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Corporate governance and Islamic law compliance risk

Hasan Mukhibad[1]*, Ahmad Nurkhin[1], Kuat Waluyo Jati[1] and Prabowo Yudo Jayanto[1]

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*Corresponding author: Hasan Mukhibad, Economics Faculty, Universitas Negeri Semarang, Indonesia
E-mail: hasanmukhibad@mail.unnes.ac.id

editor:
David McMillan, University of Stirling, UNITED KINGDOM

Additional information is available at the end of the article

Abstract: This study examines the influence of the Shariah Supervisory Board (SSB), Board of Directors (BOD), Risk Officers (RO), Audit Committee, and market competition (Lerner) on the Islamic Law Compliance Risk (ILCR). We use a sample of full-fledged Islamic banks in Indonesia with an observation period of 2009–2019. Data analysis uses *Fixed Effect Model* (FEM). Our results show that SSB and BOD are not proven to be able to control ILCR. ILCR can be decreased by increasing the number of audit committees and the proportion of independent RO. In addition, the Lerner index has a positive influence ILCR. The results of the robustness test also confirm the results of this study. This research extends the previous studies on evaluating the risk-taking of Islamic Banks beyond the common risk (insolvency, liquidity, credit, and market), particularly the unique risks faced by Islamic banks. This study recommends increasing the effectiveness of SSB and BOD supervision on bank operations, increasing the ILCR.

Subjects: Finance; Business, Management and Accounting; Accounting; Risk Management; Corporate Governance

Keywords: Islamic law compliance risk; non-halal income; shariah compliance; Shariah Supervisory Board; risk officer

1. Introduction

Islamic bank (IB) is a bank that uses Islamic law in its operations (Alhammadi et al., 2020). Some of the prohibited transactions in Islamic law are interest (*riba*), uncertainty or excessive risks (*gharar*), gambling (*maysir*), and providing financing to companies producing/distributing haram products. Instead of the interest system is the profit-sharing system, which is the main characteristic of IB. In the particular characteristics of this IB product, there are two available contracts, i.e., *mudharabah* and *musyarakah*. Business profits will be distributed to banks and customers based on certain agreed ratios. In addition, the bank will earn income from the disbursed financing if the customer is able to manage the funds they receive from the bank. On the other hand, if the customer cannot manage funds or even go bankrupt, the bank may lose the funds invested in the customer.

For *mudharabah* collection products, IBs are also unable to provide fixed returns to owners of demand deposits, savings, and time deposits (also known as Investment Account Holders-IAH). This is because the amount of return given depends on the income received by the IB. This is different from Conventional Banks (CB), which can provide a fixed income for depositors (Farook et al., 2014). In dual-system banking, IBs often face the risk of withdrawal by large depositors, and they will withdraw funds when the IB does not have a large income or lower profit share than the CB's interest. This difference in the distribution and collection system of funds causes IBs to have greater risk than CBs.

The high risk faced by IB is the reason many experts have studied it (Alabbad et al., 2019). Of the various types of IB risk that previous studies have studied, they emphasized insolvency risk (Grassa, 2016; Jabari & Muhamad, 2021; Lee et al., 2020; Saif-Alyousfi & Saha, 2021; Trinh et al., 2020), liquidity risk (Ben Selma Mokni et al., 2014; Effendi & Disman, 2017), and credit risk (Najwa et al., 2019; Louhichi et al., 2019; Safiullah & Shamsuddin, 2018; Kabir et al., 2015; Isa & Lee, 2020; Khan et al., 2020; Mahdi & Abbes, 2018; Aljughaiman & Salama, 2019; Abedifar et al., 2013). Previous studies are still concentrated on the general risks of IB and are less related to the main business of IB, i.e., providing banking services under Islamic law (Alhammadi et al., 2020). We only found Basiruddin and Ahmed (2019), who used Islamic law compliance risk, which has explained the IB's specific risk, i.e., ILCR.

In explaining this risk-taking, Najwa et al. (2019), Safiullah and Shamsuddin (2018), Mollah et al. (2017), El-Masry et al. (2016), and Alman (2012) have explained risk-taking with the agency theory approach. Agency theory views a conflict of interest between managers and owners (type 1), between majority and minority owners (type 2), and between owners and creditors (type 3; Faisal et al., 2020; Panda & Leepsa, 2017). However, in IB, agency conflicts also occur between directors and customers (Zainuldin et al., 2018). This agency conflict arises when management makes company policies that ignore compliance with Islamic law principles (Zainuldin et al., 2018).

Agency theory recommends the role of corporate governance in supervising agents in risk-taking (Elamer et al., 2018; Koerniadi et al., 2014; Singh et al., 2019). Since ILCR is a particular risk for IBs, IBs have a unique board structure, i.e., the Shariah Supervisory Board (SSB; Alam et al., 2020; Farag et al., 2018; Najwa et al., 2019). IB, which has different product characteristics from CB (Hussain & Al-Ajmi, 2012), requires additional supervision that is different from CB, i.e., SSB (Alabbad et al., 2019; Mollah et al., 2017; Zeineb & Mensi, 2018).

This study focuses on the ILCR and uses SSB as a factor in explaining this risk-taking. This method is similar to what was used by Basiruddin and Ahmed (2019). However, Basiruddin and Ahmed (2019) only used the board of directors' characteristics and the SSB's characteristics including the number of members, expertise, number of meetings, and the amount of remuneration. This study assesses that Basiruddin and Ahmed (2019) ignored the function of the risk management committee (Risk Officer). RO has a function to formulate policies, strategies; implement risk management; and evaluate the implementation of risk management (OJK Regulation No. 18/POJK.03/2016). Thus, CRO has an influence bank risk-taking as evidenced by Najwa et al. (2019), Aljughaiman and Salama (2019), Lee et al. (2020), and Safiullah (2021).

In addition, Basiruddin and Ahmed (2019) also ignored the market competition as a factor influencing IB risk-taking. Furthermore, Basiruddin and Ahmed (2019) used a sample of IBs in Malaysia and Indonesia that use a dual banking system where the system causes IBs and CBs to compete with each other to increase their market share. This market competition structure will influence the bank's policy to take the risk or be averse to risk (Louati & Boujelbene, 2015; Salma & Younes, 2014).

This study aims to provide empirical evidence of the attributes of the Shariah Supervisory Board (SSB), Board of Directors (BOD), and Risk Officer (RO), as well as market competition towards Islamic law compliance risk-taking. This study fills the research gap on ILCR as a unique risk for IB. In addition, this study complements Basiruddin and Ahmed's (2019) study, which ignored the role of CRO in controlling bank risk. According to OJK Regulation No. 18/POJK.03/2016, BOD, SSB, and CRO are supervisory directors in controlling IB risk, including ILCR. This study also uses the factor of business competition between IB and conventional. Indonesia uses a dual banking system, and IB customers in Indonesia still have economic motives compared to religious motives in conducting transactions with IBs (Ismal, 2011).

This study is presented in five parts. The first part contains the research gap, novelty, and research contributions. The second part is theory and hypothesis development. The third section describes the sample, variable measurement, and data analysis methods. The fourth part is the research results. The last part is the conclusions, contributions, and recommendations for further researchers.

2. Literature review

2.1. Agency theory

Agency theory defines a contractual relationship between the owner or the so-called principles with the manager or often referred to as the agent. The principles will delegate the management of their assets to the agent. Fama and Jensen (1983) explained differences in decision making and decision control in complex and non-complex companies. In complex companies, decision-making and implementing company decisions are not the roles of company owners (Panda & Leepsa, 2017). Thus, this agency problem needs to be controlled for the survival of the company (Fama & Jensen, 1983).

At the beginning of the emergence of this agency theory, agency problems occurred in owners and managers, as introduced by Jensen and Meckling in 1976. However, this agency theory has developed into three types. The first type is agency problems between managers as agents and company owners as principles (Faisal et al., 2020). This conflict occurs when the manager has a role as the recipient of the trust from the owner to manage the owner's assets. However, the manager is more inclined to prioritize their interests and ignores the interests of the company owner.

The second type of agency theory is the agency conflict between majority and minority owners (Faisal et al., 2020). This conflict occurs when the majority holder controls the company, and the company's policies are more inclined to the interests of the majority shareholder than the minority owner. This conflict occurs because the majority owner will control the company, and after all, this owner has the majority vote. Majority owners can control managers to take policies that benefit the interests of majority owners and minority owners are difficult to protect their interests (Panda & Leepsa, 2017). Control of the majority owner is to exercise greater voting power in selecting directors (Kusumadewi & Wardhani, 2020).

The third type of agency conflict occurs between creditors and company owners (Kusumadewi & Wardhani, 2020). This conflict arises because the owner can pressure the manager to invest in high-risk projects to earn greater profits. The company can take advantage of funding from creditors to finance this project. If the project fails, creditors will be forced to bear losses, for example, through delays in interest payments and restructuring of maturing debts. On the other hand, if the project is successful, the owner will receive a significant profit, and the creditor will receive a fixed interest income (Panda & Leepsa, 2017).

IB has Islamic law-based products. Islamic law compliance is a factor that must be complied with in all products and decision-making. The existence of an IB is part of the needs of Muslims in conducting banking transactions and halal investments. An agency conflict can arise when the IB director is negligent by making investments that are less or not under Islamic law to take advantage of investment opportunities that allow high profits (Zainuldin et al., 2018). This policy is contrary to the expectations of IAH fund owners to earn income from Islamic law-compliant investments (Zainuldin et al., 2018). The structure of Islamic banks is based on *maqasid shariah* as their business model, which is based on interest-free. However, several studies have found that Islamic banks imitate conventional banks, especially in the products available to conventional banks and profit orientation (Alhammadi et al., 2020). For instance, Chong and Liu (2009), using a sample of Islamic banks in Malaysia, found that the implementation of profit-sharing financing was deficient, and Islamic bank deposits were not interest-free and ignored the spirit to avoid interest. Hamza (2016) using a sample of 60 Islamic banks in the world found that capital ratios and interest rates positively affect deposit returns. Conventional bank interest rates are the determinants of returns in Islamic banks (Hamza, 2016). Thus, agency problems can occur between directors and customers in Islamic banking.

One approach to reducing agency conflict is establishing a supervisory board to control agent behavior. This is because the design of effective corporate control mechanisms can make managers act in the best interests of shareholders (Bonazzi & Islam, 2007). The BOD and the audit committee can act as supervisors (Alam et al., 2020; Bonazzi & Islam, 2007; Farber, 2005; Panda & Leepsa, 2017; Zhou et al., 2020). Quality supervision and improving the quality of information as a medium to reduce information asymmetry can be used to reduce agency problems (Mollah & Zaman, 2015; Nomran et al., 2018; Khan & Zahid, 2020; Barako, 2007; El-Halaby & Hussainey, 2015).

IB has more complex operations than CB, so the IB has an additional supervisor, i.e., the SSB (Alam et al., 2020; Farag et al., 2018; Najwa et al., 2019). IBs that have different product characteristics from CBs certainly require additional supervision that is different from CBs (Mollah & Zaman, 2015). This SSB has a function to ensure that banks have implemented Islamic law principles. AlShattarat and Atmeh (2016) argue that SSB also has a function to reduce agency problems in IB.

2.2. Hypothesis development

The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) in its governance standard No. 1 states that the SSB is an independent board that has the task of directing, reviewing, and supervising bank operations to comply with Islamic law and principles (AAOIFI, 1997). SSB will certify (ex-ante) and monitor (ex-post) all financial contracts, transactions, and further activities of the bank on behalf of shareholders, stakeholders, and clients to ensure that they comply with Islamic law (Alman, 2012).

IB operations that prohibit interest transactions, gambling, and speculation (*riba, gharar*, and *maysir*) and require profit and loss sharing (equity-based) supported by real assets are the unique reasons for IB operations. Compliance with this unique and distinct operation with CB requires an advisory board, monitoring, and guarantor of operations, including managers' policies, to be Islamic law compliant. In a dual banking system, IBs have to compete with CBs. Therefore, IBs need product innovation and risk-taking inherent in banking products (Alman, 2012). The products offered by the IB must have been approved by the manager, BOD, and SSB. Banks can reduce risk by providing non-profit-sharing financing with a lower risk than profit-sharing financing with product innovations that involve all bank management, including SSB (Najwa et al., 2019). There may be a role for SSB in taking bank risks in this case.

One widely used indicator in explaining risk-taking is the number of SSB members. SSB requires various backgrounds of expertise in reviewing and ensuring that bank operations are in accordance with Islamic law. Banks with many SSB members allow them to choose SSB members with different backgrounds, experiences, and expertise (Hamza, 2016). Therefore, these different backgrounds provide broader considerations before SSB makes the decision. The diversity of SSB backgrounds can also improve SSB in identifying risky policies and encouraging directors to avoid risks. Safiullah and Shamsuddin (2018), Alman (2012), and Jabari and Muhamad (2021) have provided evidence that the number of SSB members has a negative influence on bank risk.

H1: The number of SSB members has a negative influence on Islamic law compliance risk (ILCR).

Safiullah and Shamsuddin (2018), Zeineb and Mensi (2018), and Najwa et al. (2019) have proven that the SSB is associated with risk-taking. Followed Isa and Lee (2020) by developing the relationship between SSB and risk-taking by looking at the background of SSB. IB regulators in various countries around the world, such as AAOIFI and OJK, require that SSB members are Muslim and must have expertise in Islamic law, including *usul fiqh* or *fiqh muamalat*. In line with Safiullah and Shamsuddin (2018), who contend that Islamic law prohibits risk-taking, Isa and Lee (2020) prove that SSB expertise in Islamic law has negatively influence on risk-taking.

H2: SSB expertise in Islamic law has a negative influence on Islamic law compliance risk (ILCR).

In the IB organizational structure, BOD function as a supervisor and consultant to directors in carrying out their duties as bank managers. The main difference is that the SSB focuses on managing the bank to comply with Islamic law, and the BOD has the scope of supervision of all bank operations. BOD and SSB are required to be involved in meetings with the director of strategic bank decisions, including developing bank products. Directors' decisions are generally not taken individually but by the board (Ahn et al., 2010).

In agency theory, BOD has a function to reduce agency conflict. The supervision and consultation provided by the BOD are used to ensure that the interests of the owners are maintained through the avoidance of excessive risk-taking. Excessive risk-taking will approach the bank to bankruptcy. Khan et al. (2020), Lee et al. (2020), Basiruddin and Ahmed (2019), and Aljughaiman and Salama (2019) have proven that BOD size influences IB risk-taking.

H3: The number of BOD members influences on Islamic law compliance risk (ILCR).

In a bank funding structure dominated by third-party funds, the BOD has the task of reducing type 3 agency problems between creditors and owners. BOD independence is required to carry out this task. The independence of the BOD will influence the quality of the supervision they carry out. Mollah et al. (2017), Lassoued (2018), Lee et al. (2020), Jabari and Muhamad (2021), and Gafrej and Boujelbéne (2021) have provided evidence that BOD independently influences risk-taking. Furthermore, Basiruddin and Ahmed (2019) found that a higher proportion of independent board members had higher Islamic law compliance.

H4: BOD has a negative influence on Islamic law compliance risk (ILCR).

The Risk Officer (RO) should recommend the director in formulating policies, strategies, and implementation of risk management. In addition, RO also monitors director policies that deviate from routine procedures. RO consists of the director and BOD. In measuring the effectiveness of this RO, previous researchers used the RO chairman independence indicator (Chief Risk Officer-CRO) as used by Najwa (2019) and Aljughaiman and Salama (2019). Effective monitoring of the CRO has influenced lowering the risk of bankruptcy (Najwa et al., 2019). Thus, the following hypothesis can be developed:

H5: Risk Officer (RO) has a negative influence on Islamic law compliance risk (ILCR).

Another board that has a role in reducing agency problems is the audit committee. The audit committee is the most important subcommittee of the board because of its special role in protecting the interests of shareholders about financial control and oversight (Musallam, 2020), so that the audit committee increases its effectiveness in risk-taking oversight (Nguyen, 2021; Younas et al., 2019). This is what underlies Aslam and Haron (2021), Nguyen (2021), Khan et al. (2020), and Safiullah and Shamsuddin (2018) use of the audit committee as a variable that explains risk-taking. Nguyen (2021) shows that the audit committee influences on risk.

H6: The audit committee has a negative influence on Islamic law compliance risk (ILCR).

Business competition between banks causes banks to take risky policies to maintain performance. In the dual banking system, IBs are required to be competitive in providing profit-sharing. A decrease in profit-sharing will cause depositors to divert their funds to CB (Akhtar et al., 2017; Aysan et al., 2018; Ismal, 2011). Business competition between IB and CB causes banks to take policies that are not ideal in Islamic banking, i.e., adopting a policy of providing deposit returns based on CB deposit interest (Chong & Liu, 2009). In addition, high market competition can also increase the z-score (Louati & Boujelbene, 2015).

H7: Bank business competition positively influences Islamic law compliance risk (ILCR).

3. Methodology

This study used a quantitative research design and used panel data. The research sample is full-fledged Islamic banks in Indonesia with 11 years of observation (2009–2019). However, of the 14 IBs in Indonesia, three banks did not report non-halal income, so we excluded these three banks. In addition, there were spin-off Islamic banks in the ongoing year, so we used unbalanced data with 103 units of analysis.

The independent variable of this study is the ILCR as measured by the Non-Halal Income Ratio (NHIR). NHIR is measured by comparing non-halal income to income from bank financing. IBs are prohibited from using interest transactions and investing in instruments that use interest (Fatwa of the Indonesian Ulema Council Number 1 of 2004). Therefore, IBs with a high NHIR indicate low Islamic law compliance and high ILCR.

The independent variable that used the SSB attribute was measured by two main attributes, i.e., the number of members (SSBSIZE) and expertise in Islamic law (SYARIAHEXPERT). We used these two indicators because the number of board members is the main proxy in corporate governance to reduce agency problems (Martín & Herrero, 2018). Therefore, SSBSIZE is measured by the number of SSB members (Aslam & Haron, 2021; Basiruddin & Ahmed, 2019; Najwa et al., 2019). SSB expertise in Islamic law (SYARIAHEXPERT) is measured by the percentage of SSB who have Islamic law educational background to all SSB members. Using this proxy is because education is a good proxy for measuring knowledge (Hambrick & Mason, 1984) or intellectual competence and level of professionalism (Grace et al., 1995).

Two indicators measure the Board of Directors (BOD), i.e., the number of members and the percentage of the independent BOD. Islamic banks in Indonesia use a two-tier system, so there is a clear separation between executives and non-executives. This non-executive board is called the board of commissioners. Therefore, we used the number of members of the board of commissioners (BOARDSIZE) and the ratio of independent commissioners to all boards of commissioners (BOARDIND) as proxies in measuring the BOD attribute. We developed this method from (Basiruddin & Ahmed, 2019; Najwa et al., 2019; Jia et al., 2019).

The Risk Officer (RO) variable is measured by the independence of RO members (ROIND). It is measured by the ratio of the number of independent RO members to the number of RO members. We developed this method from Najwa et al. (2019) and Lee et al. (2020), who emphasized the role of the CRO. We made this modification because of the effectiveness of supervision carried out by all RO members because certain policies were taken based on the approval of the entire board (Ahn et al., 2010). The audit committee (AUDITSIZE) is measured by the number of audit committee members (Aslam & Haron, 2021).

Business competition indicators are measured by the Lerner index (LERNER; Alam et al., 2019). Lerner is used to expressing the degree of market power when assessing the pricing power of a monopoly. Lerner is measured by the price minus the Marginal Cost (MC). Referring to Alam et al. (2019), MC is the derivative of Total Cost (TC) function to quantity. Learner's score is 0 to 1 where a high score indicates the bank has greater monopoly power. A large Lerner indicates low competition.

$$Lerner_{i,t} = \frac{Price_{i,t} - MC_{i,t}}{Price_{i,t}}$$

In addition to the two types of variables, this study also used control variables, i.e., (1) (1) income diversity (INDIVER) as measured by the ratio of non-business income compared to bank financing income (Salma & Younes, 2014; Mateev & Bachvarov, 2021); (2) Capital ratio (EQUITY) as measured by the ratio of equity to assets (De Vita & Luo, 2018); and (3) total assets (SIZE) as measured by the logarithm of total assets.

Panel data regression processed all research data with a fixed effect model or random effect model. The selection of the model used in answering the hypotheses is based on the results of the Hausman test where if the probability result is >0.05, then the model used is FEM; and vice versa if the probability is <0.05, then the model used is REM. Before testing the model, we also conducted multicollinearity, heteroscedasticity, and autocorrelation test. The research model is as follows:

$$\begin{aligned} NHIR_{i,t} = {} & \beta_0 + \beta_1 SSBSIZE_{i,t} + \beta_2 \mathrm{SYARIAHEXPERT}_{i,t} + \beta_3 \mathrm{BOARDSIZE}_{i,t} + \beta_4 \mathrm{BOARDIND}_{i,t} \\ & + \beta_5 \mathrm{ROIND}_{i,t} + \beta_6 \mathrm{AUDITSIZE}_{i,t} + \beta_7 \mathrm{LERNER}_{i,t} + \beta_7 \mathrm{CONTROL}_{i,t} + \varepsilon \end{aligned} \tag{1}$$

We also tested SSB and BOD individually for the consistency of the effects of these two boards. We created a second equation using only SSB and a third using BOD.

$$\begin{aligned} NHIR_{i,t} = {} & \beta_0 + \beta_1 SSBSIZE_{i,t} + \beta_2 \mathrm{SYARIAHEXPERT}_{i,t} + \beta_3 \mathrm{ROIND}_{i,t} + \beta_4 \mathrm{AUDITSIZE}_{i,t} \\ & + \beta_5 \mathrm{LERNER}_{i,t} + \beta_6 \mathrm{CONTROL}_{i,t} + \varepsilon \end{aligned} \tag{2}$$

$$\begin{aligned} NHIR_{i,t} = {} & \beta_0 + \beta_1 \mathrm{BOARDSIZE}_{i,t} + \beta_2 \mathrm{BOARDIND}_{i,t} + \beta_3 \mathrm{ROIND}_{i,t} + \beta_4 \mathrm{AUDITSIZE}_{i,t} + \beta_5 \mathrm{LERNER}_{i,t} \\ & + \beta_6 \mathrm{CONTROL}_{i,t} + \varepsilon \end{aligned} \tag{3}$$

4. Empirical results and analysis

4.1. Descriptive statistics

This study used the ratio of interest income to total bank income from bank financing to measure the ILCR. Table 1 shows that the sample has an average NHIR of 5.496% with a standard deviation of 23.587, and this score indicates a high heterogeneity of NHIR. The sample has an SSBSIZE of 2 to 3 people. More samples have 2 SSB members and have low heterogeneity (standard deviation score 0.485). The sample also has a BODSIZE between 4 to 6 people, and 67.3% percent of BOD are independent. This BODINP also dominates their position as RO because 83.7% are independent. The audit committee members are between 3 to 4 people and more samples have 4 people. BODSIZE, BODIND, ROIND, and AUDIT have a low standard deviation (below 0.6) and indicate that the four variables have low heterogeneity. Table 2 also shows that the sample has a Lerner mean of 0.548, indicating slightly better competition. The Lerner index shows numbers 1 to 0, where 1 indicates a monopoly situation (Salma & Younes, 2014). The LERNER standard deviation score was low and showed low heterogeneity.

Table 1. Details of the research sample

Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Banks that report non-halal income	4	7	8	8	10	11	11	11	11	11	11

The correlation test result between independent variables were used to test the feasibility of each variable to be used as an independent variable to explain the dependent variable. The allowed correlation between independent variables is not greater than 0.8.

The correlation test result in Table 3 shows that the largest correlation is 0.791 (the correlation between SSBSIZE and BODSIZE). However, this correlation is still below 0.8 and indicates that both variables (SSBSIZE and BODSIZE) can be used for independent variables.

Average variance inflation factors (VIF) test result average score 1.74 (below 10) dan indicates that no multicollinearity exists in the data.

The Wald test for groupwise heteroskedasticity resulted in a probability of 0.000. Also, the Wooldridge test for autocorrelation in panel data resulted in a probability of 0.000. The results of this test indicate a problem of heteroscedasticity and autocorrelation existing in the data. Following Azad et al. (2020), we use the robust standard error to heteroscedasticity and serial (cross-sectional) correlation to overcome the problem of heteroscedasticity and autocorrelation.

4.2. Regression results

The results of the panel data test with the FEM and REM models are presented in Table 4.

The results of the panel data test show that SSBSIZE has a coefficient of 17.28 and std error of 87.05. The significance value is 0.84, and the probability value is > 0.01, indicating that SSBSIZE does not influence NHIR. By eliminating the role of BOD, the second model also shows that SSBSIZE has a coefficient of 33.09 with a significance of 0.68 > 0.1 and shows that SSBSIZE does not influence NHIR.

SSB's expertise in Islamic law (SYARIAHEXPERT) shows the coefficient value of 595.21, standard error of 141.12, and significance value of 0.00 (less than 0.01). This result indicates that SYARIAHEXPERT expertise has a positive influence NHIR. The second equation also shows a coefficient value of 585.28 and a probability of 0.00 < 0.01. The test results of these two models show that SYARIAHEXPERT positively influences NHIR.

To measure the effectiveness of BOD, we used two indicators, i.e., BODSIZE and BODIND. Table 5 of the first equation shows that BODSIZE has a coefficient of 44.45 and a probability of 0.45. The third equation shows that BODSIZE has a coefficient of −31.11 and a probability of 0.55 > 0.1. From these two equations, BODSIZE is shown to be unable to control NHIR.

The results were the same when we used the BODIND ratio proxy. The first equation produces a coefficient of 66.69 with a probability of 0.66. The third equation produces a coefficient of 55.74 and a probability of 0.72. These two equations produce probability >0.1 and show that BODINP does not influence on NHIR.

The ROIND variable produces a coefficient of −448.28 with a significance of 0.00. The second equation shows a coefficient of −440.87 and a probability of 0.00. The third equation produces a coefficient of −372 and a probability of 0.01. These three equations produce a significance value of <0.01. The results of this test show that ROINDEP had a negative influence NHIR.

Table 2. Descriptive statistic

	NHIR	SSB SIZE	SYARIAHEXPERT	BODSIZE	BODIND	RO IND	AUDIT	LERNER	INDIVER	EQUITY	ASSETS (Billion Rp)
Mean	5.496	2.367	0.765	4.478	0.673	0.837	3.532	0.548	0.128	0.290	19,600
Median	0.009	2.000	0.667	4.000	0.750	1.000	4	0.449	0.103	0.118	7,050
Maximum	61.406	3.000	1.000	6.000	1.000	1.000	4	1.000	0.669	0.601	112,000
Minimum		2.000	0.333	4.000	0.400	0.250	3	0.374	0.000	0.012	511
Std. Dev.	23.587	0.485	0.241	0.585	0.139	0.220	0.501	0.536	0.111	0.085	25,500
Skewness	0.490	0.553	−0.178	0.764	0.148	−1.103	−0.128	0.334	1.993	1.234	1.647
Kurtosis	2.804	1.306	1.293	2.594	2.926	3.114	1.016	1.779	8.887	4.940	4.831

Table 3. Correlation between independent variables

	SSB SIZE	SYARIAH EXPERT	BODSIZE	BODIND	RO IND	AUIDT	LERNER	INDIVER	EQUITY	LOG (ASSETS)
SSBSIZE	1.000									
SYARIAHEXPERT	0.123	1.000								
BODSIZE	0.791	0.162	1.000							
BODIND	−0.257	−0.500	−0.361	1.000						
ROIND	−0.300	−0.207	−0.217	0.228	1.000					
AUDIT	0.083	0.111	0.139	−0.162	−0.217	1.000				
LERNER	0.086	−0.100	0.086	0.123	0.037	0.114	1.000			
INDIVER	0.130	0.224	0.126	−0.172	−0.015	−0.081	−0.551	1.000		
EQUITY	0.119	−0.028	0.041	−0.047	−0.013	0.142	0.023	0.059	1.000	
LOG(ASSETS)	0.381	0.106	0.526	−0.164	−0.025	0.239	−0.121	0.092	−0.384	1.000

Table 4. Fixed effect model test results

Variables		Model 1	Model 2	Model 3
SSBSIZE	Coefficient	17.28	33.09	-
	Std. Error	87.05	80.67	-
SYARIAHEXPERT	Coefficient	595.21	585.28	-
	Std. Error	141.12***	139.27***	-
BODSIZE	Coefficient	44.45	-	−31.11
	Std. Error	58.89	-	51.81
BODIND	Coefficient	66.69	-	55.74
	Std. Error	149.28	-	156.01
ROIND	Coefficient	−448.28	−440.87	−372.00
	Std. Error	149.24***	146.36***	133.60**
AUDIT	Coefficient	−59.64	−57.55	−83.24
	Std. Error	30.62*	30.23*	30.95**
LERNER	Coefficient	15.45	15.58	16.49
	Std. Error	3.36***	3.32***	3.60***
INDIVER	Coefficient	−210.41	−227.27	−47.55
	Std. Error	180.56	177.51	183.68
EQUITY	Coefficient	19.52	19.47	51.37
	Std. Error	33.25	32.92	29.54*
LOG(ASSETS)	Coefficient	−1.41	−0.01	26.11
	Std. Error	32.72	32.25	26.00
C	Coefficient	46.89	208.72	49.83
	Std. Error	1094.25	1064.73	809.34
Robust standard error		Yes	Yes	Yes
Adjusted R^2		0.6719	0.5393	0.4292

*** sig.at 1%; ** sig. at 5%; * sig at 10%

The influence of ROIND is the same as the AUDIT presented in Table 4, which shows that the first equation produces a coefficient of −59.64 and a probability of 0.06. The second equation produces a coefficient of −57.55 and a significance of 0.06, and the third equation produces a coefficient of −83.24 with a significance of 0.01. The results of these three equations produce consistent results with negative coefficient values and probability <0.1. These results indicate that AUDIT has a negative influence NHIR.

The test results of the influence of market competition (LERNER) on non-halal income produce a coefficient of 15.45 and a probability of 0.00 (the first equation); coefficient 15.58 and probability 0.00 (second equation); and coefficient 16.49 and probability 0.00 (third equation). The three equations show consistent results where LERNER has a positive coefficient and probability <0.01. These results indicate that market competition has a positive and high impact on NHIR.

4.3. Discussion

The result of the first hypothesis test shows that the number of SSB members does not influence the ILCR. This result indicates that the number of SSB members is less able to monitor bank policies to avoid non-halal income. There are indications that SSB supervision is less effective, and the ineffectiveness of this supervision may be due to communication and coordination problems among SSBs. The ineffectiveness of supervision from the SSB is also evidenced by Isa and Lee

Table 5. Robustness test

Variables		Model 1	Model 2	Model 3
SSBSIZE	Coefficient	−87.89	−45.51	-
	Std. Error	55.47	62.61	-
SYARIAHEXPERT	Coefficient	164.66	392.61	-
	Std. Error	69.29**	114.47***	-
BODSIZE	Coefficient	−29.35	-	3.90
	Std. Error	46.71	-	61.24
BODIND	Coefficient	208.17	-	45.17
	Std. Error	124.81	-	165.07
ROIND	Coefficient	−209.54	−325.64	−550.22
	Std. Error	74.76**	124.04**	164.12***
AUDIT	Coefficient	−155.07	−77.52	−64.81
	Std. Error	21.65***	27.68**	34.04*
LERNER	Coefficient	5.96	14.76	18.06
	Std. Error	2.97**	3.26***	3.67***
INDIVER	Coefficient	52.87	−189.45	−32.62
	Std. Error	151.30	168.66	195.08
EQUITY	Coefficient	45.68	29.29	56.84
	Std. Error	20.28**	27.36	35.67
LOG(ASSETS)	Coefficient	38.46	7.73	32.38
	Std. Error	14.54**	24.50	35.28
C	Coefficient	−286.27	252.49	−183.09
	Std. Error	389.84	754.86	1187.25
Robust standard error		Yes	Yes	Yes
Adjusted R^2		0.2066	0.2281	0.1082

*** sig.at 1%; ** sig. at 5%; * sig at 10%

(2020), Basiruddin and Ahmed (2019), Najwa et al. (2019), and Lassoued (2018), who showed that the amount of SSB is not able to reduce bank risk. Banks that have the large number of SSB members allow banks to choose SSB members who have various backgrounds. However, a large number of SSBs will cause coordination problems, ineffective communication, and free-riders (Abou-el-sood, 2019; Zeineb & Mensi, 2018).

Banks that have SSB with Islamic law expertise have a positive influence on ILCR. This result indicates that SSB with Islamic law expertise will recommend directors to increase transactions with CB and from this transaction will earn interest income (non-Islamic law income). The policy was taken because bank regulators in Indonesia allowed IBs to open services at CB offices to increase market share (Bank Indonesia Regulation Number 9/7/PBI/2007; Arif, 2014). The low market share of IBs in Indonesia has caused regulators to give IB freedom to work with CBs, especially in expanding customer service. However, the Indonesian Ulema Council requires this non-halal income to be channeled into bank social activities. However, this policy must be handled carefully because it can increase the ILCR.

BOD size and independent BOD did not influence ILCR. This result also indicates the ineffectiveness of BOD in supervising and controlling directors' policies in transactions with conventional banks. This result confirms Najwa et al.'s (2019), Abou-el-sood's (2019), and Lassoued's (2018) finding that BOD size did not influence bank risk-taking. In addition, this finding also corroborates

El-Masry et al. (2016) and Aljughaiman and Salama (2019) finding that independent BOD does not influence bank risk-taking.

This study has provided evidence that independent RO negatively influences ILCR. This finding indicates that RO has worked effectively and has carried out its duties. RO has the task of evaluating risk and recommending policies, strategies, and risk management to the directors as well as making recommendations to avoid transactions that can increase the risk of Islamic law compliance. The implementation of the tasks completed by this RO impacts the director's policy to avoid risk (Najwa et al., 2019).

The number of audit committees has a negative influence ILCR. This finding also shows the effectiveness of the audit committee in carrying out the supervisory function of bank finances (Musallam, 2020). This effective audit committee can direct IBs to avoid policies that have the potential to increase the ILCR. This finding also strengthens Nguyen's (2021) and Younas et al.'s (2019) notion that the effectiveness of the oversight of the audit committee will avoid risk.

The results of this study also show that the Lerner index has a positive influence on the ILCR. This finding is in line with Louhichi et al. (2019) that market competition will influence bank risk-taking. This finding indicates that a high Lerner value indicates low market competition, while a high NHIR indicates a high ILCR. The positive coefficient on the relationship between the two shows that low business competition causes banks to take policies that can increase the ILCR. There is a tendency for banks to practice monopoly (due to low competition), be able to dominate the market, have loyal customers, and these conditions cause increased cooperation with CBs to expand IB services by opening service offices in CBs. This policy will increase the ILCR. This condition may be different if the bank is in high competition, so the director will increase the ILCR because it can increase customers' interest to use IB services.

4.4. Robustness test

We performed a robustness test by analyzing the *Random Effect Model* (REM) method. The first, second, and third equations above, the results of the REM test are presented in Table 5 below:

The results of this robustness test give the same results as the previous test. Table 5 confirms the finding that SSB size, BOD size, independent BOD do not influence ILCR. SSB's expertise in the Islamic law sector is proven to have a positive influence ILCR. The independent audit committee and RO are also proven to reduce the ILCR. Table 5 also corroborates the finding that low market competition will increase the ILCR.

5. Conclusion and policy recommendations

5.1. Conclusion

This study explains the role of SSB, BOD, RO, and AC on the particular risk of IB, i.e., the ILCR. In addition, we also explain the influence of business competition on this risk. The results showed that ILCR could be controlled by increasing the number of audit committee members and the ratio of independent RO members. SSB size, BOD size, and independent BOD are not proven to reduce the ILCR. In addition, we also find that low business competition causes banks to increase the ILCR. Banks that practice monopoly (due to low competition) can dominate the market and have loyal customers. This condition causes banks to increase cooperation with CBs to expand IB services by opening service offices in CBs and subsequently increase the ILCR.

SSB and BOD are essential boards in the corporate governance structure of IBs and are not proven to influence the ILCR. The result shows that the size of non-halal income has not been the object of supervision by these two boards. There is a possibility that IBs use non-halal income for social activities, and the regulator has indeed regulated this. However, this IB investment in CB allows it to be used to finance industrial sectors that are not Islamic law-compliance. Therefore, we suggest that SSB and BOD increase their supervision on this non-halal income. In addition, the regulator can also play a role in overseeing the cooperation between IB and CB, which tends to increase the ILCR.

5.2. Research implication

Agency problems in IBs can arise when directors adopt policies that ignore Islamic law compliance to increase revenue (Zainuldin et al., 2018). Meanwhile, customers have an interest in being able to transact or obtain profit-sharing following Islamic law. To reduce this agency problem, the supervisory role of SSB, audit committee, and RO can reduce this agency problem. SSB, which has the primary function to ensure that bank operations are under Islamic law, has not been proven in this study. Therefore, it is necessary to increase the role of SSB and BOD in carrying out their functions as supervisors and consultants can reduce the ILCR.

The results of this study indicate that the SSB, which is proxied by the number of members and the ratio of the SSB with shariah expertise, is not able to control the ILCR. BOD as measured by the number of members and the ratio of independent commissioners, does not reduce the ILCR. These results indicate the ineffectiveness of the SSB and BOD functions in controlling ILCR. Here there is a possibility that the ILCR has not been a concern of bank directors. Islamic bank regulators are required to issue strict rules related to compliance risk. Regulators can formulate indicators of shariah compliance that are more than the qualitative expression of the SSB (SSB report). In addition, regulators can add shariah compliance as one of Islamic banks' primary performance assessments.

This ILCR is proxied by non-halal income received by the bank. In countries that use dual banking systems, cooperation between IB and CB is unavoidable. However, this cooperation needs to be properly monitored by regulators to minimize non-halal income. Although the income from the IB's investment in BC is used as a social activity, this investment is profitable for CB. It allows CB to reinvest in financing that is not permitted by Islamic law.

This paper extends the previous studies on evaluating the risk-taking of Islamic Banks beyond the standard risk, which is mainly the particular risk faced by Islamic banks. Research studies on risk are not only limited to general types of risks such as insolvency, liquidity, market, and other risks. However, this study is expanded by adding shariah compliance risk as a particular risk assessment for Islamic banks.

5.3. Limitations

This study measures the ILCR based on non-halal income. Although this non-halal income will be used for social activities following regulatory regulations, the income derived from this cooperative transaction between the IB and CB can erode the trust of IB customers. Therefore, this collaboration must be done carefully. We also suggest that future researchers develop other indicators to measure the ILCR.

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Author details
Hasan Mukhibad[1]
E-mail: hasanmukhibad@mail.unnes.ac.id
ORCID ID: http://orcid.org/0000-0001-8979-5169
Ahmad Nurkhin[1]
Kuat Waluyo Jati[1]
Prabowo Yudo Jayanto[1]

[1] Economics Faculty, Universitas Negeri Semarang, Semarang, Indonesia.

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