP per capita are obtained from the World Bank website. Data on unemployment, inflation, and interest rates are obtained from the website of Indonesia's central bank.

Non-Performance Financing (NPF) is treated as a dependent variable. The NPF value is determined by referring to the Regulation made by OJK Number 15/POJK.03/2017, which states that NPF is the ratio of non-performing financing to total financing. Several studies also use this formula (Ilmi, 2018; Fianto et al., 2019; Muhammad et al., 2020). This study used SB characteristics and macroeconomic factors as independent variables. SB characteristics consist of SB size (SBSIZE) measured by total SB members (Baklouti, 2020); SB Women (SBWMN), which is defined as the ratio of the number of female SB members to the total SB members (Abou-El-Sood, 2019); SB meeting frequency (SBMEET) as measured by the number of SB meetings in a year (Bezawada & Adavelli, 2020); SB Expertise (SBEXP) which is defined as the ratio of the number of SB members with expertise in economics, finance and/or accounting to the total SB members (Khalil & Taktak, 2020).

Control variables in the study were bank-specific parameters. Bank-specific factors include Bank Size (SIZE), which is defined as the logarithm of the total asset value of ICBs expressed in US dollars; Profitability (PROF), which is the percentage of earnings after tax to total assets of ICBs; Growth opportunity (Growth_TA), calculated as $(TA_t - TA_{t-1})/ TA_{t-1}$; and Leverage (LEV), which is defined as the total debt to total asset ratio.

Dynamic panel data regression, a one-step system model, Generalized Method of Moments (SYS-GMM), was used to analyze the data in this study. According to (Arellano & Bover, 1995), SYS-GMM is the most appropriate model for handling panel data regression models. This model can lower serial correlation problems and overcome potential endogeneity. In addition, the SYS-GMM model used is considered appropriate because the FEM or fixed effect model selected appears to suffer from heteroscedasticity, and the panel dataset is estimated to have more cross-section data (14 banks) than time series data (12 years). SYS-GMM equation model:

$$NPF_{it} = \beta_0 + \beta_1 NPF_{it-1} + \beta_2 SBSIZE_{it} + \beta_3 SBEXP_{it} + \beta_4 SBWMN_{it} +$$
$$\beta_5 SBMEET_{it} + \beta_6 GDP_{it} + \beta_7 UNEM_{it} + \beta_8 INFLA_{it} + \beta_9 INTEREST_{it} +$$
$$\beta_{10} SIZE_{it} + \beta_{11} PROF_{it} + \beta_{12} GROWTH_{it} + \beta_{13} LEV_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Notes: NPF_{it-1} in equation (1) shows the lag of the dependent variable.

RESULT AND DISCUSSION

Descriptive statistics are presented in Table 1.

Table 1. Descriptive Statistics

Variables	Mean	Std. Dev.	Minimum	Maximum
NPF	1.793	1.443	0	4.940
SBSIZE	2.298	0.459	2	3
SBEXP	0.306	0.236	0	0.667
SBWMN	0.068	0.161	0	0.500
SBMEET	15.033	6.903	8	48
GDP	3.569	0.036	3.494	3.633
UNEM	6.072	0.627	5.180	7.100
INFLA	4.483	1.910	1.680	8.400
INTEREST	5.646	1.406	3.500	7.750
SIZE	8.457	0.915	6.337	9.954
PROF	1.055	3.481	-20.130	12.160
GROWTH	0.216	0.295	-0.481	1.583
LEV	0.164	0.072	0.028	0.452

Source: ICBs Indonesia annual report and other sources during the period 2010-2021

Table 1 reveals that the average NPF is 1.79%, indicating that ICBs in Indonesia are relatively safe in terms of NPF. However, the maximum NPF value is 4.94%, indicating that ICBs must exercise caution because OJK Regulation Number 15/POJK.03/2017 specifies that banks with NPFs of more than 5% are regarded to have possible challenges that risk their business continuity. SBSIZE has a mean of 2,298 individuals, a minimum of 2 people, and a maximum of 3 people. This demonstrates that ICBs in Indonesia conform with BI regulation is Indonesia's central bank Number: 6/24/PBI/2004, which says that the minimum number of SB members of ICBs is two and the maximum number is five. The mean SBWMN is 6.86%, the minimum value of SBWMN is 0.00%, or there are no female members on

the Islamic bank board of directors, and the maximum value of SBWMN is 50.00%. The average SBMEET is 15,033 times per year, suggesting that ICBs in Indonesia, on average, follow Bank Indonesia Regulation Number 11/33/PBI/2009, which mandates that SBs must meet at least 12 times per year.

Additionally, due to space constraints, descriptive statistics for other variables can be found in Table 2. Table 2 shows the correlation matrix, which shows that the magnitude of the value of the correlation coefficient between independent variables is at a position whose value is smaller than 0.850. This implies that the analyzed data set is free of symptoms of multicollinearity.

Table 2. Correlation Matrix Independent Variables

Variables	SBSIZE	SBEXP	SBWMN	SBMEET	GDP	UNEM	INFLA	INTERST	SIZE	PROF	GROW	LEV
SBSIZE	1											
SBEXP	0.025	1										
SBWMN	0.023	-0.325	1									
SBMEET	-0.003	-0.139	-0.070	1								
GDP	-0.055	-0.163	0.052	0.256	1							
UNEM	0.093	0.017	0.208	0.096	-0.360	1						
INFLA	0.090	0.225	-0.062	-0.136	-0.407	0.170	1					
INTERST	0.049	0.228	-0.183	-0.268	-0.682	-0.002	0.690	1				
SIZE	0.179	0.384	-0.263	-0.195	-0.204	-0.039	0.213	0.199	1			
PROF	0.085	-0.081	0.133	0.139	0.040	0.067	0.074	-0.025	-0.144	1		
GROWTH	-0.018	-0.051	-0.035	-0.069	-0.142	0.143	0.239	0.158	-0.012	0.254	1	
LEV	-0.013	0.363	0.177	-0.022	-0.053	0.115	0.041	-0.035	0.260	0.113	-0.140	1

Source: Processed data and information from annual reports and financial reports

The GMM System Model developed in this study has a good fit. This can be seen from the instrument validity test, which gives a chi2 value of 73.727 with a Prob > chi2 value of 0.190, which is much greater than 0.050. This signifies that the model passes the instrument validity test. The instrument consistency test gives a z-value of 0.175 with Prob > z value of 0.861, which is much more significant when compared to the required value of 0.050. This signifies that the model passes the instrument consistency test. The GMM System Model is certified unbiased if the value of the lagged dependent variable coefficient (NPF$_{it-1}$) of the GMM System Model result is greater than the Fixed effect model (FEM) result coefficient and less than Pooled the Least Squares (PLS) result coefficient. The results of the model unusualness test gave the NPFit-1 coefficient value from the GMM System Model is 0.4199***, the NPFit-1 coefficient value from FEM is 0.3130***, and the NPFit-1 coefficient value from PLS of 0.5806***. Thus, this one-step SYS-GMM model is

unbiased. A summary of the results of the System Generalized Method of Moment (SYS-GMM) model is presented in Table 3.

Table 3. Summary of One-Step (SYS-GMM) Model Results

Variables	Coefficient	Std. Error	z	P > |z|
NPF$_{it-1}$	0.4199***	0.0808	5.19	0.000
SBSIZE	-0.5765***	0.2279	-2.53	0.011
SBEXP	-0.2809	0.5322	-0.53	0.598
SBWMN	-1.5589***	0.6213	-2.51	0.012
SBMEET	-0.0076	0.0182	-0.42	0.674
GDPc	-14.1313***	4.1393	-3.41	0.001
UNEM	-0.2139	0.1476	-1.45	0.147
INFLA	0.1773***	0.0537	3.30	0.001
INTEREST	-0.1192	0.0976	-1.22	0.222
SIZE	0.0281	0.1887	0.15	0.881
PROF	-0.0567**	0.0278	-2.04	0.041
GROWTH	-0.3946	0.3442	-1.15	0.252
LEV	-0.5001	1.8236	-0.27	0.784
Constant	54.3379***	16.2695	3.34	0.001
Wald chi2				217.41
Prob > chi2				0.000
Bank				14
Observations				151

Notes: *** Significant at 1%; **significant at 5%

Source: Results of the STATA application version 17

The results showed that the NPF of a given year period (NPFit) was positively related to the NPF of the previous year period (NPFit-1). The evidence found was supported or in line with Lee et al. (2020) and Umur and Sun (2015), which show that credit risk persists over time. Next, here are the results and discussion of this study.

First, The findings show that SB Size significantly negatively impacts NPF ICBs in Indonesia. These results imply that SMEs of larger size have a more decisive impetus in calling for compliance with Sharia regulations to ICB directors, particularly for Sharia regulations on financing. Thus, ICB financing has higher sharia quality followed by lower NPF. The findings of this study align with the sense that they are supported by resource dependency theory, which holds that large boards are better able to provide advice, direction, and control than small boards (Shettima & Dzolkarnaini, 2018). Boards of larger size imply that they have more expertise

and show a strong response from the organization to higher quality and performance (Bezawada & Adavelli, 2020). Therefore, referring to resource dependency theory, ICBs with larger SB sizes have a more decisive impetus in calling for adherence to Islamic law, especially for their financing, which can ultimately lower NPFs.

Second, the results show that SB Expertise negatively affects the NPF of ICB in Indonesia. However, such negative influences are less statistically significant. Thus, the results of this study lack support from (Haridan et al., 2018), who explains that SBs who understand other disciplines can improve communication between SBs and directors, improve performance, and minimize Islamic bank risks. The study's results are also less relevant to (Nomran et al., 2018), which reveal that SBs who have a good understanding of Islamic law but lack experience in other fields or disciplines can fail in their mission. The results of this study imply that SBs who understand other disciplines are more focused on evaluating and controlling ICB directors to better comply with sharia provisions.

Third, the results showed that SB Woman had a significant negative effect on ICB NPF in Indonesia. These findings are consistent with (Halko et al., 2012), which revealed that women tend to avoid risk when making financial and investment choices decisions. The results of this study also imply that the presence of women in SB, in addition to demanding compliance with Sharia provisions, also encourages ICB directors to be more careful in making financing decisions, which can reduce NPF. Abou-El-Sood (2019) found that banks with more excellent female representation on their boards of directors make low-risk investments. In addition, female boards in Islamic banks tend to have lower investment risks than in conventional banks.

Fourth, the results showed that the SB Meeting did not significantly impact the NPF ICB in Indonesia. This may be due to conflicting theories and empirical evidence regarding the impact of board meeting frequency on company performance. Studies (Bezawada & Adavelli, 2020) based on agency theory reveal that board meetings often result in a company performance decline, supporting the findings (Vafeas, 1999). However, resource dependency theory (Ntim et al., 2017) argues that a frequent frequency of board meetings indicates the board's ability to monitor management teams to ensure they protect shareholders' equity (Min & Chizema, 2018). In Indonesia, SB is an expensive resource, so frequent SB meetings will increase costs, which in turn can reduce SB performance. Besides being expensive, qualified human resources as SB members are still limited in Indonesia, this is proven

by most SB members in one Islamic bank are also SB members in other Islamic banks. Therefore, the findings of this study imply that SB meetings focus more on evaluating and controlling ICB directors to better comply with sharia provisions.

Fifth, according to the study's findings, GDP per capita can reduce NPF from ICB in Indonesia. Thus, as Indonesia's economy improves, as measured by higher GDP per capita, benefit consumers have a more remarkable ability to pay their obligations to ICBs in Indonesia. In fact, GDP growth is a sign of a country's growing economy, which impacts customers' ability to pay their bank debts. (Salas & Saurina, 2002). The study's findings appear consistent with other studies reporting that GDP and NPL growth are negatively related (Szarowska, 2018; Qwader, 2019; Arham et al., 2020; Staehr & Uusküla, 2021). This study's findings align with (Damanhur et al., 2018), who identified a robust negative relationship between real GDP growth and NPF from Islamic banks. However, the findings of this study differ from (Dimitrios et al., 2016), which proves that GDP growth is positively related to NPL from conventional banks. They argue that when the economy improves, as indicated by positive growth in GDP, banks are euphoric in disbursing credit and taking excessive risks, resulting in NPLs increasing.

Sixth, according to the findings, unemployment did not affect the NPF of ICBs in Indonesia. In this scenario, existing research reveals that a high unemployment rate suggests poor economic conditions, which are frequently associated with a poor banking system, one of which is indicated by high NPLs (Arham et al., 2020). As a result, multiple research has found that rising unemployment leads to increased NPLs (Dimitrios et al., 2016; Szarowska, 2018; Arham et al., 2020). On the other hand, Kumar et al. (2018) suggest that the relationship between unemployment and credit risk might be harmful for two reasons. First, banks limit their lending when unemployment is high, eventually leading to low credit risk. Secondly, banks implement a strict credit selection process; banks provide credit only to customers with a smooth stream of income and collateral. Not only does this minimize credit risk, but banks can claim assets from defaulting customers when unemployment is high to avoid increased credit risk. In the context of Islamic banks, Isaev and Masih (2017) reported that unemployment is positively related to NPF in Malaysia. The results of this study suggest that unemployment is not related to the NPF of ICBs in Indonesia; this may be due to contradictory empirical evidence on the impact of unemployment on credit risk.

Seventh, according to the findings, inflation considerably benefits the NPF of ICBs in Indonesia. Rising inflation affects borrowers' real wages while wage rates are stable (Staehr & Uusküla, 2021; Szarowska, 2018), reducing consumers' ability to repay ICB loans. This study, however, contradicts the findings of Priyadi et al. (2021), who found that NPFs from Islamic rural banks (IRBs) in Indonesia are inversely connected to inflation. In this context, IRBs and ICBs have different revenue characteristics. They are thus affected differently by changes in the inflation rate and their capacity to meet their obligations to each bank. The results differ from those of Dimitrios et al. (2016), who concluded that the inflation rate is not related to the NPL of conventional banks in European countries.

Eighth, the results show that the interest rate does not affect the NPF of ICBs in Indonesia. Ombaba (2013) observed that as interest rates rise, banks will respond by charging high credit interest rates. The banking industry's increase in interest rates may damage borrowers' ability to repay their loans, raising the NPL ratio. Much empirical evidence reveals a positive relationship between interest rates and Non-performing loans (Arham et al., 2020; Qwader, 2019; Szarowska, 2018). As a result, the interest rate is unrelated to the NPF. Priyadi et al. (2021) at IRBs Indonesia supported the findings of this study.

Finally, the results show that of the four control variables that are estimated, only profitability affects NPF. According to Muhammad et al. (2020), profitability has a significant negative impact on the NPF of ICBs in Indonesia. Furthermore, the control variables size, growth, and leverage results demonstrated that the three variables had no effect on the NPF of ICBs in Indonesia. Wasiaturrahma et al. (2020) support the conclusion that leverage has no substantial effect on NPF. However, the findings that there is no significant impact on NPF contradict the findings of Wasiaturrahma et al. (2020), who discovered that size is negatively related to NPF in Islamic cooperatives in East Java, Indonesia. While the results show no significant impact of growth on NPF, we have difficulty confirming this because previous studies have never tested the relationship between the two variables.

CONCLUSION

This study examines the impact of sharia board (SB) characteristics and macroeconomic factors on Non-performing financing (NPF) of Islamic commercial banks (ICBs) in Indonesia. The data in this study were analyzed using a one-step

GMM Model System. The results show that SB characteristics measured by SB Size and SB Woman have a significant negative influence on the NPF of ICBs in Indonesia. However, this study did not find a significant effect of SB Expertise and SB Meetings on the NPF of ICBs in Indonesia. The results show that GDP per capita has a negative influence, and inflation has a significant positive effect on the NPF of ICBs in Indonesia. However, this study did not find a significant effect of unemployment and interest rates on the NPF of ICBs in Indonesia.

This study was limited to using only Islamic commercial banks in Indonesia as a sample. Thus, if anyone continues this research, studying the relationship between SB composition and macroeconomic indicators with financing risk from Islamic rural banks in Indonesia is advisable. SB characteristics in this study are proxied by SB Size, SB Expertise, SB Women, and SB Meetings so that future studies can add other variables from SB characteristics, such as the average length of office of SB members, the average age of SB members, the experience of SB chairmen or SB members, and the busyness of SB chairmen or SB members.

The study offers three implications. First, SB plays an essential role in supervising and controlling the financing quality from ICBs in Indonesia to comply with Sharia regulations. In addition, SB can suggest the right business strategy to ICB directors in Indonesia, especially for financing strategies that can reduce NPF. Second, this study adds to the understanding of Islamic bank regulators in Indonesia regarding the role of SB in reducing the financing risk of ICBs. Islamic bank regulators in Indonesia can make more effective regulatory measures when setting the conditions and criteria for becoming a member of SB. Third, this study adds understanding and insight for investors, owners, and management of ICBs in Indonesia regarding the role of SB characteristics and macroeconomic factors in reducing NPF from ICBs in Indonesia.

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