









# “The nexus of institutional quality and default risk in a dual banking system: Cross-country evidence”

<b>AUTHORS</b>	Faaza Fakhrunnas  MB. Hendrie Anto   Lak Lak Nazhat El Hasanah   Annisa Fithria  
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Faaza Fakhrunnas, Ph.D., Assistant Professor, Department of Economics, Islamic University of Indonesia, Indonesia. (Corresponding author)

MB. Hendrie Anto, Associate Professor, Department of Economics, Islamic University of Indonesia, Indonesia.

Lak Lak Nazhat El Hasanah, Assistant Professor, Department of Economics, Islamic University of Indonesia, Indonesia.

Annisa Fithria, Ph.D. Researcher, INCEIF University, Malaysia; Assistant Professor, Department of Accounting, Ahmad Dahlan University, Indonesia.



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Faaza Fakhrunnas (Indonesia), MB. Hendrie Anto (Indonesia),  
Lak Lak Nazhat El Hasanah (Indonesia), Annisa Fithria (Malaysia, Indonesia)

# THE NEXUS OF INSTITUTIONAL QUALITY AND DEFAULT RISK IN A DUAL BANKING SYSTEM: CROSS-COUNTRY EVIDENCE

## Abstract

Institutional quality is a cornerstone for developing a financial system at the country level, including financial soundness in the banking sector. Hence, this study examines the impact of institutional quality on banks' default risk in a dual banking system, with an in-depth analysis of the differential influence on Islamic and conventional banks. Applying the Two-Step System Generalized Method of Moments (2-Step SGMM), the study comprises 2,232 bank-year observations from 248 banks across eight countries, spanning the period from 2013 to 2021, which utilize dual banking systems. The findings of the study document that the aggregate score of institutional quality and its elements reduces banks' default risk in all observed countries, comprising Saudi Arabia, Bangladesh, the United Arab Emirates (UAE), Kuwait, Bahrain, Malaysia, Indonesia, and Pakistan. Moreover, Islamic banks are better than conventional banks in terms of their marginal effect on default risk when there is a change in institutional quality. Islamic banks are also found to have less default risk than conventional banks when higher institutional quality is present in the elements of control of corruption and voice and accountability. The results emphasize the pivotal role of institutional quality, as the level of the banking system's stability depends on the development of institutional quality.

## Keywords

default risk, institutional quality, dual banking system, Islamic bank, conventional bank

## JEL Classification

G20, G21, G33

## INTRODUCTION

Default risk explains the risk of how a bank fulfills its financial obligations (Kenc & Cevik, 2021). Default occurs when a bank's liabilities surpass its assets, forcing it to cease operations. While this financial imbalance is the immediate cause, a growing body of evidence, including the work of John et al. (2008) and Mathur and Marcelin (2015), identifies the quality of a country's institutions as a fundamental antecedent shaping bank risk-taking. A sound institutional quality promotes transparency, efficiency, and accountability, mitigating risks and fostering sustainable growth. Conversely, weak institutional frameworks can lead to inefficiencies, corruption, and increased default risks for banks (Shleifer & Vishny, 1993). This established link, however, faces a significant complication in countries operating under a dual banking system, raising the pressing question of how institutional quality affects bank default risk, including for Islamic versus conventional banks.

Dual banking is a system in which Islamic and conventional banks co-exist (Khan et al., 2022). As explained by Fakhrunnas et al. (2023), the dual banking system is more complex due to a different business model implemented by Islamic banks, which is a non-interest-based

business model, while conventional banks use an interest-based business model. These two models mean that the two bank types may respond differently to macroeconomic policies, financial shocks, and, crucially, to the institutional quality. A critical practical problem emerges when regulators and policymakers treat these distinct institutions as homogeneous, as this approach can lead to biased risk assessments and ineffective regulatory frameworks (Šeho et al., 2020). Therefore, a direct and separate empirical comparison within the dual banking system is not merely academic but is a necessary practical step to accurately understand the difference between Islamic and conventional banks, particularly in the nexus of institutional quality and banks' default.

## 1. LITERATURE REVIEW

Theoretically, a bank is considered to be in a state of financial bankruptcy when it fails to fulfill its financial obligations. It indicates that the bank's capability is less than its financial liabilities (Kenc & Cevik, 2021). The measurement of bankruptcy condition can adopt an accounting-based approach, indicating how close the bank is to the default condition (Chiaramonte et al., 2016). Regarding the determinant of a bank's default, Mathur and Marcelin (2015) explain the role of institutional quality in influencing financial institutions, including the banking sector. In a country with poor institutional quality, financial institutions cannot perform efficiently, resulting in a misallocation of financial resources in the financial system (John et al., 2008; Mathur & Marcelin, 2015). These factors encompass economic stability, regulatory effectiveness, governance quality, adherence to the rule of law, and accountability. Conversely, a mature institution's quality mitigates corruption, ineffective regulatory oversight, and uncertainty, leading to lower operational costs and reduced inefficiency (Shleifer & Vishny, 1993).

Empirically, studies on default risk indicate that during the financial turmoil, default risk has become more widespread, affecting economic activity and exposing banks to higher risks (Kenc & Cevik, 2021). Governance quality has emerged as a mitigating factor for default risk, particularly for socially responsible firms in developing countries (Matemilola et al., 2022). Moreover, Shabir et al. (2021) also emphasize that institutional quality is present to strengthen banking stability, especially during economic policy uncertainty in the global banking industry.

Matemilola et al. (2022) investigate the role of governance quality in mitigating the firm's default risk. The study found that strong governance quality, represented by the rule of law, significant-

ly reduces default risk by minimizing bankruptcy costs for socially responsible firms. In the case of MENA countries, Almustafa et al. (2023) find that institutional quality increases the firm's risk-taking behavior. This is because institutional quality reveals a higher opportunity for firms to take on more risks, considering the lower economic instability in countries with higher institutional quality.

In developing and emerging markets, institutional quality increases banking stability (Tran et al., 2023). Good institutional quality strengthens the banking system with sufficient transparency, limiting the presence of asymmetric information and properly issuing financial policies necessary for banking development, whether in stable or unstable financial conditions. Similar results are also found by Apergis et al. (2021), stating that institutional quality increases banking stability in the case of OECD Countries' banking industry, and Muizzuddin et al. (2021) explain the positive relationship between institutional quality and banking stability in the case of Asian countries' banking industry.

Additionally, Abdelsalam et al. (2024) conclude that institutional quality reduces banks' idiosyncratic risk, particularly when it enjoys the confidence of the stakeholders of the global banking system. Fang et al. (2014), using Eastern European Countries as the object of study, state that in mature institutional quality, the banks tend to be more stable in financial performance. The same results are also found by Singh (2023), focusing on observing financial institutions in BRICS Countries (Brazil, Russia, India, China, and South Africa). Inversely, Almustafa et al. (2023) argue that higher institutional quality creates more stable economic environments. The circumstances incentivize the firm to take more risks, resulting in a higher degree of instability, but potentially yielding greater financial gains.

However, the impact of institutional quality is less significant for banks with high capitalization and profitable locations in high-income countries (Canh et al., 2021). The finding is different when it has a high concentration of market share in certain countries, in which institutional quality matters to reduce bank instability (Canh et al., 2021). In the case of MENA (Middle East and North Africa) countries, institutional quality and its elements positively impact risk-taking behavior, which is reflected by an increase in default risk (Albaity et al., 2021). The finding is different from that of Tran et al. (2023), Apergis et al. (2021), and Abdelsalam et al. (2024), who found the opposite direction in the relationship between institutional quality and banking stability. Albaity et al. (2021) further explain that the positive impact of institutional quality on banks' risk-taking is probably caused by immature institutional quality in MENA regions, which exacerbates banks' risk.

In the case of dual banking systems, a study from Bektas et al. (2022) investigates the relationship between institutional quality and bank stability, proxied by ZSCORE in the case of QISMUT+3 countries in dual banking systems. Generally, government effectiveness, regulatory effectiveness, and the control of corruption have a negative impact on banking stability. In contrast, financial freedom, accountability, the role of law, and political stability all contribute to strengthening banking stability. Islamic banks are found to be less stable than conventional banks, considering their distinct banking practices, product development, and immature regulatory framework. The positive impact of institutional quality on banking stability is also found by Danlami et al. (2023), who use OIC countries as the object of the study.

Moreover, empirical studies by Khan et al. (2022), Yunan (2021), and Aish et al. (2022) especially highlight the impact of corruption on Islamic banking performance. Khan et al. (2022) explain that corruption has decreased the stability of banks in emerging and developing countries. However, when conventional and Islamic banks are compared, Islamic banks are found to have less exposure to the impact of corruption on their stability than conventional banks. Even though it is less affected (Khan et al., 2022), the level of corruption influences banks' risk, which means that

it is an essential determinant of Islamic banking stability (Yunan, 2021). On the contrary, Aish et al. (2022) document that corruption significantly increases Islamic banking stability in less corrupt countries but has an inverse relationship in highly corrupt countries.

Based on the discussion mentioned above, the differing directions in prior research findings indicate that the study on the impact of institutional quality on banking performance, particularly bank default risk, remains vital for providing a clearer and more precise understanding of the relationship. A comparison of Islamic and conventional banks on the impact of institutional quality on banks' default risk is still necessary to examine whether the development of institutional quality affects them differently or equally. Therefore, this study aims to investigate the influence of institutional quality on banks' default risk, with a focus on comparing Islamic and conventional banks operating within dual banking systems.

## 2. METHODS

ICD-Refinitiv (2022) discloses that eight countries have significant progress in Islamic bank development with dual banking systems, comprising Saudi Arabia, Bangladesh, the United Arab Emirates (UAE), Kuwait, Bahrain, Malaysia, Indonesia, and Pakistan. According to ICD-Refinitiv (2022), those countries represent approximately 80% of global Islamic banking assets, excluding Iran, due to the significant difference in their Islamic banking practice (Meisamy & Gholipour, 2020). Considering the availability of consistent and comparable data during the observation period, the study sample consists of 248 banks from 2013 to 2021, resulting in a total of 2,232 bank-year observations.

The model of the study refers to Mathur and Marcelin (2015) concerning the importance of institutional quality for the banks' risk. The baseline model of the study is as follows;

$$LNZSCORE_{it} = \alpha_0 + \beta_1 LNZSCORE_{it-1} + \beta_2 GOV_{jt} + \beta_3 Bank_{it-1} + \beta_4 Macro_{jt} + \varepsilon_{ijt}, \quad (1)$$

where,  $\alpha_0$  is a constant,  $\beta_1$ - $\beta_4$  are the coefficients of the variables, and  $\varepsilon$  is the error term. The sym-

bols  $i$ ,  $j$ , and  $t$  explain bank-level, country-level, and time-level on a yearly basis. In terms of the variables,  $LNZSCORE_{it}$  is a proxy of a bank's default risk obtained from the log of  $(ROA + ETA) / SDROA$ , where ROA is the return on assets, ETA is the equity-to-total-assets ratio, and SDROA is the standard deviation of the return on assets. Additionally,  $LNZSCORE_{it-1}$  is a one-year lagged form of  $LNZSCORE$ . According to Agarwal and Taffler (2008) and Chiaramonte et al. (2016), ZSCORE is robust for use as a bank's default risk. The measurement of ZSCORE is also in line with Boyd and Graham (1986), Chiaramonte et al. (2016), Chiaramonte et al. (2022), and Maquieira and Arias (2024), who use ZSCORE as a proxy for default risk in the banking sector from the accounting-based measurement. A higher number of ZSCORE indicates lower default risk, while a lower value of ZSCORE indicates a higher default risk.

The main independent variable is institutional quality at the country level, proxied by the World Governance Index (GOV) based on the World Bank criteria (Muizzuddin et al., 2021). It is calculated as the average score of each element consisting of control of corruption (COR), governance effectiveness (EFF), political stability (POL), regulatory quality (REG), rule of law (LAW), and voice and accountability (ACC). Moreover, the bank-specific variables consist of management efficiency (ME), measured by the cost-to-income ratio multiplied by 100. The measurement follows Hidayat et al. (2021) and Fakhrunnas and Nahda (2023). Then, loan growth (LOANGR), in the case of Islamic banks, called financing growth, is calculated from  $(Loan_t - Loan_{t-1}) / Loan_{t-1}$  multiplied by 100 (Hassan et al., 2019). The last bank-specific variable is the bank's size, proxied by the lag of bank's total assets (Ibrahim & Rizvi, 2017).

In this study, all bank-specific variables are in the one-year lagged form to address the issue of reverse causality and endogeneity (Šeho et al., 2021) in the model.  $Macro_{jt}$  reflects macroeconomic variables, following Tehulu (2022) measurement, proxied by the growth of gross domestic product (GDPGR) on a yearly basis, calculated by  $(GDP_t - GDP_{t-1}) / GDP_{t-1}$  multiplied by 100, and economic turmoil period proxied by the COVID-19 pandemic period (COVID) (Elnahass et al., 2021; Fakhrunnas et al., 2023) using dummy variable 1

for the year 2020–2021 and 0 for the rest of the observation periods.

Furthermore, the study applies the interaction variable between IB (dummy variable 1 = Islamic bank, 0 = conventional bank) with institutional quality to understand the impact of institutional quality on Islamic banks compared to conventional banks as formulated in Equation 2.

$$\begin{aligned} LNZSCORE_{it} = & \alpha_0 + \beta_1 LNZSCORE_{it-1} \\ & + \beta_2 GOV_{jt} + \beta_3 Bank_{it-1} + \beta_4 Macro_{jt} \\ & + \beta_5 IB_{it} + \beta_5 IB * GOV_{ijt} + \varepsilon_{ijt}, \end{aligned} \quad (2)$$

where  $(IB \cdot GOV_{it})$  reflects the interaction variable between  $IB$  and  $GOV$ . In the interpretation of the interaction variable, the study follows Brambor et al. (2006) and Law et al. (2020), formulated using the marginal effect approach explained below:

$$\frac{\partial LNZSCORE_{it}}{\partial GOV_{jt}} = \beta_2 + \beta_5 IB_{it}, \quad (3)$$

where  $\beta_2$  is the coefficient of  $GOV$ , and  $\beta_5$  is the coefficient of the interacted variables referring to Equation 2, which is  $(IB \cdot GOV_{it})$ .

To deepen the understanding of which element of GOV benefits the bank's default risk management, the study decomposes GOV into its pillars using the same model as explained in Equations (1) and (2). Finally, the model is estimated using the Two-Step System Generalized Method of Moments (2-Step SGMM), considering its advantage to address the issue of endogeneity as explained by Arellano and Bover (1995) and Blundell and Bond (1998). In addition, the study follows Beck and Levine (2004) and Roodman (2009) to check the validity of the model by conducting Sargan and Hansen tests. The presence of serial correlation in the model is also examined, which can be seen from the results of AR1 and AR2. In addition to addressing the instrument proliferation issue, Roodman (2009) states that the number of instruments must be less than the number of cross-sections of the sample size. The failure to tackle the instrument proliferation issue leads to the lower power of the Hansen test. Finally, Windmeijer's (2005) approach has also been adopted to mitigate the issue of downward bias in the 2-Step SGMM.

### 3. RESULTS

The data description is shown in Table 1 for all variables used in the study. The score of LNZSCORE, reflecting the bank's default risk, indicates that the average score is 3.152, with a slight variation among the banks exhibited by the value of the standard deviation of 0.776. A higher value of LNZSCORE indicates that the banks have a lower default risk, while a lower value of LNZSCORE indicates that it has a higher default risk. Islamic banks have a higher LNZSCORE of 3.289 than conventional banks, which have a 3.115 on average. This suggests that conventional banks are more susceptible to bankruptcy risks. Additionally, the average score of institutional quality using the governance index (GOV) consisting of control of corruption (COR), government effectiveness (EFF), political stability and absence of violence/terrorism (POL), regulatory quality (REG), rule of law (LAW), and voice and accountability (ACC) has higher variation across countries reflected from the standard deviation score which is higher than the mean. This suggests that each country in this study has a distinct level of institutional quality, which likely impacts banking performance.

The average score for the bank's management efficiency (ME) is 5.49, where conventional banks are more efficient than Islamic banks, as indicated by their lower management efficiency scores. However, Islamic banks are more aggressive in the market, possessing a higher loan/financing growth of 11.11%, compared to conventional banks, which

is approximately 10.8%. It explains that Islamic banks are inclined to have a significant market penetration to provide loans/financing to the deficit units. For all banks, the higher discrepancy in bank size can be seen from the ASSET value, in which the standard deviation score is higher than the mean. It can also be assessed by comparing the smallest bank's size, which is approximately USD 62.00 million, to the largest bank's size, which is USD 128,000 million. The same condition is found when the analysis is separated into Islamic and conventional banks. Although the mean of banks' assets is similar, the standard deviation of conventional banks is higher, indicating that the discrepancy in size is more pronounced in conventional banks compared to Islamic banks.

Furthermore, the negative value of economic growth, which is about -2.10, occurred during the COVID-19 pandemic, indicating the presence of economic turmoil. The correlation relationship between the variables in Table 2 shows that there is no score of more than 0.8, indicating that each variable is independent of the others, and it means the issue of autocorrelation is not present in this study (Fakhrunnas & Nahda, 2023).

To examine the impact of institutional quality on banks' default risk, the baseline result is shown in Table 3, estimated by the 2-Step SGMM as explained in Equation (1). Generally, the majority of the models 1-6 fulfill the requirement of the 2-Step SGMM, where the AR (1) is significant and AR (2) is not significant, indicating that the

**Table 1.** Data description

Variable	All Banks					Islamic Banks					Conventional Banks				
	Obs.	Mean	Std. dev.	Min	Max	Obs.	Mean	Std. dev.	Min	Max	Obs.	Mean	Std. dev.	Min	Max
LNZSCORE	2,232	3.15	0.77	-0.45	5.38	486	3.28	0.65	-0.45	4.81	1,746	3.11	0.80	-0.03	5.38
ME	2,232	5.49	17.4	30.0	94.1	486	56.8	18.1	30.0	94.1	1,746	54.4	17.2	30.0	94.1
LOANGR	2,232	10.8	13.8	-12.7	44.6	486	11.1	12.5	-12.7	44.6	1,746	10.8	14.1	-12.7	44.6
ASSET (million USD)	2,232	12,200	23,600	62.00	128,000	486	12,000	18,100	62.00	128,000	1,746	12,300	24,900	62.00	128,000
GOV	2,232	-0.22	0.49	-1.11	0.66										
COR	2,232	-0.29	0.56	-0.99	1.273										
EFF	2,232	0.10	0.67	-0.79	1.50										
POL	2,232	-0.60	0.790	-2.60	0.89										
REG	2,232	-0.00	0.59	-0.95	1.10										
LAW	2,232	-0.15	0.50	-0.87	0.90										
ACC	2,232	-0.40	0.51	-1.88	0.18										
GDPGR	2,232	4.13	2.40	-2.10	7.10										

**Table 2.** Correlation result

Variable	LN ZSCORE	GOV	COR	EFF	POL	REG	LAW	ACC	L.ME	L.LOAN GR	L.LNASSET	GDPGR	COVID	IB
LNZSCORE	1.00	–	–	–	–	–	–	–	–	–	–	–	–	–
GOV	0.08	1.00	–	–	–	–	–	–	–	–	–	–	–	–
COR	0.09	0.89	1.00	–	–	–	–	–	–	–	–	–	–	–
EFF	0.09	0.96	0.92	1.00	–	–	–	–	–	–	–	–	–	–
POL	0.07	0.91	0.76	0.80	1.00	–	–	–	–	–	–	–	–	–
REG	0.09	0.95	0.89	0.96	0.78	1.00	–	–	–	–	–	–	–	–
LAW	0.16	0.91	0.93	0.92	0.79	0.91	1.00	–	–	–	–	–	–	–
ACC	–0.09	0.12	–0.25	–0.01	0.15	0.01	–0.24	1.00	–	–	–	–	–	–
L. ME	–0.26	–0.04	–0.12	–0.06	–0.06	–0.03	–0.14	0.23	1.00	–	–	–	–	–
L.LOAN GR	–0.00	–0.18	–0.17	–0.20	–0.13	–0.20	–0.19	0.01	–0.03	1.00	–	–	–	–
L.LNASSET	0.24	0.19	0.31	0.26	0.12	0.23	0.35	–0.35	–0.42	–0.17	1.00	–	–	–
GDPGR	–0.07	–0.30	–0.30	–0.31	–0.23	–0.36	–0.36	0.12	–0.00	0.19	–0.17	1.00	–	–
COVID	–0.02	0.07	0.00	0.11	0.07	0.09	0.08	–0.02	0.03	–0.23	0.07	–0.54	1.00	–
IB	0.09	0.21	0.26	0.23	0.18	0.23	0.30	–0.19	0.07	0.01	0.13	–0.13	0.00	1.00

issue of autocorrelation in the model is not present. Additionally, the Hansen and Sargan tests are mostly not significant, indicating that the instrumental variables are valid, and the selected instruments are not correlated to the error term (Beck & Levine, 2004; Roodman, 2009)

In all models in the baseline results, the findings of the study show that institutional quality (GOV) has a positive and significant relationship with LNZSCORE. This means that as the level of institutional quality increases, banks experience less default risk, indicating improved risk manage-

**Table 3.** Baseline result (institutional quality and default risk)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
L.LNZSCORE	0.95*** (23.38)	0.68*** (5.64)	0.66*** (5.93)	0.68*** (6.56)	0.75*** (9.70)	0.59*** (4.96)
GOV	0.05*** (3.86)	0.09*** (2.77)	0.09*** (2.70)	0.06** (1.99)	0.05** (2.19)	0.46 (1.60)
L. ME	–	–0.76** (–2.30)	–0.62** (–2.12)	–0.13 (–1.61)	–0.09 (–1.38)	–0.29** (–2.09)
L.LOAN GR	–	–0.06 (–1.43)	–0.06 (–1.43)	0.02 (0.22)	–0.04 (–1.56)	–0.02 (–0.28)
L.LNASSET	–	–0.02 (–0.96)	–0.00 (–0.20)	0.03* (1.93)	0.02* (1.73)	–0.01 (–0.16)
GDPGR	–	–	0.44* (1.91)	0.27 (1.16)	0.28 (1.16)	0.24 (0.93)
COVID	–	–	–	–0.02 (–1.51)	–0.03** (–2.31)	–0.01 (–0.88)
IB	–	–	–	–	0.03 (0.95)	–0.04 (–0.30)
IB · GOV	–	–	–	–	–	0.535** (2.04)
Cons	0.17 (1.28)	1.71*** (2.83)	1.47*** (2.71)	0.70** (2.13)	0.60** (2.37)	1.66* (1.77)
No of Obs.	1984	1984	1984	1984	1984	1984
No of Banks	248	248	248	248	248	248
No of Ins.	11	12	12	12	15	13
AR1p	0.00	0.01	0.00	0.00	0.00	0.00
AR2p	0.49	0.98	0.93	0.83	0.65	0.85
Hansenp	0.02	0.38	0.64	0.21	0.30	0.62
Sarganp	0.00	0.77	0.86	0.50	0.01	0.79

Note: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $t$  statistics are in parentheses.

ment. Surprisingly, the impact of management efficiency on LNZSCORE is negative and significant, reflected in models 2, 3, and 6, indicating that the more efficient the banks, the lower their default risk. Additionally, LNASSET has a positive and significant relationship, indicating that as banks' size increases, their default risks decrease. The findings align with Ibrahim & Rizvi (2017), who state that bank assets matter for banking stability, in which larger banks tend to be more stable under the argument of "too big to fail". Focusing on the time of the COVID-19 pandemic, it can be seen that there is a negative and significant relationship between the two. The finding indicates that the pandemic results in instability in the banking

sector, creating more default risk to the banks, especially during the financial turmoil (Elnahass et al., 2021; Fakhrunnas et al., 2023).

Furthermore, when the dummy variable of Islamic banks is involved in Model 5, the result is insignificant. This means that Islamic banks are not different from conventional banks in terms of default risk. However, when the dummy variable of IB interacts with GOV in model 5, the result becomes positive and significant for LNZSCORE. Considering the calculation of interaction as explained by Brambor et al. (2006) and Law et al. (2020), the marginal effect of Islamic banks due to a change in the institutional quality is positive

**Table 4.** Additional result

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
L.LNZSCORE	0.60***	0.62***	0.60***	0.61***	0.63***	0.59***	0.61***	0.58***	0.61***	0.56**	0.65***	0.63***
	-5.44	-5.99	-5.12	-5.64	-5.75	-4.23	-5.88	-4.41	-5.34	-2.42	-6.89	-5.86
COR	0.07*	0.16	-	-	-	-	0.08**	0.18	-	-	-	-
	-1.65	-1.57	-	-	-	-	-2.44	-0.56	-	-	-	-
IB*COR	-	0.152***	-	-	-	-	-	0.1058	-	-	-	-
	-	-3.94	-	-	-	-	-	-0.65	-	-	-	-
EFF	-	-	0.08*	0.19	-	-	-	-	0.15**	0.65	-	-
	-	-	-1.81	-1.25	-	-	-	-	-2.1	-0.89	-	-
IB*EFF	-	-	-	0.0534	-	-	-	-	-	-0.078	-	-
	-	-	-	-0.38	-	-	-	-	-	-0.1	-	-
POL	-	-	-	-	0.04*	0.41	-	-	-	-	-0.03	0.63
	-	-	-	-	-1.91	-0.86	-	-	-	-	(-0.74)	-1.32
IB*POL	-	-	-	-	-	1.664	-	-	-	-	-	2.484*
	-	-	-	-	-	-0.94	-	-	-	-	-	-1.69
L. ME	-0.23**	-0.22**	-0.24*	-0.28**	-0.20*	-0.32*	-0.22**	-0.27	-0.24**	-0.29	-0.20**	-0.09
	(-2.04)	(-2.02)	(-1.94)	(-2.24)	(-1.86)	(-1.68)	(-2.11)	(-1.39)	(-1.98)	(-1.11)	(-2.13)	(-0.59)
L.LOANGR	-0.04	-0.03	-0.06	-0.06	-0.05	-0.02	-0.04	-0.04	-0.06	0.02	-0.06	0.02
	(-1.14)	(-0.56)	(-1.26)	(-1.21)	(-1.25)	(-0.26)	(-1.00)	(-1.02)	(-1.29)	-0.11	(-1.45)	-0.27
L.LNASSET	-0.01	0	-0.02	-0.04	-0.01	-0.01	-0.01	-0.02	-0.04	0	-0.01	0.12
	(-0.30)	-0.05	(-0.53)	(-0.80)	(-0.18)	(-0.14)	(-0.18)	(-0.37)	(-0.75)	(-0.00)	(-0.31)	-1.29
GDPGR	0.24	0.25	0.18	0.23	0.27	0.52	0.18	0.21	0.26	0.03	0.26	-0.11
	-0.97	-1	-0.73	-0.88	-1.11	-1.29	-0.73	-0.81	-1.07	-0.06	-1.08	(-0.32)
COVID	-0.01	-0.01	-0.02*	-0.02*	-0.02	-0.02	-0.03**	-0.02	-0.02	-0.01	-0.01	-0.03*
	(-0.96)	(-0.70)	(-2.01)	(-1.68)	(-1.58)	(-1.09)	(-2.24)	(-0.75)	(-1.41)	(-0.81)	(-1.14)	(-1.85)
IB	-	0.01	-	0.26	-	-0.63	-	0.16	-	0.28	-	-0.97
	-	-0.1	-	-0.99	-	(-0.71)	-	-0.44	-	-0.92	-	(-1.27)
Cons	1.55**	1.31	1.76*	1.95**	1.40*	1.80*	1.45**	1.77	1.93*	1.66	1.35**	-0.34
	-1.98	-1.65	-1.85	-2.06	-1.87	-1.67	-2.09	-1.37	-1.94	-0.9	-2.15	(-0.26)
No. of Obs.	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
No. of Banks	248	248	248	248	248	248	248	248	248	248	248	248
No of Ins.	12	13	12	13	12	13	12	13	12	13	12	13
AR1p	0	0	0	0	0	0	0	0	0	0	0	0
AR2p	0.99	0.98	0.97	0.95	0.87	0.93	0.93	1	0.96	0.87	0.84	0.9
Hansenp	0.4	0.48	0.23	0.24	0.23	0.48	0.55	0.4	0.24	0.62	0.51	0.7
Sarganp	0.63	0.72	0.48	0.41	0.45	0.53	0.73	0.59	0.51	0.77	0.69	0.91

Note: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $t$  statistics are in parentheses.

and significant, indicating that the default risk of Islamic banks is lower than that of conventional banks if there is a change in the level of institutional quality.

To deepen the analysis, the study decomposes the institutional quality by examining its elements and their interaction with IB on the impact on banks' default risk. The finding of the study reveals that all elements of institutional quality variable, except voice and accountability (ACC), comprising control of corruption (COR), government effectiveness (EFF), political stability and absence of violence/terrorism (POL), regulatory quality (REG), and the rule of law (LAW) have a positive and significant relationship to LNZSCORE. The findings of the study are in line with the baseline results, showing that an increase in the level of institutional quality reduces banks' default risk.

In the interaction variables, only the interaction variables of IB\*COR and IB\*ACC have a positive and significant relationship to LNZSCORE. This means that a change in the control of corruption level has increased the marginal effect of Islamic banks to lessen the bank's default risk. This condition portrays that Islamic banks outperform conventional banks when the control of corruption score is high. The interaction variable between Islamic banks (IB) and voice and accountability (ACC) is also positive and significant for LNZSCORE. It explains that a change in the score of ACC increases the marginal effect of IB on LNZSCORE, indicating that it lowers banks' default risk.

**Table 5.** Robustness check

Variable	1	2	3	4
L.LNZSCORE	0.73*** -5.72	0.51*** -4.03	0.81*** -10.55	0.65*** -4.36
GOV	0.09** -2.56	0.26 -1.04	0.05*** -2.61	0.39 -1.31
IB_GOV	- -	0.209*** -3.17	- -	0.489** -2.28
L. ME	-0.09 (-0.96)	-0.31** (-2.55)	-0.05 (-0.97)	-0.27 (-1.31)
L.LOANGR	-0.05 (-1.48)	-0.04 (-0.68)	-0.07** (-2.17)	-0.04 (-0.53)
L.LNASSET	0.01 -0.62	-0.07 (-1.53)	0.02** -2.38	0.01 -0.12
GDPGR_	0 0	-0.07 (-0.22)	1.66* -1.7	1.34 -1.1

Variable	1	2	3	4
COVID	-0.03** (-2.50)	-0.02 (-1.06)	- -	- -
IB	- -	0.08 -0.71	- -	-0.06 (-0.45)
Cons	0.78 -1.54	2.73*** -3.01	0.26 -1.24	1.19 -1.11
No of Obs.	1596	1596	1488	1488
No of Banks	209	209	248	248
No of Ins.	15	13	12	11
AR1p	0	0	0	0
AR2p	0.5	0.94	0.09	0.19
Hansenp	0.23	0.72	0.43	0.42
Sarganp	0	0.87	0.5	0.56

Note: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $t$  statistics are in parentheses.

The robustness check is then conducted to assess the consistency of the results, as shown in Table 5. Firstly, in models 1 and 2, the study excludes 25% of the largest and 25% of the smallest banks based on the asset size. Secondly, in models 3 and 4, the COVID-19 period is excluded to examine the consistency of the results before the pandemic. Then, the findings of the study indicate the same results as explained in the baseline findings, in which institutional quality (GOV) has a positive and significant relationship to LNZSCORE, as exhibited in models 1 and 3. Additionally, the relationship of the interaction variable between IB and GOV is also positive and significant to LNZSCORE, as it is in models 2 and 4. Hence, according to those results, it can be concluded that the findings of the study are robust.

## 4. DISCUSSION

To discuss the result of the study, the findings show that institutional quality matters in influencing banks' default risk. The result is in line with Muizzuddin et al. (2021) and Shabir et al. (2021), explaining that institutional quality increases the stability of banks. Additionally, Matemilola et al. (2022) also emphasize the importance of institutional quality to provide certainty and stable circumstances for business activities, resulting in better performance in the banking system. In addition, Islamic banks have lower default risk compared to conventional banks in relation to institutional quality. The finding is supported by Yunan (2021), stating that there is a significant relationship between Islamic banks and institu-

tional quality. However, the finding also contrasts with Bektas et al. (2022), who argue that Islamic banks are less stable in relation to the influence of institutional quality on default risk due to different business models and principles.

These findings underscore that institutional quality may reflect the market confidence of the stakeholders, which has impacted how the banking sector is managed properly (Shleifer & Vishny, 1993). In addition, institutional quality can also be an external pressure on the banking operations, which need to align with the development of institutional quality. Certainly, institutional quality consists of many aspects that can ensure business quality in the banking industry. For instance, regarding regulatory quality, the World Bank (2024b) emphasizes how the government can generate a proper and sound policy or regulation to spur the private sector to develop. This aspect is necessary to have a more developed and robust banking system as a highly regulated business. Therefore, the result of the study is also in line with the notion that regulatory quality increases banking stability.

Delving deeper into the impact of the elements of institutional quality, all of the elements have a positive and significant relationship to banking stability, except for voice and accountability. The findings are supported by the previous studies conducted by Fang et al. (2014), Muizzuddin et al. (2021), Shabir et al. (2021), Matemilola et al. (2022), Tran et al. (2023), and Abdelsalam et al. (2024), concluding that institutional quality supports the banks' stability in the financial system. However, only the control of corruption and voice and accountability elements that positively and significantly impact banking stability when they interact with IB variables. It portrays that Islamic banks have lower default risk than conventional banks when a country has sufficient commitment to the control of corruption and voice and accountability elements.

The finding is supported by Khan et al. (2022) and Yunan (2021), who similarly find that an increase in control of corruption creates more stability in Islamic banks, even though Aish et al. (2022) argue that the positive and significant relationship between control of corruption and Islamic banking stability only occurs in countries having a high

level of control of corruption. In terms of controlling corruption, the World Bank (2024a) explains that the measurement of control of corruption is comprised of how the government generally does not exercise private gains from the authority that the government has. This control of corruption is also applied in business regulation and administration, particularly in implementing regulations. When corruption is absent, business activities in the banking sector can work well, as stated in the regulation (Khan et al., 2022). There is no inefficient process that can burden the banking sector's development, including unexpected costs caused by the corrupt system. The finding of the study aligns with the argument that the control of corruption increases banking stability or decreases bank default risk. This condition also supports the development of Islamic banks, in which the study finds that the banks are more stable than conventional banks because of the presence of positive and significant results in the marginal effect due to a change in control of the corruption index.

In addition, the result from the interaction variable also sheds light on the empirical evidence that the voice and accountability scores spur Islamic banks to be more stable and perform better in default risk management compared to conventional banks. The presence of a high level of voice and accountability is also formed by the level of credibility of the public sector to provide certain information relating to economic activities, such as the reliability of economic data, the state budget, economic policy, and others (The World Bank, 2024c). Thus, a high level of voice and accountability strengthens banking stability (Bektas et al., 2022), and this means more for Islamic banks because the marginal effect results are positive and significant. It also indicates that Islamic banks perform better than conventional banks when there is a high voice and accountability score.

Institutional quality creates certainty in the banking sector that supports banks in developing robust financial systems (Matemilola et al., 2022). In addition, the stakeholders' trust increases the development of banking institutions. Thus, the banking system's stability will be achieved and maintained, which creates more opportunities for the banking sector to grow and develop. In the case of Islamic banks, which are considered not to have mature

regulation yet, higher institutional quality quickens the development of Islamic banks, especially when dealing with the regulatory aspects.

Finally, the study contributes in three ways. Firstly, it comprehends and provides more precise directions on how institutional quality impacts a bank's default risk in a dual banking system amid unclear and contradictory results in previous studies. The inconclusive findings can be found in Yunan (2021), Bektas et al. (2022), Khan et al. (2022), Danlami et al. (2023), and Aish et al. (2022), indicating that the impact of institutional quality in the dual banking system remains inconclusive. Secondly, this study extends the institutional quality measurements that do not only focus on the aggregate score but also decompose it into its elements that form insti-

tutional quality scores. It is different from Yunan (2021), Aish et al. (2022), and Khan et al. (2022), focusing on the corruption index, and Danlami et al. (2023), using the aggregate score of institutional quality, which fails to capture the significance of each element of institutional quality to banks' default risk in the dual banking system. Thirdly, this paper extends the study of Bektas et al. (2022), who have a similar measurement of institutional quality in a dual banking system. However, Bektas et al. (2022) do not differentiate the impact of institutional quality on Islamic and Islamic banks and treat both banks the same. As mentioned by Šeho et al. (2020), failure to differentiate Islamic and conventional banks may create bias in the analysis, considering that both banks operate using different principles.

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## CONCLUSION

This study investigates the nexus of institutional quality and banks' default risk in dual banking systems across countries. The findings reveal that institutional quality, proxied by the World Governance Index, has a positive and significant relationship with LNZSCORE. It confirms that high institutional quality lowers banks' default risks in the banking sector. Additionally, Islamic banks perform better at default risk than conventional banks with the presence of good institutional quality.

The implication of the study benefits the stakeholders of the banking industry in two ways, including in the dual banking system. Firstly, the finding emphasizes the importance of institutional quality and its elements in strengthening the bank's default risk management. Thus, policymakers need to corroborate the level of institutional quality in the areas of control of corruption, government effectiveness, political stability and the absence of violence/terrorism, regulatory quality, rule of law, and voice and accountability. Secondly, two elements of institutional quality, which are control of corruption and voice and accountability, become the elements that are essential to developing the Islamic banking industry to have lower default risk. In this regard, strengthening the quality of those two elements needs to be considered and prioritized by Islamic banking stakeholders without neglecting the rest of the elements.

Finally, to pave the way forward for further research, it is suggested that more countries with dual banking systems and more extended observation periods of the data must be included in the study. In addition, other proxies of institutional quality need to be considered and added to the research model to have a more comprehensive perspective regarding what sorts of institutional variables matter for banks' stability.

## AUTHOR CONTRIBUTIONS

Conceptualization: Faaza Fakhrunnas, MB. Hendrie Anto, Lak Lak Nazhat El Hasanah, Annisa Fithria.

Data curation: Faaza Fakhrunnas.

Formal analysis: Faaza Fakhrunnas.

Funding acquisition: Faaza Fakhrunnas, MB. Hendrie Anto, Lak Lak Nazhat El Hasanah.

Investigation: Faaza Fakhrunnas, Annisa Fithria.

Methodology: Faaza Fakhrunnas.

Project administration: Faaza Fakhrunnas, MB. Hendrie Anto, Lak Lak Nazhat El Hasanah.  
 Resources: Faaza Fakhrunnas, MB. Hendrie Anto, Lak Lak Nazhat El Hasanah, Annisa Fithria.  
 Software: Faaza Fakhrunnas.  
 Supervision: Faaza Fakhrunnas, MB. Hendrie Anto, Lak Lak Nazhat El Hasanah.  
 Validation: Faaza Fakhrunnas, MB. Hendrie Anto.  
 Visualization: Faaza Fakhrunnas.  
 Writing – original draft: Faaza Fakhrunnas, MB. Hendrie Anto, Lak Lak Nazhat El Hasanah, Annisa Fithria.  
 Writing – reviewing & editing: Faaza Fakhrunnas, Annisa Fithria.

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