



Women in the Boardroom and Financial Soundness-Study at Islamic Banks in Southeast Asia

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Abstract. The study of gender diversity of Islamic bank boards (Board of Directors-BOD and Shariah Supervisory Board-SSB) is still limited. The aim of this study is to empirically prove the effect of gender diversity on the board (BOD and SSB) on financial soundness. We use unbalanced panel data on 38 Islamic banks in 5 countries in Southeast Asia with an observation period of 2010–2019. Using Random-effects GLS regression, we found that BOD and SSB gender diversity did not affect financial soundness. However, we found that women in SSB members strengthened the positive effect of BOD gender diversity on financial soundness. The corporate governance structure of Islamic banks, BOD and SSB are jointly involved in making bank business decisions. SSB as a multi-layer governance and completes the duties of BOD as supervisor and advisor in bank operations. The presence of women as SSB members strengthens the relationship between BOD gender diversity and financial soundness. Our results are robust after performing the 2SLS test to address the possible endogeneity problem.

Keywords: Gender Diversity · Islamic bank · Financial Performance · Financial soundness

1 Introduction

Islamic banks (IB) carry out profitable and Shariah-compliant business operations. A business environment more suited to conventional bank (BC) operations causes IBs to face complex operations [1]. IB is not easy to invest in bank funds when there is excess liquidity because not all investment instruments are Shariah-compliant. IB's risk is getting bigger because IB provides services to customers with economic motivation rather than religious motivation. IB customers will transfer their funds when the IB cannot provide competitive profit sharing than interest [2, 3]. An environment that does not support IB operations causes IBs not to be able to operate ideally according to Shariah.

The complexity of IB operations is why researchers explore the bank financial soundness. Khalil and Taktak [4] use the characteristics of SSB (number of members, expertise in finance/accounting, presence of a Mufti, interlock, foreign) to explain the financial

soundness of an IB. They found that financial soundness was negatively affected by the number of SSBs, and no other SSB indicators (presence of the Mufti, interlocked, foreign members) affected financial soundness. Lassoued [4] uses the number of independent BOD and SSB, and BOD to explain the financial soundness of IB. They found that independent board of directors (BOD) positively impacted on financial soundness. However, the number of SSB and BOD does not affect on financial soundness. Khalil and Slimene [4] found different results that an independent BOD negatively impacted IB's financial soundness, while CEO duality positively affected IB's financial soundness. Other characteristics of the BOD (foreign director, institutional director, chairman with a Shariah degree, interlocked chairperson, and the Board of Directors size) do not affect the financial soundness of IB.

Corporate governance establishes a control mechanism, and reduces agency, and ensures the interests of stakeholders [4, 5]. Researchers used various indicators of BOD and SSB but were limited to gender characteristics [4]. In the economic-psychological literature, having a female board avoids potential bankruptcy because women avoid 'risk experimentation', 'intellectual risk taking', and 'gambling' [4]. In addition, women are less likely to make risky policies [6] and are more conservative in making investment decisions [6]. In the agency conflict approach, women's boards are more effective in monitoring the performance of directors than men's boards [7], so women's boards have a positive impact on corporate performance [6, 8].

SSB is an independent board and specifically exists at IBs [4]. SSB plays an important role as an internal control mechanism with the task of supervising the activities of Islamic banks [9], being responsible for Shariah compliance, and managing risks that can threaten the sustainability of the bank [10, 11]. Khalil and Slimene [12], Khalil and Taktak [4], and Lassoued [13] have proven the role of SSB in influencing the financial soundness of IB. However, researchers have not explained the role of SS gender diversity in influencing the financial soundness of IB. In line with the opinion of Jabari and Muhamad [7] and Adams and Ferreira [13] that women's boards are more effective in monitoring, we argue that gender in SSB positively influences on financial soundness.

Previous studies were still limited to examining the effect of SSB gender diversity on bank performance. We only found two studies by Jabari and Muhamad [7, 14]. Jabari and Muhamad [7] use gender diversity of BOD and SSB as factors that affect bank financial performance. Using a sample of 14 Islamic banks in Indonesia and 16 in Malaysia, they did not find a weak gender role of BOD and SSB to increase bank ROAA and ROAE. Jabari and Muhamad [14] examined the effect of BOD and SSB gender diversity on insolvency risk and bank credit. Their study using 85 banks from 26 countries found a weak role of BOD and SSB gender diversity on risk and they only found the effect of women's BOD percentage on the risk of insolvency. From the findings above, it can be concluded that the gender diversity of BOD and SSB in Islamic banks cannot increase the effectiveness of the board in carrying out its role as supervisor and consultant for other boards in bank management.

Jabari and Muhamad [14] consider that the SSB is a unique board in Islamic banks which has the task of supervising and guaranteeing the compliance of bank operations according to Islamic law. In carrying out its duties, SSB is often involved with BOD because product evaluation must pay attention to economic advantages and compliance

with Shariah. In addition, banks involve SSB in product innovation, and bank risks are attached to these products [15]. Board decisions are generally made collectively between managers, BOD and SSB [16]. Based on this assumption, we argue that SSB gender diversity strengthens the relationship between BOD gender diversity and bank financial performance.

This study contributes in two ways. We contribute to the development of literature on the role of BOD and SSB gender diversity in Islamic banks on the financial performance of banks. Second, we fill the gap by providing evidence and explaining how the gender role of SSBs affect financial performance. Previous studies did not prove the role of SSB's gender on financial performance and risk-taking.

In the section below, we present the theoretical framework and hypothesis development. Sample description, variable measurement methods, and data analysis are described in chapter three. The fourth section describes the results of the study, and our final section describes the conclusions, recommendations, and limitations of the study.

2 Theories and Hypotheses

Recently, companies have come under public pressure to increase gender diversity, and several European countries (Belgium, France, Norway, and Italy) have passed laws requiring more female board representatives for specific companies [17]. This policy was taken due to the limited number of women in the company's top management [14]. PwC's 2018 Annual Corporate Directors Survey shows that 72–94% of directors argue that diversifying corporate boards provides new perspectives to boards, improves performance, improves investor relations, and avoids risky policies [17]. However, the results of this survey show that 26–48% of directors think that shareholders are too busy with board diversification and argue that board diversity results in unnecessary nominations of candidates and ignores the criteria for board members. The public push for gender equality on the board led to a growth in the number of women serving in the top management of companies. Nili [18] reports that the proportion of female directors in 2017 was 11.9%, increasing to 16.5% in 2015.

In the psychological-economic theory approach, men and women have different risk-taking tendencies, where women tend to avoid risk [19]. In addition, women's boards are more effective in substantively monitoring the performance of directors than men [7]. Byrnes et al. [20] reported that entities that have female boards would avoid potential bankruptcy because women avoid risky experimentation, risk-taking, and gambling-prone policies. Thus, women are less likely to make risky policies [6, 21]. Furthermore, Cardillo et al. [8] found that the presence of women's boards improves the financial performance of the company.

H1: BOD gender diversity has a positive effect on financial soundness.

SSB is an additional board in Islamic banks. *The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI)*, in its governance standard number 1, states that the SSB is an independent board that has the task of directing, reviewing, and

supervising bank operations to comply with Shariah law and principles [22]. To carry out its duties, SSB cooperates with other boards so that SSB is often involved in making bank business decisions. SSB can recommend banking products with low risk to other boards. SSB is a consultant and supervisor for other boards, so SSB has a function like BOD. Based on the perspective of psychological-economic theory and RDT, women's boards provide a different perspective than men's, so women are valuable resources to improve the performance of boards and companies. On this basis, and following the opinions of Jabari and Muhamad [7, 14], we develop the following hypothesis:

H2: SSB gender diversity has a positive influence on financial soundness.

3 Method

The sample of this study is 38 full-flagged Islamic banks in 5 countries in Southeast Asia with an observation period of 2010–2019. We omit Islamic windows (of conventional banks) because these banks do not publish separate financial statements from conventional banks [14]. We use unbalanced panel data on 362 bank-years.

We use the z-score as an indicator of financial soundness. Z-score measures bank stability [13] and a stable bank indicates that the bank is far from bankruptcy and good financial soundness [12]. A high z-score indicates that the bank has high financial soundness [12] (Table 1).

Estimation method:

$$Z\text{-score}_{1,t} = \beta_0 + \beta_1 \text{GPBOD}_{1,t} + \beta_2 \text{GPSSB}_{1,t} + \beta_3 \text{control}_{1,t} + \varepsilon \quad (1)$$

$$Z\text{-score}_{1,t} = \beta_0 + \beta_1 \text{GDBOD}_{1,t} + \beta_2 \text{GDSSB}_{1,t} + \beta_3 \text{control}_{1,t} + \varepsilon \quad (2)$$

4 Results

4.1 Descriptive Analysis

Table 2 presents a descriptive analysis of all variables. Table 2 shows that the sample has an average high financial soundness (mean 129.935) and indicates that the sample has a low risk of bankruptcy. Our sample has a low credit risk (mean NPL is 3.75%). The low NPL supports the increase in z-score.

Table 2 shows that 59.3% of the sample had a female BOD. However, this female BOD is only 2.46% of all BOD members. 59.1% of the sample had female SSB members. However, the percentage of female SSB is still minimal, namely 2.28%.

4.2 Regression Analysis

The results of the regression test are presented in Table 3. Breusch and Pagan lagrange multiplier (LM) test models 1 and 2 produce a p-value of 0.000 and indicate heterogeneity of data between banks. The results of this test do not recommend data analysis using

Table 1. Measurement variables

Variable	Definition	Measurement	References
Dependent Variables			
z-score	Financial Soundness	$Z - Score_{t,1} = \frac{ROAA_{t,1} + CAR_{t,1}}{\sigma ROA_{t,1}}$ A higher Z-score indicates that the banks have higher financial soundness	[12, 23]
Independent Variables			
GPBOD	The percentage of women on the BOD	The percentage of women sitting on the BOD.	[7, 14]
GDBOD	the presence of women on the BOD	It takes a value of 1 when at least one woman sits on the BOD and 0 otherwise (dummy).	[7, 14]
GDSSB	the presence of women on the SSB	It takes a value of 1 when at least one woman sits on the SSB and 0 otherwise (dummy).	[7, 14]
GPSSB	The percentage of women on the SSB	The percentage of women sitting on the SSB.	[7, 14]
Control Variables			
BODSIZE	The number of BOD members.	The total number of members on the BOD	[7, 14]
SSBSIZE	The number of SSB members.	The total number of members on the SSB	[7, 14]
NPL	Non-Performing Loan	$NPL_{t,1} = \frac{Badloan_{t,1}}{Loan_{t,1}}$	[14]
DIVER-INCOME	Income diversity	Ratio of non-financing income to total operating income	[24]
LOAN	Loan ratio to assets	$LOAN_{t,1} = \frac{Loan_{t,1}}{Asset_{t,1}}$	[25]
GDP	GDP Growth	The annual growth rate of per capita GDP in percentage.	[26]
INF	inflation	The annual inflation in percentage.	[27]

Ordinary Least Square (OLS). Hausman test on both models yielded a p-value of more than 0.05, so it is recommended to use random-effects generalized least squares (GLS) regression. Models 1 and 2 were analyzed using random-effects GLS regression. The

Table 2. Descriptive analysis.

Variables	Mean	Std. Dev.	Min	Max
z-core	129.93	165.98	0.09	856.30
GDBOD	0.593	0.492	0.000	1.000
GDSSB	0.591	0.492	0.000	1.000
GPBOD	2.46	5.96	0.00	40.00
GPSSB	2.28	8.46	0.00	60.00
BODSIZE	8.14	1.77	4.00	14.00
SSBSIZE	4.01	1.54	2.00	6.00
NPL	3.75	6.85	0.00	73.97
DIVER_INCOM	24.59	30.62	-38.81	408.33
LOAN	61.44	15.41	7.82	87.63
GDP	5.19	1.32	-2.51	14.52
INF	2.96	1.75	-1.26	6.41

Variance Inflation Factor (VIF) test results in models 1 and 2 resulted in an average VIF score of 1.39. This VIF score is less than 0.10 and indicates no multicollinearity problem in the model. The results of the modified Wald test resulted in a p-value score of less than 0.05 and indicated the presence of heteroscedasticity. In addition, the Wooldridge test produces a p-value score of more than 0.06, indicating that the model does not have autocorrelation.

Table 3 shows that GPBOD produces a coefficient of 0.459, a robust standard error of 0.360, and a significance of more than 0.10. These results indicate that the percentage of women on the BOD has no effect on the z-score. The same result is also presented in model 2, where GDBOD produces a coefficient of 2.734, a robust standard error of 2.141, and a significance of more than 0.10. These results also show that the presence of women on the BOD does not affect the z-score. The test results of these two models indicate that the presence of women as members of the BOD does not affect the performance of the board in supervising the performance of directors to improve financial soundness. The results of this study support the findings of Farag and Mallin [29] that men and women may have the same preference for risk, implying that gender has no effect on risk-taking. The results of this study are consistent with the findings of Jabari and Muhamad [14], Khan et al.[30], and Adams and Ferreira [31] who found that the presence of women's boards did not affect risk.

Table 3 shows that GPSSB produces a coefficient of -0.093, a robust standard error of 0.239, and a significance of more than 0.10. These results indicate that the percentage of women on the SSB does not affect the z-score. The same result is also presented in model 2, where GDSSB produces a coefficient of 2.734 robust standard error of 2.141 and a significance of more than 0.10. These results also show that the presence of women on the SSB does not affect the z-score. These results also show that there is no difference in board performance between men and women [29]. The results of this study corroborate

Table 3. Regression Analysis.

	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.
GPBOD	0.459	0.360	–	–
GPSSB	–0.093	0.239	–	–
GDBOD	–	–	2.734	2.141
GDSSB	–	–	–0.787	2.023
BODSIZE	–1.881**	0.875	–1881**	0.875
SSBSIZE	1.178	1.172	1.178	1.172
NPL	–0.072	0.069	–0.072	0.069
DIVER_INCOM	0.047***	0.010	0.047***	0.010
LOAN	–0.068	0.108	–0.068	0.108
GDP	0.277	1.022	0.277	1.022
INF	–1.950*	1.124	–1.950*	1.124
COUNTRYDUMMY	–11,470	22.131	–11,470	22.131
YEARDUMMY	0.759	0.478	0.759	0.478
_cons	159,787***	51.843	160,705***	51,685
Breusch and Pagan LM Test (P-value)	0.000		0.000	
Woodridge Test	0.065		0.065	
VIF (Mean)	1.39		1.39	
Modified Wald test (P-value)	0.000		0.000	
Hausman (P-value)	0.823		0.823	
R-Square	0.060		0.063	
N	362		362	

***, **, * sig. at 1%, 5%, and 10%. We use the robust standard error to solve the problem of heteroscedasticity [28]

the findings of Jabari and Muhamad [14] that the presence of women and the percentage of women on the SSB does not affect the z-score.

4.3 Additional Test

Table 3 shows that the presence of women and the percentage of women on the BOD and SSB does not affect the performance of the board and the performance of the company. This result is inconsistent with RDT and the psychological-economic theory that the presence of women brings unique resources that can improve the decision-making process because board members have unique information and high-quality resources [32]. In addition, SSB has the main task of ensuring the compliance of bank operations with

Table 4. Moderating Regression Analysis.

	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.
GDBOD*GDSSB	–	–	0.225	3.170
GPBOD*GPSSB	1.758*	0.912	–	–
GPBOD	0.350	0.342	–	–
GPSSB	–0.331	0.281	–	–
GDBOD	–	–	2.760	2.177
GDSSB	–	–	–0.779	2.010
BODSIZE	–1.966**	0.885	–1.877**	0.875
SSBSIZE	0.943	1.180	1.191	1.139
NPL	–0.084	0.063	–0.072	0.070
DIVER_INCOM	0.050***	0.010	0.047**	0.010
LOAN	–0.062	0.108	–0.067	0.109
GDP	0.367	0.980	0.272	1.023
INF	–2.169*	1.164	–1.950*	1.130
COUNTRYDUMMY	–10,522	21.858	–11,500	22.103
YEAR DUMMY	0.758	0.470	0.756	0.473
_cons	160,180***	51,607	160,458***	51.751
Breusch and Pagan LM Test (P-value)	0.000		0.000	
Woodridge Test	0.065		0.059	
VIF (Mean)	1.52		4.69	
Modified Wald test (P-value)	0.000		0.000	
Hausman (P-value)	0.859		0.962	
R-Square	0.063		0.060	
N	362		362	

***, **, * sig. at 1%, 5%, and 10%. We use the robust standard error to solve the problem of heteroscedasticity [28]

Shariah [33, 34]. Therefore, the SSB members who have clerical backgrounds and religious experts collaborate with other boards in carrying out its functions. On this basis, we argue that SSB moderates the relationship between BOD and financial soundness.

Table 4 shows the results of moderating regression analysis. The GDBOD*GDSSB moderation test resulted in a coefficient of 0.225, a robust standard error of 3.170, and a p-value of more than 0.10. This test did not find that the presence of women on the SSB did not strengthen the influence of the presence of women on the BOD on financial soundness. The GPBOD*GPSSB moderation test resulted in a coefficient of 0.225, a robust standard error of 3.170, and a p-value of less than 0.10. This test indicates that the

Table 5. 2SLS Estimation.

	Model 1		Model 2		Model 3		Model 4	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
GPBOD	20.693	19,775	-32.835	38.333	-	-	-	-
GPSSB	-3.384	2.917	5.865	11.784	-	-	-	-
GDSSB	-	-	-	-	3.831	4.710	-3.819	4.589
GDBOD	-	-	-	-	-3.862	4.688	3.745	4.559
BODSIZE	-3.136	8.767	-16.03	25,741	-0.953	11,553	1.110	9.803
SSBSIZE	4.459	12,399	37,122	29,356	14,038	11,595	14,490	11,539
NPL	-2.214	1.702	-3.714	2.512	-2.657	2.167	-3.049	2.042
DIVER_INCOM	-0.200	0.376	-0.583	0.604	-0.442	0.502	-0.413	0.484
LOAN	0.007	1.372	-0.626	2.664	0.553	1.333	0.642	1.245
GDP	-3.047	14,277	-39.910	60,517	44,863	43,640	45,345	43,749
INF	-21,468***	8.181	-28,575*	14,565	-34,547*	19,551	-34,024*	18,827
COUNTRYDUMMY	-68.097*	40,729	-15,761	21,784	-60,336	40,033	-61,956	41,371
YEARDUMMY	-6.785	6.375	-1.241	6.311	7.983	12,550	8.375	12.845
_cons	331,944	272,458	558,850	651,485	-6.520	151,751	-7.794	150,986

***, **, * sig. at 1%, 5%, and 10%. Models 1, 2, 3, and 4 are GPBOD, GPSSB, GDSSB, GDBOD as instrumented variables

percentage of women on the SSB strengthens the relationship between the percentage of women on the BOD and financial soundness.

Table 4 shows that the percentage of women on the SSB strengthens the relationship between the percentage of women on the BOD and financial soundness. This finding indicates that female BOD and SSB coordinate to carry out effective supervision and subsequently have a positive impact on bank performance. SSB as a multi-layer governance in Islamic banks [24], where the knowledge and expertise of SSB members are essential to provide advice and insight needed to support management in providing reliable decisions [35]. Nomran and Haron [36], Nomran et al. [37], and Almutairi and Quttainah [38] have found the role of SSB on bank performance. However, Ajili and Bouri [39] did not find a relationship between the role of SSB in improving bank performance. This difference in results may lead to allegations that SSB is less effective in supervising the performance of directors without being supported by other boards. Abdallah and Bahloul [40] found that SSB collaboration with other boards improves bank performance.

4.4 Endogeneity and Sensitivity Analysis

The problem of endogeneity occurs in corporate financial research [41]. Endogeneity problems lead to biased research results, inconsistent estimates, inaccurate theoretical conclusions, and interpretations [42]. In line with Safiullah [43], we use 2SLS to solve the problem of endogeneity. Safiullah [43] revealed a correlation between corporate governance (CG) structure and company performance. However, the company's performance will cause changes in CG [43].

Following Safiullah [43], we use the CG variables (GPBOD, GPSSB, GDBOD, GDSSB) as the dependent variable on the first stage of regression. The second stage regression uses the estimation method of regression analysis. The results of our 2SLS test are presented in Table 5. The results of the 2SLS estimation test confirm the results in Table 3 that the presence of women and the percentage of women on the BOD and SSB does not affect the financial soundness.

5 Conclusion

This study is to prove the role of BOD and SSB gender diversity on financial soundness. Gender diversity is measured by the presence of women (dummy) and the percentage of women on the BOD and SSB indicators. This study uses 38 full-flagged Islamic banks in 5 countries in the Southeast. The results showed that the presence of women and the percentage of women on the BOD and SSB did not affect financial soundness. However, the results of the moderation test between the percentage of women on the BOD and the percentage of women on the SSB have a positive effect on financial soundness. These results indicate that the percentage of women as BOD and SSB will improve the quality of supervision and board consultation and can further increase the effectiveness of the outcome board. SSB as multi-layer governance in Islamic banks cooperates with BOD to improve bank strategic decisions' quality and further improve financial soundness.

The results of this study recommend to banks and regulators to increase the number of women on the board of Islamic banks. However, the presence of women should be in the BOD and SSB to streamline the performance of the boards. BOD and SSB have different tasks, so BOD and SSB cooperate and complement each other's duties to improve bank performance.

The limitation of this study is that it only pays attention to the observation period in which there is no crisis. Observations during the crisis period (2007–2009) or the COVID-19 period (2020–2022) are needed to complete the results of this study.

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