

# Board characteristic and Indonesian Islamic bank's credit risk

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## Abstract

**Purpose** - This study aims to analyze factors that influencing credit risk in Indonesian Islamic banks based on the board characteristic.

**Method** - This study is a quantitative method using secondary data from nine Indonesian Islamic banks during 2018 to 2022. The sample of this study was taken by purposive sampling method and the data were analyzed using panel data regression analysis, including the classical assumption, F-test and T-Test.

**Result** - This study provides evidence that sharia supervisor board size and women on board of directors are negative and significantly related to credit risk. However, the education level of board of directors and independent commissioners does not influence Indonesian Islamic Bank's credit risk.

**Implication** - These findings have implications for regulators and policy study to strengthen the internal governance mechanism to protect the Indonesian Islamic banks from financial failures and increase the trust of stakeholder through the effectiveness of implementation good corporate governance.

**Originality** - This study represents a novel contribution to the literature on the determinants of Indonesian Islamic Bank's credit risk as it conceptualized the relationship between board characteristic and the credit risk. This study represents the few that adopt comprehensive modeling approach by proposing the role of board of directors' gender diversity and education level and Islamic governance context represented by sharia supervisory board.

**Keywords:** board characteristic; credit risk; Indonesian Islamic banks



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## Introduction

The financial crisis that occurred in Asia and Global of 1998 and 2008 was caused by the poor level of risk taking in the banking industry (Ramly et al., 2018). This fact highlights how vulnerable unprotected economies are to the reckless risk-taking practices of banks and other financial institutions. Although risk-taking is a normal decision for banks, in fact, excessive risk-taking can lead into financial instability (Mukhibad & Setiawan, 2022). Credit risk is one of the challenging risks that is faced by Indonesian Islamic Bank as an indicator of financial stability including liquidity problems, profitability, and solvency (Kartika et al., 2022). Further, Roziq & Ahmad (2024) stated that a high credit risk that could not be solved by Islamic Banks would give a negative impact on the performance of Islamic Banks.

Credit risk can be seen by the ratio of non-performing financing (NPL) in the conventional banks or non-performing financing (NPF) in Islamic Banks (Kartika et al., 2022; Nugraheni & Muhammad, 2019). As stated by previous research, effective risk management is necessary for financing in Islamic banks (Fakhrunnas & Ramly, 2016; Mollah et al., 2021; Umar et al., 2023). At such point, management's responsibility becomes crucial for controlling credit risk. The implementation of Good Corporate Governance (GCG) in Islamic banks has been regulated by Bank Indonesia through regulation Number 11/33/PBI/2009. It supports risk management methods, enforce and oversee proper bank policies, and influence risk strategies. Therefore, the governance structure is crucial in affecting bank risk-taking.

The existence of a sharia supervisory board (SSB) as part of another layer (multilayer) from the governance structure has a responsibility to review and ensure that the operational activities of Islamic banks are in line with the sharia rules (Darmadi, 2011). The SSB acts as an advisor and assists the board in avoiding poor-quality loans and taking less risk (Umar et al., 2023). Research by Mollah et al. (2021) showed that excessive risk-taking behavior that was not in line with sharia rules could be handled by integrating the SSB.

Meanwhile Umar et al. (2023) stated that the number of SSB members had no effect on the liquidity risk of Islamic banks in 15 countries.

Among the board characteristics, the diversity of board members is increasingly attracting many researchers (Jabari & Muhamad, 2022; Nguyen, 2021; Nugraheni & Muhammad, 2019). Based on the research of Jabari & Muhamad (2022), a positive relationship was found between gender diversity among board members and the level of education and educational specialization significantly influenced risk-taking in Islamic banks. As a part of board members, research by Aslam & Haron (2021) and Jabari & Muhamad (2022) also found that the presence of female members influenced the corporate risk-taking. However, Hoang et al. (2018) did not find the significant effect of risk taking towards the proportion of women in board of directors (BOD). Given that, boards are usually composed of people with different educational backgrounds. They may provide a lot of information based on a person's knowledge and skills that shape the way they make decisions (Fernandes-Gago et al., 2018). On the other hand, the level of education also reflects a person's capital, knowledge, and competence (Wang et al., 2017).

Furthermore, an investigation of the relationship between board characteristics and credit risk conducted by Nugraheni & Muhammad (2019) found that board meetings had a negative effect and board size had a positive effect but educational qualifications and expertise had no effect on the credit risk of Islamic banks in Indonesia. Nguyen (2021) examined the effect of governance implementation indicators on risk-taking behavior and bank transmission mechanisms in 57 Islamic and 102 conventional banks. He argued that board members, independent commissioner, the number of meetings, and finance expertise negatively affected conventional banks' risk-taking decisions. However, the effect was not found significantly in Islamic banks. In contrast, the proportion of female board members and financial expertise in Islamic committee negatively affected risk-taking, while the size of Islamic committee positively affected risk-taking in Islamic banks risk-taking.

This research provides the latest literature studies related to the influence of SSB, gender diversity, educational qualifications board of director members and independent commissioners on the credit risk of Indonesian Islamic banks in 2018 to 2022. The credit risk in is an important thing that needs more attention since it directly impacts bank's profitability and efficiency or even bank stability (Barra & Ruggiero, 2023; Ferhi, 2018; Kwashie et al., 2022; Siddique et al., 2021). This study offers different results compared to the previous studies that only examined the characteristics the SSB attributes on solvency risk (Umar et al., 2023), the board of directors on credit risk (Nugraheni & Muhammad, 2019), the audit committee and SSB on bank risk-taking (Nguyen, 2021), or the attributes from Islamic governance on credit rating (Mansoor et al., 2020). This study also endeavors to bridge the gaps in the research of non-performing financing of Islamic banks in Indonesia.

### **Literature Review**

According to agency theory, the relationship between agents and principals is crucial, as agents may prioritize their own interests over those of the principal (Jensen & Meckling, 1976). To address this issue, corporate governance is designed as a system of rules and regulations to ensure trust, accountability, fairness, transparency, independence, social responsibility, and shareholder rights (Farak et al., 2018). In the banking sector, corporate governance mechanisms are particularly important for Islamic banks as they can help mitigate risks (Aslam & Haron, 2021; Nguyen, 2021).

### **Hypotheses Development**

The SSB plays a crucial role as an internal control mechanism to ensure that the activities of Islamic banks are in accordance with Islamic principles (Darmadi, 2011). The SSB has the responsibility of providing support for financial products and services (ex-best) and screening operations and activities (ex-post) to ensure that the operations of the company comply with sharia-compliance. As stated by Aslam and Haron (2021), this responsibility is undertaken on behalf of shareholders and stakeholders. The SSB acts as an advisor and assists the board in avoiding poor-quality loans and taking less

risk (Umar et al., 2023). Nguyen (2021) states that a large Islamic supervisory board with stronger sharia supervisory capabilities can restrict the aggressive financing and lending activities of managers. Research by Fakhrunnas & Ramly (2016) also found that SSB had a significant negative effect on the risk-taking of Islamic banks in Southeast Asia. The same thing was also found by Safiullah and Shamsuddin (2018) that the size of SSB had a negative influence on Islamic banks' risk-taking.

*H1 : The size of sharia supervisor board has a negative effect on credit risk of Indonesian Islamic Banks.*

The proportion of women on board is important for fulfilling human assumptions in agency theory, especially regarding the limitations of rationality (Endraswati & Cahya, 2020). In making decisions, the presence of women on board is often more careful and less risk averse (Srivastav & Hagedorff, 2016). The high proportion of female involvement among board members as decision-makers or in monitoring can mitigate excessive risk-taking (Nguyen, 2021). Jabari & Muhammad (2022) found that the presence of a female board member on the BOD and SSB had no effect on risk-taking. Meanwhile, the higher the percentage of women can reduce solvency risk. The research of Khoirotunnisa (2021) asserted that the level of bank risk-taking decreased as the proportion of women on the board of commissioners increased.

*H2 : The proportion of women on board of directors has a negative effect on the credit risk of Indonesian Islamic Banks.*

The previous study suggests that board educational qualifications is a key for enhancing corporate governance and facilitating decision-making (Jabari & Muhamad, 2022). High education levels of board members tend to fulfil monitoring and feedback functions that complement the effectiveness of corporate governance (Wang et al., 2017). Srivastav & Hagedorff (2016) in their research highlight that board members with Ph.D. degrees have a better understanding of risk measurement approaches and can provide valuable insights into the impact of bank policies on risk-taking. However, the result of

Jabari & Muhamad (2022) found that the educational qualifications of board members have a negative effect on the risk-taking behavior of Islamic banks.

*H3 : The educational level of board directors has a negative effect on the credit risk of Indonesian Islamic Banks.*

Agency theory suggests that independent commissioners are critical in mediating differences in interests between stakeholders and management by overseeing management policies and providing advice (Darmadi, 2011). Fakhrunnas & Ramly (2016) argue that having independent board members provides several benefits to the company, including increased professionalism, transparency, protection of shareholder rights, and mitigation of excessive risk. According to POJK number 55/POJK.03/2016, at least 50% of the total members of the board of commissioners should be independent commissioners. In a recent study, Kartika et al. (2022) also found that the presence of independent commissioners and effective banking governance practices could significantly reduce the risk of bad credit in banks. This finding is supported by Aslam & Haron's (2021) research, which suggests that a larger independent board of commissioners can significantly decrease credit and liquidity risk.

*H4 : Independent commissioners have a significant negative effect on credit risk in Indonesian Islamic Banks.*

## **Research Methods**

This study used a quantitative data from the annual financial reports of Islamic commercial banks from 2018 to 2022 with purposive sampling technique to ensuring that the sample was representative of the population and the data were relevant to the research question. There are 9 Indonesian Islamic Banks that were related to the criteria. The first criterion was Indonesian Islamic Banks that were registered in OJK. The second was Islamic banks that published annual financial reports. The third was Islamic banks that provided the data in this study.

The panel data multiple linear regression was used as an analysis technique. To ensure that the equation model met the BLUE criteria, the classical assumption testing was conducted and we used Eviews 10 software to process the data. Furthermore, the Common Effect Model, Fixed Effect Model, and Random Effect Model were used to test the model specification by selecting the best model through the Chow test, Hausman test, or Lagrange multiplier test to make sure that the model selected was appropriate for the data and research question.

The dependent variable in this study was credit risk as measured by NPF. Following the research of Nugraheni & Muhammad (2019) and Fakhrunnas & Ramly (2016), the lower the NPF, the smaller the credit risk. The independent variable of this study focused on the characteristics of board members, which included the number of SSB, the number of female board members, the level of education of the BOD, and independent commissioners. Following the research of Nugraheni & Muhammad (2019), the number of SSB was measured from the total of all SSB boards in each bank. While educational qualifications were measured by the average total score of the classification (Jabari & Muhamad, 2022; Kartika et al., 2022); score 1 if the board member graduated from a bachelor's, score 2 for a master's education, and score 3 for board members who graduated from a doctorate. The independent board of commissioners was measured by the total number of commissioners who participated in the study (Aslam & Haron, 2021; Fakhrunnas & Ramly, 2016).

Following research by Aslam & Haron (2021), this study also used control variables related to company characteristics and board member features. These include company age measured by the year the company was in operation, the bank size measured by natural log total assets, and leverage measured by total debt to total assets, while board member meetings control for board features were measured by the number of board members in a year. The following describes the regression estimation model:

$$NPF = \alpha + \beta_1 DPS_{it} + \beta_2 BODWOM_{it} + \beta_3 BODEDU_{it} + \beta_4 INDEPCOM_{it} + \beta_5 MFI_{it} + \beta_6 SIZE_{it} + \beta_7 AGE_{it} + \beta_8 LEV + et$$

Where:  $\alpha$  = constanta; NPF = Credit Risk; DPS = Sharia Supervisory Boards, BODWOM = the proportion of woman in BOD; BODEDU = educational level qualification of the board directors; INDEPCOM = independent commissioner; MF = meeting frequency; SIZE = firm size; AGE = firm age; LEV = leverage;  $\beta_1$ -  $\beta_8$  = coefficient;  $i$  = 2018-2022 and  $et$  = error term.

## Results and Discussion

The results of this study are described in descriptive statistics and hypothesis testing. The descriptive statistics present the average, maximum, minimum and standard deviation values of each variable used in this study.

Table 1 shows that during this research period, the NPF (Non-Performing Financing) ratio of each Islamic commercial bank had a value range of 0.01% owned by Bank BCA Syariah to 4.95% owned by Bank Bukopin Syariah, with an average NPF from the sample period of 1.70% showing the NPF ratio of all Islamic banks. This means that all of the sample Indonesian Islamic banks is in a good category. According to Bank Indonesia Circular Letter Number 13/24/DPNP/ 2011, Indonesian Islamic Banks with NPF ratios of less than 5% are categorized as healthy banks.

**Table 1. Descriptive Statistics**

Variable	N	Mean	Max.	Min.	Std. Dev.
NPF	45	1.703778	4.950000	0.010000	1.559004
DPS	45	2.177778	3.000000	2.000000	0.386646
BODWOM	45	0.091778	0.330000	0.000000	0.134152
BODEDU	45	1.537556	2.000000	1.000000	0.318891
INDEPCOM	45	0.527889	1.000000	0.000000	0.193235
MF	45	14.22222	52.00000	3.000000	10.28434
SIZE	45	16717510	61364000	1660849	15625275
AGE	45	32.66667	65.00000	8.000000	14.22226
LEV	45	0.349267	0.932000	0.001000	0.316713

Source: Data obtained from the financial reports of each bank



The SSB of Islamic Commercial Banks consists of a minimum of 3 members, a maximum of 2, and an average of 2 SSB members. Regarding board member diversity, the minimum value of the BOD's female proportion members is 0.00%, which indicates that some Islamic commercial banks have no female members on the BOD and the maximum number of proportions of female board members to all board members is 0.33% with an average of 0.09%.

Based on the level of education, it was found that the minimum education level of board members is 1, the maximum is 2 with the average value is 1.53, which means the education level of the BOD is quite diverse, where the majority hold magister degrees on average. The proportion of independent commissioners in Islamic banks found that the largest number of independent commissioners of Islamic commercial banks is 1% and the smallest number is found as much as 0% in Aceh Sharia bank in 2019 with an average proportion of independent commissioners of 0.52% which means that most of banks have independent commissioners comprising around 50% of the total members of the board of commissioners.

Table 1 also describes the descriptive statistics of the control variables. In the board attribute, it is known that the number of combined meetings of board members is 3, the most is 52 times and the average number of combined meetings of board members has been held 14 times in a year. Meanwhile, the total assets of Islamic commercial banks in the sample period were mostly owned by Bank Muamalat in 2022 of IDR 63.36 trillion and the least assets were owned by Bank Victoria Syariah in 2021 amounted to IDR 1.6 trillion with the average amount of assets of Indonesian Islamic banks was IDR 16.71 trillion. The age of Indonesian Islamic banks is known to have been in operation for a maximum of 65 years, with a minimum of 8 years while the average of Indonesian Islamic Banks has been in operation for 32 years. On the other hand, the range of leverage levels observed in the sample period were varied from a minimum of 0.001% to a maximum of 0.93%, with an average of 0.34%.

The results of the Chow test found that the probability value of Cross-section F of 0.0000 was less than the significance of the alpha probability value of 0.05. This means that  $H_0$  is accepted and  $H_1$  is rejected, so the Fixed Effect Model (FEM) is better than the Common Effect Model (CEM). From the results of the Hausman Test, it shows that the Chi-Square probability value of 0.0000 was less than the significance of the alpha probability value of 0.05. This means that  $H_0$  is accepted and  $H_1$  is rejected, thus the Fixed Effect Model (FEM) is better than the Random Effect Model (CEM). So, the right model is the Fixed Effect Model (FEM).

Based on the normality test, it can be concluded that the data in the study model were normally distributed because the Jarque-Bera probability value was 0.762494 which was greater than the alpha significance of 0.05. The multicollinearity test results using the pairwise correlation method indicated that all variables a correlation value of were less than 0.80. Therefore, there was no multicollinearity problems in this model. The Park test method used in the heteroscedasticity test showed that all variables in the study had a probability value greater than the significance of 0.05, which means that there was no heteroscedasticity problem in the residual research model. Based on pre-established decision-making, it was found that DW value was 1.831354. The DW value was in between the Du and 4-Du values, i.e.,  $1.9578 < 1.831354 \leq 2.042$ . So, there was no autocorrelation problem in the regression model.

Table 2 presents the results of the F-statistical test. It indicates that the Prob (F-Statistic) probability value was 0.00000 less than 0.005. The result suggests that the variable characteristic of board members had a significant impact on the credit risk of the Indonesian Sharia banks. Additionally, based on the same table, the Adjusted R-Squared value was 0.9227. This implies that the board characteristic variables were able to explain Indonesian Sharia bank' credit risk by 92% during the sample period while the 8% was explained by other variables that were not included in this study.

**Tabel 2. Fixed Effect Model Regression Model Analysis**

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	7.584520	2.476677	3.062377	0.0048
DPS	-1.081332	0.400885	-2.697362	0.0117*
BODWOM	-2.397050	0.716361	-3.346147	0.0023*
BODEDU	0.251908	0.415462	0.606332	0.5492
INDEPCOM	1.150003	1.224833	0.938906	0.3558
MF	-0.014905	0.013604	-1.095674	0.2826
SIZE	0.149026	0.069106	2.156476	0.0398*
AGE	-0.220166	0.047074	-4.677041	0.0001*
LEV	1.878485	0.405986	4.626968	0.0001*
Adjusted R-Squared		0.922721		
Prob (F-statistic)		0.000000		

**Note:** Significance levels in 1%(\*), 5%(\*\*) and 10%(\*\*\*)

Source: Eviews 10 test (processed, 2023)

The researchers used a t-test to determine the association between each board attribute and credit risk and can be described below. The results of first hypothesis suggest that there was a negative correlation between the size of the SSB and credit risk. This means that a larger SSB membership was associated with a lower level of credit risk for Indonesia Islamic Banks. Therefore, the first hypothesis ( $H_1$ ) is accepted. The role of SSB in Islamic Banks is not only to ensure that Islamic bank's product is in line with sharia rules but also acts as an advisor and assists the board in avoiding poor-quality loans and taking less risk. The existence of SSB with stronger sharia supervisory capabilities can restrict the aggressive financing and lending activities of managers. This finding supports Fakhrunnas & Ramly (2016) and Safiullah & Shamsuddin (2018) that state a large Sharia Supervisor Board (SSB) can reduce the risk-taking of Islamic bank. Consequently, a strong SSB can supervise risk-taking more effectively by monitoring and mitigating the board to avoid low-quality financing and take a less risk.

The results of second hypothesis suggest that the proportion of women on boards of directors has a negative and statistically significant relationship with credit risk. This means that the existence of women on boards is associated with a lower level of credit risk for Indonesia Islamic Banks. Therefore, the second hypothesis ( $H_2$ ) is accepted. The presence of women on the BOD encourages management to take less financing risks with careful consideration and less riskier averse. High proportion of female involvement among board members as decision-makers give performance more effectively at controlling and decreasing bank-specific credit risks than boards that consist of men only. According to Mansoor et al. (2020), having women board members tends to reduce the costs of loan. This finding supports Lu & Boateng (2018) and Khoirotunnisa (2021) which discovered that having a woman on the BOD has a negative impact on bank risk-taking. Therefore, by having a capable woman on the BOD would enable her to recognize and carefully consider the credit risk that is related to financing.

The result of third hypothesis confirms the insignificant influence of the BOD educational level to credit risk. This means that the qualified education level does not affect credit risk. Therefore, the third hypothesis ( $H_3$ ) is rejected. This can be caused that the BOD in Indonesian Islamic banks have different specialized educational background and they may have different policies perspective in lending financing. This finding is in line Mukhibad & Setiawan (2022) and Jabari & Muhamad (2022) who found that the credit risk of Islamic banks was not impacted by the presence of directors with higher qualified levels but it contradicted with Jabari & Muhamad (2022) and Wang et al. (2017) who discovered a significant influence of educational board level on the risk taking. Hence, bank risk-taking behavior is not only determined by the BOD's educational background.

Furthermore, as the last hypothesis, the result of fourth hypothesis confirms the insignificant influence of the independent commissioner to credit risk. This means that independence does not affect credit risk. Therefore, the third hypothesis ( $H_4$ ) is rejected. This result can explain whether an Islamic bank has complied with the requirements for

independent commissioner to total commissioner under OJK regulations, but it will not affect the risk-taking of Indonesia Islamic bank's decision to take a high or low financing. The finding of this research contradicts to Kartika et al. (2022) and Aslam & Haron (2021) that independent commissioner could prevent the board of directors and management from taking low-quality financing behavior which can decrease the credit risk. Theoretically, it does not support the agency and resources dependence theory which regards that independent commissioner as an external resource can help to minimize the conflict of interest between management and shareholders or depositors. This insignificant finding supports argument from AlAbbad et al. (2019) that having more of independent commissioners could lead to many different points of view, which would make it difficult to oversee how the management behaves toward the risk-taking of Islamic bank.

## Conclusion

This study contributes a conceptual framework aimed at enhancing the performance of Islamic banks through the board's role in corporate governance. Both resource dependency theory and agency theory emphasize how companies can effectively respond to stakeholder needs and interests by leveraging their organizational resources. The collaborative efforts between board characteristic are perceived as crucial for IBs to achieve their overarching goal of reducing the bad financing. This study confirmed that sharia supervisor board and women on board of directors were negative and significantly affected credit risk. However, the educational diversity and independent commissioner did not affect Indonesian Islamic Bank's credit risk. The SSB holds significant influence in encouraging banks through monitoring and mitigate the board from excessive bad financing. This study has some limitations; firstly, the range period of sample. Secondly, the study covers only nine Indonesian Islamic Banks, so it is difficult to generalize the result. Therefore, future studies could be more specific to analyze the characteristic of board of directors especially in accounting or financial expertise, board of directors who have a business or economic degree or even

could consider a broader range diversity dimensions such as tenure, age, and national scope.

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