Corporate Governance: An International Review

WILEY

ORIGINAL ARTICLE OPEN ACCESS

Corruption and Bank Risk-Taking in Dual Banking Systems

Mushtaq Hussain Khan[1] | Mohammad Bitar[2] | Amine Tarazi[3,4] | Arshad Hassan[5] | Ahmad Fraz[6]

[1]Cardiff School of Management, Cardiff Metropolitan University, Cardiff, UK | [2]Nottingham University Business School, Nottingham, UK | [3]LAPE, Université de Limoges, Limoges, France | [4]Institut Universitaire de France (IUF), Paris, France | [5]Faculty of Management & Social Sciences, Capital University of Science & Technology, Islamabad, Pakistan | [6]Pakistan Institute of Development Economics, Islamabad, Pakistan

Correspondence: Mushtaq Hussain Khan (mkhan3@cardiffmet.ac.uk)

Received: 17 November 2022 | **Revised:** 18 January 2024 | **Accepted:** 2 February 2024

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Keywords: corporate governance | bank risk | corruption | Shari'ah supervisory board | female members | academic qualifications

ABSTRACT

Research Question/Issue: We investigate whether the risk-taking of Islamic banks is affected differently by corruption compared to conventional banks. We also examine whether the characteristics of the Shari'ah Supervisory Board (SSB) of Islamic banks and the characteristics of the board of directors of conventional banks play an effective role in moderating such an effect.

Research Findings/Insights: We find consistent evidence that banks in countries with higher corruption have higher bank risk for both conventional and Islamic banks. However, this association is attenuated by the size of the SSB, the presence of female board members, and higher academic qualifications of SSB members. For conventional banks, the moderating effect of the presence of female directors and academically qualified members on the board of directors is also prevalent but to a lesser extent.

Theoretical/Academic Implications: This study contributes to the corporate finance literature more generally by highlighting the role played by corporate governance, particularly the presence of female members and academically qualified members on the SSBs of Islamic banks and on the board of directors of conventional banks, in mitigating the effect of corruption on bank risk-taking for the two bank types.

Practitioner/Policy Implications: Our findings are based on a matched sample of banks operating in 10 OIC (Organization of Islamic Cooperation) countries and have important implications for bank stability and bank governance reforms. On the detrimental side, urgency of the anti-corruption campaigns in these countries is justified due to the significant effect of corruption on risk-taking for both conventional and Islamic banks. Overall, to better fight corruption in countries with dual banking systems, there is a need to enforce stricter rules for all types of banks.

1 | Introduction

We investigate whether corruption differently affects the risk-taking of Islamic and conventional banks. In addition, we examine whether the characteristics of the Shari'ah Supervisory Board (SSB) of Islamic banks and the characteristics of the board of directors of conventional banks play an effective role in moderating such an effect. Although much work has been done in the literature on the role that corruption plays in non-financial institutions, we know little about how corruption affects the risk-taking of banks in countries with dual banking systems. For instance, the corporate finance literature focuses on the association between corruption and firm performance (Brown et al. 2021; Van Vu et al. 2018), corporate innovation (Gan and Xu 2019; Sena et al. 2018), efficiency (Hanousek et al. 2019), corporate investments (Pan and Tian 2017), cash holdings (Thakur and Kannadhasan 2019), and credit constraints (Wellalage et al. 2019). However, few empirical studies investigate the effect of corruption on bank risk-taking. For instance, Bermpei et al. (2021) find that strong institutional

environment moderates the negative effect of corruption on bank-lending in the United States.

Corruption is generally defined as the abuse of public power for private benefit (Aguilera and Vadera 2008). In addition to bribery and extortion, which define corruption in a narrow sense, corruption is also manifested in conflicts of interest, fraud, deception, embezzlement, the misuse of government power, and other related activities (Gorsira et al. 2018). More importantly, Jim Yong Kim,[1] the president of the World Bank, declared corruption as the "public enemy number one" for most developing economies.

In corporate finance, on the one hand, efficient and productive firms may receive more loans by bidding higher bribes; on the other hand, likelihood of borrowers' default may also increase due to corruption, which hinders lending by raising cost of debt (Chen et al. 2015). According to the "sand the wheels" hypothesis, corruption is harmful to investment and economic growth. This hypothesis is largely supported by existing studies. For instance, Charumilind et al. (2006) find that politically connected firms receive more long-term loans from banks with less collateral. Park (2012) finds that non-performing loans increase in corrupt countries. Likewise, Weill (2011) finds that corruption hampers bank lending in Russia and acts as an obstacle to economic growth. In contrast, Williams et al. (2016) and Williams and Martinez-Perez (2016) find consistent evidence supporting the "grease the wheels" hypothesis in developing countries. They conclude that bribery serves as a "helping hand" in increasing firm performance.

In the case of dual banking systems, research has focused on comparing conventional and Islamic banks with respect to business model (Beck et al. 2013), governance (Mollah and Zaman 2015), deposit insurance premiums (Grira et al. 2016), capital structure (Bitar et al. 2018; Bitar and Tarazi 2019), asset volatility (Belkhir et al. 2019), equity financing costs (Grira et al. 2019), FinTech innovations and regulatory challenges (Grira and Labidi 2021), and risk-taking (Abedifar et al. 2013; Bitar et al. 2021). However, research on how corruption affects the risk-taking of conventional and Islamic banks is still scarce. Our study fills this gap in the banking literature. We conjecture that the adherence of Islamic banks to ethical behavior (Khan 2010; Quttainah and Almutairi 2017) and the Shari'ah supervisory boards (SSBs) having multi-layer corporate governance structure (Mollah and Zaman 2015) may mitigate the effect of corruption on bank risk-taking. Our main findings show that the effect of corruption on risk-taking is significantly positive for the two bank types, although this effect is weaker for Islamic banks than for conventional banks.

For deeper insights, we examine whether the effect of corruption on bank risk-taking is attenuated depending on the characteristics of their board. For Islamic banks, we consider the size of SSBs, the presence of females in SSBs, and academic qualification of SSBs members. For conventional banks, we examine the effects of the size of the board of directors, the presence of female board members, and academically qualified members. Our results show that SSB moderates the link between corruption and bank risk-taking. Specifically, the positive effect of corruption on the risk of Islamic banks is mitigated with higher academic qualifications of SSB members and higher representation of women on the SSB. As for conventional banks, we find a weak effect when we consider the characteristics of the board of directors. Specifically, we find that the effect of the presence of female directors and academically qualified members on the board is marginal (significance at the 10% level only) in attenuating the association between corruption and the risk of conventional banks. Our findings are robust to a battery of specifications, including the use of alternative measures of corruption and bank risk-taking as well as additional control variables such as institutional environment, national culture, and religion. Finally, the findings remain significant when we employ an instrumental variables (IV) approach to deal with endogeneity.

The motivation for studying the effect of corruption on the risk-taking of Islamic banks compared with conventional banks is driven by the need to investigate a unique channel of the relationship between corruption and bank-risk in countries with dual banking systems. Islamic banking is characterized by its adherence to Shari'ah principles, representing a distinct subset of the financial industry with its own set of ethical and practical standards. Understanding how corruption influences Islamic banks compared with conventional banks is of key importance, as it provides insights into how differing ethical frameworks might affect susceptibility to corrupt practices and risk management processes within these institutions. The findings of this work have the potential to inform regulators and policymakers about the strengths and the weaknesses of each system in combatting corruption, thereby contributing to the development of a more resilient and ethically sound financial system. By comparing these two distinct banking models, we aim to deepen our understanding of the multifaceted relationship between corruption and risk-taking, facilitating corporate decision-making for various stakeholders in the financial landscape.

This study contributes to the literature in two ways. First, it extends the broad literature on risk in Islamic banking (Abedifar et al. 2013; Abedifar et al. 2017; Beck et al. 2013; Khan et al. 2020; Mollah and Zaman 2015), by investigating how the risk-taking of Islamic banks is differently affected by corruption compared with conventional banks. In addition, this study examines the role of SSBs and the board of directors as potential channels to moderate the effect of corruption on bank risk in countries with dual banking systems. Second, we also contribute to the corporate finance literature more generally by highlighting the role played by corporate governance (Dela Rama 2012; Fu 2019; Lombardi et al. 2019), particularly the presence of female members and academically qualified members on the SSBs of Islamic banks and on the board of directors of conventional banks, in mitigating the effect of corruption on bank risk-taking for the two bank types.

The rest of this paper is organized as follows. Section 2 develops the hypotheses. Section 3 presents the sample, the variables and the empirical model. Section 4 discusses the main results, the robustness tests, and additional investigations. Section 5 concludes.

2 | Hypotheses Development

2.1 | Corruption and Bank Risk-Taking

The effect of corruption on risk-taking of Islamic and conventional banks can be explained through the lens of "grease the wheels" and "sand the wheels" hypotheses. The former hypothesis suggests that corruption may support bank lending to politically connected and profitable firms, albeit at the cost of increased bank risk-taking, while the latter presumes that corruption has a harmful impact on the stability of banks. In

existing banking literature, studies support both "grease the wheels" and "sand the wheels" hypotheses but a dominant part of this literature supports "sand the wheels" view. For instance, Chen et al. (2013) document that due to bribery more loans are granted to productive firms, in-line with the "grease the wheels" hypothesis of corruption. Similarly, Akins et al. (2017) report that the timely recognition of loan losses can hinder lending corruption by improving the chances of identifying problem loans at an earlier stage. However, timely loan loss recognition is less associated with reduced corruption in countries where there is significant government ownership of the banking system and where banks are less disciplined by their capital providers, such as the government and depositors.

Contrary, in the case of "sand the wheels" hypothesis, Bougatef (2017) reports that corruption impedes bank profitability by diverting funds to undeserving projects. Likewise, Yakubu (2019) and Asteriou et al. (2021) find a significantly negative impact of corruption on bank profitability and stability. Finally, Chen et al. (2015) find that corruption increases the risk-taking of conventional banks.

Our study extends the work of Chen et al. (2015), Pan and Tian (2017), Sena et al. (2018), and Bermpei et al. (2021) by examining the "grease the wheels" and "sand the wheels" hypotheses in the context of Islamic and conventional banks. We argue that Islamic banks are based on the religious doctrine of Shari'ah, which may differently affect the link between corruption and risk-taking for these banks compared with conventional counterparts. Existing studies show that religion plays an important role in reducing corruption in bank lending (Niu et al. 2022) by encouraging ethical behavior (Calkins 2000; Callen and Fang 2015). Previous research demonstrates that religious individuals have conservative moral values (Barnett et al. 1996; Omer et al. 2018). Bitar and Tarazi (2019) also argue that religious customers of Islamic banks exhibit a more inelastic demand for Shari'ah-compliant product than other customers, as they are driven by loyalty and respect for the Shari'ah law.

Therefore, we posit that Shari'ah board members may be less inclined to engage in a corrupt behavior (Niu et al. 2022), thus reducing the effect of corruption on Islamic banks' risk-taking. Furthermore, according to social psychology theories, for example, the legitimacy theory, individuals often conform to the social and cultural factors such as religiosity to gain social recognition and avoid social disapproval (Chircop et al. 2020; McGuire et al. 2012; Sunstein 1996). Based on the above discussion, we formulate our first hypothesis as follows:

Hypothesis 1. *The effect of corruption on risk-taking is significantly different for Islamic banks than for conventional banks.*

2.2 | Corruption and Bank Risk-Taking: The Role of Board Characteristics

In this section, we further investigate whether the effect of corruption on bank risk-taking is attenuated depending on the board characteristics, namely, board size, female board representation, and academic qualification of board members.

Prior literature suggests that the composition of boards play a major role in corporate governance (Adams et al. 2010; Baldenius et al. 2014; Coles et al. 2014; Masulis et al. 2012), and effective boards provide important advisory and monitoring role (Schwartz-Ziv and Weisbach 2013). The association between board size and its advisory and monitoring role has received significant attention in the corporate governance literature, although the findings are inconclusive. For conventional banks, Pathan (2009), Dong et al. (2017), and Lu and Boateng (2018) argue that larger boards are less effective in terms of monitoring due to less cohesiveness, higher agency costs, and difficulties in communication and coordination between board members. In contrast, De Andres and Vallelado (2008) and Wang and Hsu (2013) show that board monitoring is positively associated with board size because larger boards typically include members with a diverse range of expertise.

For Islamic banks, we expect that the size of SSBs to reduce the effect of corruption on the stability of Islamic banks. For example, Choudhury and Alam (2013) document that SSBs are an additional layer of monitoring and oversight that restrict the engagement of board members and bank management in excessive risk-taking. In addition, Mollah and Zaman (2015) argue that the business model of Islamic banks is theoretically based on the premise of ethical behavior, prohibition of interest, and equity-based financing. Thus, members of SSBs are expected to better monitor for compliance with Islamic ethics and hence reduce the effect of corruption on bank risk-taking. Thus, we formulate the following hypotheses:

Hypothesis 2a. *A larger SSB moderates the effect of corruption on the risk-taking of Islamic banks.*

Hypothesis 2b. *A larger board moderates the effect of corruption on the risk-taking of conventional banks.*

There is also an ongoing debate regarding female board representation and its effect on bank performance and risk-taking. In the conventional banking literature, while some studies find a positive relationship between the presence of women on the board of directors and bank risk-taking (Campbell and Mínguez-Vera 2008; Liu et al. 2014; Post and Byron 2015; Terjesen et al. 2016), other studies show a negative effect (Adams and Ferreira 2009; Ahern and Dittmar 2012). In addition, studies such as Carter et al. (2010) and Chapple and Humphrey (2014) do not find a significant effect between the presence of women on the board of directors and bank risk-taking. In the Islamic banking literature, we expect that the representation of women on the SSB to alleviate the positive effect of corruption on risk-taking. According to Ferreira (2015), female directors are more independent in their decisions and more prone to better monitor bank management and CEOs. In line with this, Sena et al. (2018) argue that independent board members insulate a firm from the detrimental effect of corruption on its performance. Thus, we develop the following hypotheses:

Hypothesis 3a. *Female board representation alleviates the positive effect of corruption on the risk-taking of conventional banks.*

Hypothesis 3b. *Representation of female on SSBs alleviates the positive effect of corruption on the risk-taking of Islamic banks.*

Finally, Francis et al. (2015) content that academically qualified members may be valuable monitors and advisors because they add a different perspective, critical thinking, and increase board independence. Academic qualification may also positively affect bank performance and reduce risk-taking by increasing general managerial skills, technical expertise, and transferable knowledge between board members (King et al. 2016). For Islamic banks, Safiullah and Shamsuddin (2019) find that the academic qualification of SSB members enhances bank efficiency. We argue that academically qualified SSBs members might have better ability to operationalize Islamic principles into banking practices and prohibiting excessive risk-taking and unethical practices. Accordingly, we present the following hypotheses:

Hypothesis 4a. *Higher academic qualifications of board members reduce the effect of corruption on the risk-taking of conventional banks.*

Hypothesis 4b. *Higher academic qualifications of SSB members reduce the effect of corruption on the risk-taking of Islamic banks.*

3 | Sample and Methodology

3.1 | Construction of the Sample and Data Sources

Following Mollah and Zaman (2015), we select Islamic banks based on the country of registration and their 2010 asset size. Initially, we identify a total of 86 Islamic banks from 15 Organization of Islamic Cooperation (OIC) countries based on the country of registration. However, we remain with 79 Islamic banks due to data availability on their 2010 assets. Moreover, we follow Beck et al. (2013) and only include banks with at least three continuous observations and countries with data on at least four banks (two Islamic banks and two conventional counterparts). Therefore, we left with a final sample of 70 Islamic banks from 10 OIC countries.

In the next step, we choose an equal number of conventional banks from each country based on their asset size. For example, in the case of Pakistan, data for a total of 28 conventional banks were available. To make an equal number of Islamic and conventional banks, we rank the 28 conventional banks based on their asset size and select the top 10 banks. Thus, our final sample contains 10 Islamic banks and 10 conventional banks from Pakistan. The same analogy is used for other countries.

We collect bank-level data and board-level variables over the 2010–2014 period from the BankScope Financials and Directors data files. We use the Fitch Connect database, annual reports, and bank websites to collect the data for the remaining years. As for the governance of Islamic banks, we have hand-collected data on SSB and corporate governance from annual reports for the entire sample period. In addition, both macroeconomic control variables and bank regulation and supervision variables are collected from the World Bank. We winsorize all bank-specific variables at the 1st and the 99th percentiles to reduce the effect of outliers. To ensure accuracy, data on the BankScope classification for Islamic banks are cross-checked with their websites. To avoid irregularities and outliers in data due to the Global Financial Crisis and the Covid-19 pandemic, the sample is restricted to cover the 2010–2019 period. The final sample consists of 1400 bank-year observations for 70 Islamic banks and 70 conventional banks in 10 OIC[2] countries.

3.2 | Empirical Model and Variables

3.2.1 | Baseline Model

In our baseline model, we test two hypotheses: "sand the wheels" and "grease the wheels" for both Islamic and conventional banks. The former assumes the detrimental effect of corruption on bank stability whereas the latter considers that corruption provides support to profitable banks although it may lead to higher risk-taking. Moreover, we argue that the SSBs in Islamic banks, due to the Shari'ah underpinnings and ethical behavior, may deter the effect of corruption on bank risk-taking. To examine this, we introduce interaction terms between corruption and the characteristics of SSB.

We follow Beck et al. (2013), Mollah and Zaman (2015), and Bitar and Tarazi (2019) and use generalized least squares (GLS) confirmed by the Hausman test. The use of GLS regression is more appropriate for two reasons. First, regression models such as OLS ignore the panel structure of our data. Second, the fixed-effects estimator could lead to imprecise estimates when the key regressors do not vary much over time (Semykina and Wooldridge 2010, p. 326). In our regression model, both the Islamic bank dummy and corruption index do not vary much over time. We use the following estimation model:

$$\begin{aligned} Y_{i,j,t} = {} & \beta_0 + \beta_1 Corruption_{j,t} + \beta_2 Islamic\_Dummy_{i,j,t} \\ & + \beta_3 Corruption_{j,t} \times Islamic\_Dummy_{i,j,t} \\ & + \beta_4 SSBSZ_{i,j,t} + \beta_5 Corruption_{j,t} \times SSBSZ_{i,j,t} \\ & + \beta_6 Bank\_deter_{i,j,t} + \beta_7 Country\_deter_{j,t} \\ & + \beta_8 Year\_Dummies_t + \varepsilon_{i,j,t} \end{aligned} \quad (1)$$

where $Y_{i,j,t}$ represents bank risk-taking for bank (i) in country (j) at time (t). Following existing literature, insolvency risk is proxied by the *Z-score* model (see, e.g., Abedifar et al. 2013; Khan et al. 2017; Mollah et al. 2017, among others). *Z-score* is defined as $[return\ on\ assets + equity/assets]/[standard\ deviation\ of\ the\ return\ on\ assets]$. The *standard deviation of the return on assets* is computed using a three-year rolling window. *Z-score* can be interpreted as the number of standard deviations by which returns would have to fall to wipe out all equity of the bank (Roy 1952). Therefore, *Z-score* can be viewed as the inverse of the probability of bank insolvency with higher values denoting a higher level of bank soundness. Because *Z-score* is highly skewed, we use the Log values (see, Mollah et al. 2017). Moreover, following Goyeau and Tarazi (1992), Laeven and Levine (2009) and García-Sánchez et al. (2017), we break *Z-Score* into: *Leverage risk* calculated as $[equity/assets]/standard\ deviation\ of\ the\ return\ on\ asset$; and *Portfolio risk* computed as $[return\ on\ assets]/standard\ deviation\ of\ the\ return\ on\ assets$.

$Corruption_{j,t}$ is the Transparency International's Corruption Perception Index (the TI index, hereafter), which is frequently employed in prior works such as Chen et al. (2015), Jha and Sarangi (2018), Sena et al. (2018), and Sartor and Beamish (2020). The original TI index ranges from 0 to 100 with a lower value suggesting high corruption in a country. For a lower value

indicate low corruption in a country, we rescale it by deducting it from 100. The outcome is denoted by CI and defined as:

$$CI = 100 - TI\ index \quad (2)$$

SSB size (*SSBSZ*) is the Log of the total number of SSB members of an Islamic bank at the end of each year (Farag et al. 2018; Nawaz 2019). The coefficient of the interaction term (β_5) indicates whether SSB size moderates the association between corruption and bank risk-taking. Particularly, a positive association of the interaction term with *Z-score* (an inverse measure of insolvency risk) can be attributed to the strong role of the SSB in advising the bank management and hence in avoiding risky transactions, corporate misconduct, and speculative activities.

$Bank\_deter_{i,j,t}$ is a vector of bank-level determinants of risk-taking identified by the traditional banking and corporate finance literature (Abedifar et al. 2013; Bostandzic and Weiss 2018; Kabir et al. 2015; Palvia et al. 2015). These variables include: logarithm of total assets (*bank size*), equity capital to total assets (*capital ratio*), percentage growth in total assets in each year (*assets growth*), cost to income ratio (*cost inefficiency*), and share of non-interest income in total operating income (*non-interest income*, *NII*).

$\mathrm{Country\_deter}_{j,t}$ is a vector of macroeconomic and institutional variables that are commonly used in the bank risk-taking literature (Anginer et al. 2018; Barth et al. 2009; Bitar et al. 2020; Fratzscher and Rieth 2019; Karimalis and Nomikos 2018; Mourouzidou-Damtsa et al. 2019). We consider *GDP* growth rate (*GDP growth*), inflation rate (*inflation*), and natural resources, that is, oil rents (*oil*) and mineral rent (*mineral*), as macroeconomic variables. The set of institutional variables includes *supervisory power*, *entry barrier*, and *deposit insurance*. S*upervisory power* controls for the capacity of supervisory authorities to take preventive and corrective actions against bank management, shareholders, and auditors (Bitar et al. 2018). The measure ranges from 0 to 14, with higher values indicating stronger supervisory power. The variable *entry barrier* measures the stringency of entry requirements into the banking industry. The measure is constructed on the basis of 8 questions with higher values indicating more entry restrictions in terms of obtaining a banking license. Finally, we use *deposit insurance* to control for whether a country has explicit deposit insurance (Yes = 1/No = 0) and whether depositors were fully compensated the last time a bank failed (Yes = 1/No = 0). The variable ranges from 0 to 2, with higher values denoting stronger deposit insurance schemes. All three variables are constructed on the basis of relevant questions documented in existing studies (see Anginer et al. 2018; Barth et al. 2009, among others) by adding a value of 1 to each index if the answer is yes.

In order to control for all country fixed effects, we use country dummy[3] variables in our regression specifications. Moreover, we include year dummies to control for general market conditions. Finally, we follow Laeven and Levine (2009), Houston et al. (2010) and Kanagaretnam et al. (2019) and cluster standard errors at the country level in all our tests.

3.3 | Summary Statistics

Table 1 presents the descriptive statistics for the 10 countries for the risk-taking, the corruption, the bank-level variables and the country-level variables; *t*-statistics of mean equality test, shown in Panel A, presents the mean difference for conventional and Islamic bank' risk-taking behavior. The results show that Islamic banks are more stable than conventional banks. In addition, we find that, on average, Islamic banks have seven members in their SSBs, and 58% of SSBs members have a doctorate degree. We also observe that, on average, merely 9% of the SSBs members are female, with the highest percentage observed in Malaysia. The highest percentage of female on SSBs in Malaysia could be due to following reasons. Malaysia is considered as the hub of Islamic banking and finance in South Asia, as a result of liberalization of their market (Pok 2012). This liberalism leads to less conservatism towards women in boardrooms of Islamic banks and is thus more likely to promote women to higher executive positions. Moreover, the Malaysian Government encourages the presence of females in the top management of firms. To increase the pool of women who can serve on the boards of Malaysian listed firms, the Government allocated a total of RM10 million (USD 3.3 million) budget in 2012 (Razak 2011).

We also report country by country mean values for each variable in Panel B. We find a significant level of variations in the level of corruption between countries. For instance, our corruption index *CI*, ranges from a minimum value of 31 in UAE to a maximum value of 82 in Yemen. The country-level variables, namely, GDP growth, inflation, oil and mineral rents, also significantly vary across countries, indicating that it is important to control for these variables in our regressions. In addition, Table A1 reports the number of Islamic and conventional banks in each country while Table A2 reports the pairwise correlation of variables in our regressions. The correlation matrix does not reveal any major multicollinearity problems between our exogenous variables. Finally, we notice that for the studied period, the largest number of observations is from Malaysia (i.e., 20% of the overall sample) and the lowest is from Lebanon (i.e., 3% of the overall sample).

4 | Empirical Results

4.1 | The Effect of Corruption on Bank Risk-Taking: Baseline Results

We begin by estimating the effect of corruption on bank risk for the sample of Islamic banks, the sample of conventional banks, and for the overall sample. In our baseline estimation, we test the effect of corruption on bank risk-taking using *Z-score* as a measure of insolvency risk. In the next step, we include the original Corruption Perception Index (CI), the SSB size (*SSBSZ*), and their interaction to investigate the role of SSB in moderating the effect of corruption on the risk-taking of Islamic banks. Results are presented in Table 2.

For the sample of Islamic banks, models (3) and (4), the coefficient of the corruption indicator is negatively associated with *Z-score* at the 10% and 5%, respectively. Likewise, we find a significantly negative association of the corruption indicator and *Z-score* for conventional banks in models (5) and (6) although at the 10% significance level. Moreover, the results for the full sample (models (1) and (2)) are in line with such findings. However, the detrimental impact of corruption on bank stability appears to be weaker for Islamic banks ($\beta_1 + \beta_3$) compared with conventional

TABLE 1 | Summary statistics.

Panel A: Descriptive statistics for the sample of Islamic and conventional banks									
	Islamic banks				**Conventional banks**				
Variable	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**	***t*-test**
Z_Score	3.44	2.10	−1.65	5.76	2.56	1.88	−1.48	6.60	2.712***
LLR (%)	7.27	8.66	0.00	47.00	9.24	8.22	0.00	51.01	−2.451***
NPL (%)	4.23	5.43	0.00	28.00	5.11	5.77	0.00	33.21	−2.402**
LLP (%)	10.21	7.25	0.00	49.00	12.42	14.32	0.00	55.25	−3.408***
Board Size	11.80	3.00	5.00	17.00	13.08	3.91	6.00	21.00	0.851
CEO duality	0.125	0.324	0.00	1.00	0.153	0.355	0.00	1.00	−0.567
Female ratio	0.08	0.12	0.00	0.50	0.11	0.11	0.00	0.53	−2.915**
Audit Committee	0.73	0.45	0.00	1.00	0.62	0.49	0.00	1.00	−2.910**
Risk Management	0.85	0.36	0.00	1.00	0.75	0.44	0.00	1.00	1.867*
SSBSZ	6.65	3.21	2.00	12.00					
SSBACQ	0.58	0.50	0.00	1.00					
SSBFR	0.09	0.15	0.00	0.71					
Assets Growth (%)	2.13	5.31	−3.43	19.50	2.94	7.58	−3.68	26.02	3.829***
Bank Size	8.57	1.29	7.09	15.00	12.97	4.08	7.62	20.00	−3.906***
Capital Asset Ratio (%)	26.62	25.49	8.11	86.01	15.00	9.83	5.01	41.00	2.384**
Cost Inefficiency (%)	73.53	68.88	3.01	253.90	59.94	58.42	1.00	272.90	−1.918*
Non-interest Income (%)	30.81	18.84	9.00	154.32	21.11	18.71	0.49	141.50	−4.256***

Panel B: Descriptive statistics by country										
	BHR	**BGD**	**KWT**	**LBN**	**MYS**	**PAK**	**SAU**	**TUR**	**UAE**	**YEM**
Z_Score	1.639	2.71	1.075	1.399	3.691	2.138	2.341	3.109	2.41	1.186
LLRs (%)	7.361	9.957	5.281	7.368	1.447	5.792	5.888	9.612	6.478	5.515
NPLs (%)	4.759	5.120	3.611	9.928	2.430	6.125	1.379	3.097	5.774	4.904
LLPs (%)	5.349	6.498	14.475	8.721	10.728	8.141	15.077	9.139	7.469	6.810
CI	54.00	74.0	57.0	72.0	51.0	70.0	52.0	56.0	31.0	82.0
Board Size	13.522	14.215	10.833	11.292	10.018	8.383	10.104	9.958	9.324	8.389
CEO duality	0.094	0.131	0.075	0.128	0.146	0.106	0.096	0.091	0.119	0.079
Female ratio	0.015	0.086	0.019	0.047	0.068	0.038	0.00	0.057	0.016	0.01
Audit Committee	0.643	0.615	0.333	0.417	0.536	0.633	0.708	0.903	0.528	0.361
Risk Management	0.594	0.865	0.306	0.625	0.560	0.733	0.917	0.958	0.593	0.50
SSBSZ	5.44	3.906	1.874	2.542	6.155	2.917	2.208	2.292	2.046	2.139

(Continues)

TABLE 1 (Continued)

Panel B: Descriptive statistics by country										
	BHR	**BGD**	**KWT**	**LBN**	**MYS**	**PAK**	**SAU**	**TUR**	**UAE**	**YEM**
SSBACQ	0.175	0.32	0.192	0.197	0.57	0.58	0.141	0.392	0.171	0.167
SSBFR	0.02	0.07	0.02	0.03	0.10	0.06	0.00	0.05	0.00	0.00
Assets Growth (%)	5.21	4.886	7.404	4.811	7.746	2.189	2.642	8.855	5.763	−3.752
Bank Size	15.501	12.445	15.862	13.978	16.175	14.249	16.032	15.163	15.505	12.19
Capital Asset Ratio (%)	13.451	13.587	11.964	12.226	13.196	16.11	14.92	18.077	17.215	19.893
Cost Inefficiency (%)	52.24	66.563	60.063	47.635	44.582	57.549	39.334	50.877	41.628	54.961
Non-interest Income (%)	23.147	26.669	19.794	32.734	31.213	25.31	32.964	28.949	29.682	26.65
GDP growth	4.276	6.591	4.592	4.822	5.231	4.756	5.781	5.86	4.797	2.069
Oil rent	3.442	0.075	46.355	0.00	3.513	0.645	32.874	0.075	19.068	7.329
Mineral rent	0.00	0.00	0.00	0.00	0.228	0.042	0.72	0.235	0.00	0.00
Entry Barrier	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	0.00	0.00
Supervisory Power	12.00	5.00	13.00	11.00	12.00	12.00	13.00	13.00	0.00	0.00
Deposit Insurance	1.00	1.00	1.00	2.00	1.00	0.00	1.00	2.00	0.00	0.00

Note: This table reports general descriptive statistics for Islamic and conventional banks (Panel A), and by country for the full sample (Panel B), over 2010–2019. The reported values in Panel B are the means of the respective variables for each country. T-Stat. of mean equality test describes the mean difference in the performance between Islamic and conventional banks. *Z-score* is the inverse of the probability of bank insolvency. *LLR* is the ratio of loan loss reserves to gross loans. *NPL* is the ratio of non-performing loans to gross loans. *LLP* is the ratio of loan-loss provisions to average gross loans. *CI* is the corruption indicator and key independent variable based on Transparency International's Corruption Perception Index but adjusted by Equation (2). Governance variables include; *board size* which is the number of directors on the board, *CEO duality* is a dummy variable that takes value one if the CEO is also the chairman of the board, and zero otherwise, *female ratio* is the number of female directors divided by total number of directors, and dummy variables take the value one if the *auditing committee* is independent and there is a separate *risk management committee* in the board structure, respectively. SSB attributes include; *SSBACQ* is the academic qualification of SSBs members refers to the number of SSBs members with M.Phil/doctorate degrees as a percentage of the total SSB members, *SSBFR* is the representation of females in SSBs implies a share of female members in SSBs, and *SSBSZ* is the number of members serving on the SSB of an Islamic bank at the end of each year. Bank-level variables include; *capital asset ratio* is the equity capital to asset ratio, *bank size* is the natural logarithm of the total assets, *assets growth* is the percentage growth in total assets in each year, *cost inefficiency* is the cost to income ratio, *non-interest income* is the share of non-interest income in total operating income. Country level controls include; *GDP growth*, natural resources, that is, *oil* and *mineral* rents, and a set of institutional variables. The set of institutional variables includes; the *entry barrier* measures the stringency of entry requirements into the banking industry, the *supervisory power* is an index measuring supervisory agencies' power and authority to take specific preventive and corrective actions, and the *deposit insurance* variable indicates whether a country has explicit deposit insurance and whether depositors were fully compensated the last time a bank failed.
*Significant at 10%. **Significant at 5%. ***Significant at 1%.

TABLE 2 | The effect of corruption on bank risk-taking: Baseline results.

	Z-score models						Leverage risk models			
	Full sample		Sample of IBs		Sample of CBs		Full sample		Sample of IBs	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Panel A. The impact of corruption on bank risk										
CI (β_1)	−0.650**	−0.639**	−0.104*	−0.090**	−0.598*	−0.590*	−2.175***	−1.064***	−1.98***	−0.733***
	(0.301)	(0.303)	(0.059)	(0.044)	(0.306)	(0.308)	(0.141)	(0.144)	(0.180)	(0.156)
IB Dummy	0.534***	0.536***					0.205**	0.206**		
	(0.171)	(0.173)					(0.080)	(0.080)		
IB_Dummy×CI (β_3)	0.155**	0.154**					0.529**	0.401		
	(0.065)	(0.073)					(0.256)	(0.676)		
SSBSZ	0.023**	0.024**	0.119**	0.120*			0.054**	0.055**	0.028*	0.031**
	(0.011)	(0.011)	(0.051)	(0.064)			(0.025)	(0.025)	(0.015)	(0.015)
SSBSZ×CI (β_5)	0.069*	0.063**	0.018*	0.021**			0.788***	0.888***	0.265*	0.266*
	(0.038)	(0.025)	(0.010)	(0.009)			(0.013)	(0.025)	(0.150)	(0.149)
Bank Size	0.361*	0.344*	0.026	0.015	0.783**	0.776**	0.058	0.055	0.080	0.088
	(0.203)	(0.200)	(0.175)	(0.173)	(0.349)	(0.348)	(0.074)	(0.075)	(0.075)	(0.076)
Capital Ratio	1.295	1.289	1.966***	2.111***	1.271	1.271	1.469	1.483	3.033*	3.055*
	(3.854)	(3.854)	(0.133)	(0.134)	(1.400)	(1.400)	(3.015)	(3.016)	(1.669)	(1.676)
Assets Growth	0.029**	0.034	0.013	0.015	0.070***	0.066***	0.008**	0.008**	0.010**	0.010**
	(0.014)	(0.025)	(0.018)	(0.018)	(0.020)	(0.020)	(0.004)	(0.004)	(0.005)	(0.005)
Inefficiency	−2.860*	−2.866**	−0.354	−0.360	−0.035*	−0.034*	−0.065	−0.073	−0.154	−0.158
	(1.493)	(1.430)	(0.423)	(0.445)	(0.019)	(0.019)	(1.440)	(1.431)	(1.271)	(1.274)
NII	−0.528	−0.534	0.003	0.004**	−1.486	−1.455	−0.003	−0.003	0.006	0.005
	(1.153)	(1.155)	(0.006)	(0.002)	(1.388)	(1.389)	(0.006)	(0.003)	(0.005)	(0.004)
GDP Growth		0.009***		0.030***		0.024***		0.011**		0.009**
		(0.003)		(0.004)		(0.003)		(0.005)		(0.004)
Oil Rent		−0.006		−0.006		−0.001		−0.005		−0.008
		(0.009)		(0.008)		(0.011)		(0.005)		(0.009)
Mineral Rent		0.075*		0.168		0.105		0.018*		0.021
		(0.043)		(0.119)		(0.105)		(0.010)		(0.043)
Entry Barrier		1.269**		0.681		1.726*		0.079		0.275*
		(0.534)		(0.634)		(1.009)		(0.203)		(0.165)
Supervisory Power		0.809**		0.443		1.094*		0.111***		0.023***
		(0.353)		(0.415)		(0.586)		(0.008)		(0.005)

(Continues)

TABLE 2 (Continued)

	Z-score models						Leverage risk models			
	Full sample		Sample of IBs		Sample of CBs		Full sample		Sample of IBs	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Deposit Insurance		−0.688***		−0.446		−0.888***		−0.425***		−0.270***
		(0.219)		(0.299)		(0.316)		(0.074)		(0.041)
Constant	10.200***	11.275***	9.895***	10.570***	10.025***	11.410***	4.025***	5.280***	3.685***	5.075***
	(0.200)	(0.210)	(0.330)	(0.270)	(0.215)	(0.220)	(0.085)	(0.085)	(0.080)	(0.120)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	1400	1400	700	700	700	700	1400	1400	700	700
No. of Bank	140	140	70	70	70	70	140	140	70	70
R^2	0.402	0.477	0.348	0.356	0.309	0.315	0.423	0.518	0.292	0.295
Panel B: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)										
$H_0: \beta_1 = (3)$	−0.495**	−0.485**					−1.646***	−0.663***		
	(0.214)	(0.203)					(0.141)	(0.144)		
Panel C: The impact of corruption on risk taking of Islamic bank: the role of SSBs size ($\beta_1 + \beta_5$)										
$H_0: \beta_1 = (\beta_1 + \beta_5)$	−0.581**	−0.576**	−0.086**	−0.069			−1.387**	−0.176***	−1.715**	−0.467***
	(0.264)	(0.265)	(0.043)	(0.131)			(0.641)	(0.018)	(0.805)	(0.144)

	Leverage risk models		Portfolio risk models					
	Sample of CBs		Full sample		Sample of IBs		Sample of CBs	
Variables	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**
Panel A. The impact of corruption on bank risk								
CI (β_1)	−2.155***	−1.046***	−4.36***	−3.100***	−4.33***	−3.06***	−4.92***	−3.72***
	(0.141)	(0.144)	(0.354)	(0.386)	(0.358)	(0.389)	(0.460)	(0.514)
IB Dummy			0.204**	0.205**				
			(0.086)	(0.086)				
IB_Dummy×CI (β_3)			0.564*	0.549*				
			(0.313)	(0.303)				
SSBSZ			0.004***	0.004***	0.008**	0.008**		
			(0.001)	(0.001)	(0.004)	(0.004)		
SSBSZ×CI (β_5)			0.030	0.039	0.113	0.015		
			(0.039)	(0.025)	(0.095)	(0.038)		

(Continues)

TABLE 2 (Continued)

	Leverage risk models		Portfolio risk models					
	Sample of CBs		Full sample		Sample of IBs		Sample of CBs	
Variables	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**
Bank Size	0.084	0.090	0.356	0.423	0.168*	0.163*	0.168*	0.163*
	(0.074)	(0.076)	(0.639)	(0.638)	(0.093)	(0.094)	(0.093)	(0.094)
Capital Ratio	1.799	1.818	1.226	1.234	2.181*	2.186*	1.055	1.06
	(4.403)	(4.406)	(1.254)	(1.254)	(1.310)	(1.320)	(1.976)	(1.956)
Assets Growth	0.010*	0.011**	0.008	0.008	0.005	0.005	0.005	0.005
	(0.006)	(0.005)	(0.005)	(0.005)	(0.009)	(0.009)	(0.009)	(0.009)
Inefficiency	−0.123	−0.119	−1.050**	−0.815**	−0.314*	−0.338**	−0.236	−0.160
	(2.526)	(2.531)	(0.495)	(0.345)	(0.171)	(0.134)	(0.204)	(0.239)
NII	−0.005	−0.005	−0.003	−0.003	0.006	0.006	−0.008	−0.008
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
GDP Growth		0.009*		0.001*		0.011***		0.011***
		(0.005)		(0.001)		(0.003)		(0.003)
Oil Rent		−0.008		−0.005		−0.009*		−0.009*
		(0.009)		(0.004)		(0.005)		(0.005)
Mineral Rent		0.018**		0.029*		0.018		0.016
		(0.008)		(0.016)		(0.030)		(0.030)
Entry Barrier		0.279*		1.133***		1.334***		1.339***
		(0.164)		(0.210)		(0.373)		(0.373)
Supervisory Power		0.024***		0.689***		0.821***		0.825***
		(0.005)		(0.139)		(0.248)		(0.248)
Deposit Insurance		−0.270***		−0.223***		−0.298**		−0.300**
		(0.041)		(0.078)		(0.135)		(0.135)
Constant	3.700***	5.095***	3.515***	4.090***	3.465***	4.075***	3.455***	4.055***
	(0.070)	(0.115)	(0.080)	(0.085)	(0.085)	(0.100)	(0.090)	(0.105)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	700	700	1400	1400	700	700	700	700
No. of Bank	70	70	140	140	70	70	70	70
R^2	0.369	0.375	0.234	0.310	0.349	0.355	0.270	0.277

(Continues)

TABLE 2 (Continued)

Variables	Leverage risk models		Portfolio risk models					
	Sample of CBs		Full sample		Sample of IBs		Sample of CBs	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Panel B: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)								
$H_0: \beta_1 = (\beta_1 + \beta_3)$			−3.796**	−2.551***				
			(1.604)	(0.386)				
Panel C: The impact of corruption on risk taking of Islamic bank: the role of SSBs size ($\beta_1 + \beta_5$)								
$H_0: \beta_1 = (\beta_1 + \beta_5)$			−4.333	−3.061	−4.217*	−3.045		
			(5.016)	(4.136)	(2.376)	(3.014)		

Note: This table reports the benchmark results for *Z*-score and its components. We use *Z-score* as a measure of insolvency risk. We break *Z*-score into two risk components; *Leverage risk* calculated as capital assets ratio divided by standard deviation of return on assets, and *Portfolio risk* computed as the return on assets divided by the standard deviation of return on assets. *CI* is the corruption indicator based on Transparency International's Corruption Perception Index but adjusted by Equation (2). *Islamic Dummy* and the interaction term of Islamic dummy with corruption indicator tests whether the risk-taking of Islamic banks could be differently affected by corruption compared with conventional banks. For baseline results, we include *SSBSZ* as a measure of Shari'ah supervision. *SSBSZ* is the number of members serving on the SSB of an Islamic bank at the end of each year. *SSBSZ×CI* is the interaction term between corruption and Shari'ah supervision. Bank-level control variables include; *capital asset ratio* is the equity capital to asset ratio, *bank size* is the natural logarithm of the total assets, *assets growth* is the percentage growth in total assets in each year, *cost inefficiency* is the cost to income ratio, *non-interest income* is the share of non-interest income in total operating income. Country-level controls include; *GDP growth*, natural resources, that is, *oil* and *mineral* rents, and a set of institutional variables. The set of institutional variables includes; the *entry barrier* measures the stringency of entry requirements into the banking industry, the *supervisory power* is an index measuring supervisory agencies' power and authority to take specific preventive and corrective actions, and the *deposit insurance* variable indicates whether a country has explicit deposit insurance and whether depositors were fully compensated the last time a bank failed. We apply the random effect technique with robust standard errors for our estimations. Robust standard errors are reported in parentheses.
*Significant at 10%. **Significant at 5%. ***Significant at 1%.

banks (β_1), in Panel B. Our results confirm hypothesis 1 that banks in countries with higher corruption have higher bank risk for both conventional and Islamic banks, although the effect of corruption is less pronounced on the risk-taking on Islamic banks compared with conventional banks. These findings highlight the role of the SSB, which to some extent is expected to mitigate unethical behavior (Abdelsalam et al. 2016; Alsaadi et al. 2017; Khan et al. 2021; Salem et al. 2021). The results further confirm such a conjecture when interacting SSB size (*SSBSZ*) with the corruption index, which shows that SSB size also attenuates the negative effect of corruption on the stability of Islamic banks (Panel C, models (1) to (4)). Contrary, the interaction effect of board size and corruption index is insignificant for conventional banks (Table 4). Hence, our results confirm Hypothesis 2a while rejecting Hypothesis 2b. On the whole, our findings are in-line with the "sand the wheels" effect of corruption (Blanc et al. 2019; Chantziaras et al. 2020; Joseph et al. 2016).

Furthermore, we include the two components of *Z-score*, *Leverage risk*, and *Portfolio risk* to further refine our findings. Models (7) to (18) report the results for the two components of *Z-score*. Although with lower significance level, the results in models (7) to (12), where the dependent variable is *Leverage risk* (and in models (13) to (18) where the dependent variable is *Portfolio risk*) are similar to the findings obtained for the *Z-score* variable. For leverage risk, the coefficient of corruption is significant and negative in all regressions, suggesting that depending on the degree of corruption both Islamic and conventional banks take similar decisions regarding how much capital they should hold. However, the coefficients of the corruption variable are slightly lower for Islamic banks than for conventional banks, in line with the results obtained for *Z*-score. Recent studies show that banks tend to hold less capital in countries with high levels of corruption because bank capital is largely held by corrupt government officials and political parties (Alraheb et al. 2019). However, the fundamental premise of Islamic banks is the promotion of equity participation (Alraheb et al. 2019; Belkhir et al. 2016). Hence, equity capital may act as capital buffer against corruption.

Overall, corruption influences the behavior of banks both in terms of how much risk they take and in terms of how much capital they hold. The lower effect of countries' corruption on the stability of Islamic banks compared with conventional banks appears to be driven by the two components of *Z*-score, that is, capital and risk-taking.

Among the control variables, we find significant and positive association between bank size and risk, which is in-line with the possible diversification benefits. Besides, the results show that less efficient banks face higher insolvency risk. As for country-level control variables, we find that banks are more stable and less vulnerable in countries with better GDP growth, strong entry barriers, and effective supervisory power, indicating that restricted market entry and strong prudential supervision enhance bank stability (Fu et al. 2014; Uhde and Heimeshoff 2009). However, the presence of an explicit deposit insurance has a negative effect on bank stability, suggesting that generous financial safety nets can exacerbate moral hazard problems in the banking sector by incentivizing banks to take on excessive risk (Anginer et al. 2014).

4.2 | The Effect of Corruption on Bank Risk-Taking: The Moderating Role of SSB Attributes

Next, we investigate the moderating role of two SSB attributes: female's representation in SSBs and academic qualification of SSB members, on the association between corruption and bank risk-taking. The extant literature discusses these attributes in the context of conventional banking. Existing studies based on agency theory report that female directors are more likely to be independent (Adams and Ferreira 2009; Dang et al. 2014). Furthermore, according to resource dependency theory, female directors can bring unique and valuable resources and relationships to their boards. The proponents of resource dependency theory argue that the new skills and perspectives brought by female directors to the board result in the provision of valuable advice to top managers (Anderson et al. 2011), better decisions related to problem-solving (Daily and Dalton 2003), enhancement of creativity and innovation (Robinson and Dechant 1997), and improvement of access to information (Beckman and Haunschild 2002). Based on these arguments, the monitoring role of females on the SSBs might also be augmented by their greater independence compared with their male counterparts.

Similarly, SSB members with higher academic qualifications, especially those with Islamic financial education, significantly contribute to lower risk in Islamic banks and improve their stability. There might be several factors explaining the positive impact of board members academic qualification on bank stability. For instance, consistent with the resource-based view, qualified board members are considered as assets and bring diversity to boards in terms of knowledge, expertise, skills, and cognitive abilities (Anderson et al. 2011; Guney et al. 2020). Besides, qualified board members provide relevant professional advice that reduces credit risk, limits negative returns, and decreases the risk of bankruptcy (Abdelbadie and Salama 2019). Academic qualification could also influence the ability of directors to better interpret and evaluate sophisticated risk measurement techniques and the impact of bank policies on risk (Srivastav and Hagendorff 2016).

To test the moderating role of SSB attributes, we introduce interaction terms between corruption and two characteristics of SSBs for the sample of Islamic banks, using the following econometric specification:

$$\begin{aligned} Y_{i,j,t} = {} & \beta_0 + \beta_1 Corruption_{j,t} + \beta_2 SSBSZ_{i,j,t} + \beta_3 SSBACQ_{i,j,t} \\ & + \beta_4 SSBFR_{i,j,t} + \beta_5 Corruption_{j,t} \times SSBSZ_{i,j,t} \\ & + \beta_6 Corruption\ X\ SSBACQ_{i,j,t} \\ & + \beta_7 Corruption\ X\ SSBFR_{i,j,t} \\ & + \beta_8 Bank\_Control_{i,j,t} + \beta_9 Country\_Control_{j,t} \\ & + \beta_{10} Year\_Dummies_t + \varepsilon_{i,j,t} \end{aligned} \quad (3)$$

where $SSBACQ_{i,j,t}$, and $SSBFR_{i,j,t}$ represent the academic qualifications of SSBs members and the representation of females in SSBs for bank (i) in country (j) at time (t). *SSBACQ* is the number of SSB members with doctorate degrees, as a percentage of the total SSB members.[4] *SSBFR* is the number of female members divided by total number of SSBs members.

The coefficients of interaction terms (β_5 to β_7) indicate whether attributes of SSBs moderate the relationship between corruption and bank risk-taking.

The results reported in Table 3, Panel A, models (1) and (2) show that the coefficients of interaction terms on SSBFR and SSBACQ are positive and statistically significant. This implies that the structure of SSBs and specifically the presence of female members and that of academically qualified members attenuate the effect of corruption on the stability of Islamic banks. These findings confirm Hypotheses 3b and 4b, indicating that representation of female on SSBs and higher academic qualifications of SSB members alleviates the positive effect of corruption on the risk-taking of Islamic banks.

The marginal effects reported in Panel B ($\beta_1 + \beta_5$), Panel C ($\beta_1 + \beta_6$), and Panel D ($\beta_1 + \beta_7$) indicate that while the SSBSZ attenuate the effect of corruption on the stability of Islamic banks ($\beta_1 + \beta_5$ is significantly negative but the negative effect is less pronounced compared with β_1), both SSBACQ ($\beta_1 + \beta_6$ is significantly positive) and SSBFR ($\beta_1 + \beta_7$ is significantly positive) outweigh the adverse effect of corruption and enhance the stability of Islamic banks. Such findings are supported by agency theory and the resource-based view. Specifically, the presence of female directors and academically qualified members on the board of directors may translate into greater independence, be considered as assets, bring diversity to boards in terms of knowledge and expertise, and represent an inclusive culture within Islamic banks. Hence, these two attributes of SSBs enhance the stability of Islamic banks. Finally, models (3) to (6) show that both SSBFR and SSBACQ are effective in reducing the impact of corruption on the capital component of *Z-score*. This indicates that the positive effect of these two attributes of SSBs in mitigating the effect of corruption on bank stability is mainly driven by banks holding higher capital ratios. In other words, in countries with higher level of corruption, Islamic banks with higher presence of female on the SSB and higher academic qualifications of SSB members tend to hold higher capital ratios to protect against risky behavior.

Next, we estimate the models separately for the board structure of conventional banks and its interaction with corruption. Indeed, better governance arrangements could also mitigate the impact of corruption on the stability of conventional banks. We consider the same board structure variables that are used in the banking literature (Faleye and Krishnan 2017; García-Sánchez et al. 2017) and the corporate finance literature (Carter et al. 2010; Green and Homroy 2018; Sila et al. 2016). Particularly, board structure of conventional banks include: the logarithm of number of directors on the board (*board size*), a dummy variable that takes value one if the CEO is also the chairman of the board, and zero otherwise (*CEO duality*), the number of female directors divided by the total number of directors (*female ratio*), the number of board members with M.Phil/doctorate degrees as a percentage of the total board members (*academic qualification of board members*), and dummy variables for independent *audit* and *risk management committees* in the board structure.

The results presented in Table 4 Panel B, Panel C, and Panel D show that the governance structure of conventional banks has

TABLE 3 | The effect of corruption on bank risk-taking: The role of the attributes of Shari'ah supervision.

	Z-score models		Leverage risk models		Portfolio risk models	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: The impact of corruption on bank risk						
CI (β_1)	−0.115***	−0.055***	−1.113**	−0.970**	−0.113**	−0.100***
	(0.035)	(0.015)	(0.505)	(0.395)	(0.050)	(0.025)
SSBSZ	1.244*	1.236**	0.306**	0.306**	0.041	0.040*
	(0.713)	(0.513)	(0.120)	(0.121)	(0.213)	(0.021)
CI×SSBSZ(β_5)	0.090*	0.021**	0.956**	0.944***	0.038	0.048
	(0.050)	(0.010)	(0.403)	(0.268)	(0.181)	(0.190)
SSBACQ	1.839*	1.956*	1.478*	1.633*	3.195**	3.385**
	(1.093)	(0.981)	(0.769)	(0.883)	(1.266)	(1.318)
CI×SSBACQ(β_6)	0.189***	0.151***	1.194*	1.140**	0.178*	0.189**
	(0.063)	(0.026)	(0.614)	(0.515)	(0.101)	(0.089)
SSBFR	0.980***	0.800**	0.426***	0.528**	0.549**	0.681**
	(0.204)	(0.378)	(0.101)	(0.211)	(0.278)	(0.286)
CI×SSBFR (β_7)	0.154**	0.170***	1.213**	1.141*	0.189**	0.218**
	(0.069)	(0.053)	(0.581)	(0.609)	(0.081)	(0.100)
Constant	0.198***	1.548***	23.414***	18.893***	18.619***	19.901***
	(0.064)	(0.320)	(5.495)	(5.068)	(1.579)	(1.811)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	Yes	No	Yes	No	Yes
Observations	700	700	700	700	700	700
Number of Banks	70	70	70	70	70	70
R^2	0.332	0.345	0.268	0.281	0.370	0.368
Panel B: The impact of corruption on risk taking of Islamic bank: the role of SSBs size $(\beta_1 + \beta_5)$						
$H_0: \beta_1 = (\beta_1 + \beta_5)$	−0.025**	−0.034**	−0.156*	−0.026*	−0.075	−0.053*
	(0.013)	(0.016)	(0.090)	(0.015)	(0.160)	(0.030)
Panel C: The impact of corruption on risk taking of Islamic bank: the role of SSBs members' academic qualifications $(\beta_1 + \beta_6)$						
$H_0: \beta_1 = (\beta_1 + \beta_6)$	0.074***	0.096**	0.081**	0.170*	0.065	0.089
	(0.026)	(0.040)	(0.040)	(0.095)	(0.240)	(1.018)
Panel D: The impact of corruption on risk taking of Islamic bank: the role of representation of females in SSBs $(\beta_1 + \beta_7)$						
$H_0: \beta_1 = (\beta_1 + \beta_7)$	0.039**	0.115***	0.100*	0.171**	0.076	0.118
	(0.018)	(0.031)	(0.056)	(0.081)	(0.356)	(0.343)

Note: This table reports the results for the role of the Shari'ah supervisory board structure. We use *Z-score* as a measure of insolvency risk. *Z-score* is the inverse of the probability of bank insolvency. We break *Z*-score into two risk components; *Leverage risk* calculated as the capital assets ratio divided by the standard deviation of return on assets, and *Portfolio risk* computed as the return on assets divided by standard deviation of return on assets. *CI* is the corruption indicator based on Transparency International's Corruption Perception Index but adjusted by Equation (2). SSB attributes include; *SSBACQ* is the academic qualification of SSBs members refers to the number of SSBs members with M.Phil/doctorate degrees as a percentage of the total SSB members, *SSBFR* is the representation of females in SSBs implies a share of female members in SSBs, and *SSBSZ* is the number of members serving on the SSB of an Islamic bank at the end of each year.
*Significant at 10%. **Significant at 5%. ***Significant at 1%.

a weak effect on the association between corruption and bank risk-taking. Specifically, the coefficients on the interaction terms between corruption and academically qualified members $((\beta_1 + (\beta_1 * \beta_3))$ and between corruption and female board representation $(\beta_1 + (\beta_1 * \beta_4))$ show merely 10% level of significance. These results merely confirm hypotheses 3a and 4a and suggest that the same governance attributes tested on the SSB of Islamic banks do not moderate the effect of corruption on the stability of conventional banks. This finding underscores the necessity of SSBs, a multi-layer corporate governance model to further reduce the effect of corruption on the stability of conventional banks.

TABLE 4 | The effect of corruption on bank risk-taking: The role of conventional governance.

	Z-score models		Leverage risk models		Portfolio risk models	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: The impact of corruption on bank risk						
CI (β_1)	−1.288***	−1.888***	−1.339***	−1.270**	−1.113***	−0.788***
	(0.273)	(0.419)	(0.431)	(0.550)	(0.088)	(0.075)
Board size (β_2)	1.288	1.338	0.263	0.413	1.348	1.279
	(2.575)	(1.363)	(0.438)	(0.663)	(1.394)	(1.395)
CI×Board size $(\beta_1 * \beta_2)$	1.280	1.300	1.313	1.263	0.190	0.036
	(1.375)	(2.638)	(2.575)	(2.588)	(1.418)	(1.419)
Academic qualification of board members (β_3)	3.731***	3.726***	1.206**	1.216**	0.044**	0.043**
	(1.109)	(1.118)	(0.606)	(0.550)	(0.021)	(0.021)
CI×Academic qualification of board members $(\beta_1 * \beta_3)$	1.233	0.041*	0.099	0.043*	0.781	0.653*
	(3.179)	(0.023)	(0.570)	(0.025)	(1.433)	(0.388)
Female ratio (β_4)	2.004	1.973**	2.115**	2.164**	2.463***	2.500***
	(1.225)	(0.988)	(0.885)	(0.959)	(0.704)	(0.706)
CI×Female ratio $(\beta_1 * \beta_4)$	1.250	1.763*	0.329	0.478*	0.676	0.590
	(2.700)	(1.038)	(1.891)	(0.264)	(2.919)	(2.921)
CEO Duality (β_5)	−0.144*	−0.248**	−0.263	−0.270	−0.115	−0.119
	(0.084)	(0.099)	(0.265)	(0.264)	(0.363)	(0.358)
CI×CEO Duality $(\beta_1 * \beta_5)$	−0.120	−0.089	−0.253	−0.264	−0.093	−0.110
	(0.083)	(0.094)	(0.279)	(0.276)	(0.373)	(0.365)
Audit Committee (β_6)	0.301	0.306	0.953	0.979	0.283	0.319
	(0.428)	(0.428)	(1.055)	(1.045)	(0.498)	(0.521)
CI×Audit Committee $(\beta_1 * \beta_6)$	0.153	0.151	0.551	0.543	0.300	0.325
	(0.240)	(0.241)	(0.406)	(0.404)	(0.463)	(0.513)
Risk Management (β_7)	1.225**	1.175**	1.488***	1.450***	1.250**	1.263**
	(0.538)	(0.488)	(0.425)	(0.463)	(0.500)	(0.500)
CI×Risk Management $(\beta_1 * \beta_7)$	1.188	1.151	1.963	1.538	1.650	1.625
	(1.033)	(1.036)	(2.225)	(2.038)	(2.588)	(2.613)
Constant	37.650	94.356*	2.389	12.375*	14.138*	15.643**
	(32.813)	(55.298)	(3.278)	(7.504)	(8.480)	(7.790)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

(Continues)

TABLE 4 (Continued)

	Z-score models		Leverage risk models		Portfolio risk models	
	(1)	(2)	(3)	(4)	(5)	(6)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	Yes	No	Yes	No	Yes
Observations	700	700	700	700	700	700
Number of Banks	70	70	70	70	70	70
R^2	0.287	0.313	0.310	0.325	0.378	0.381
Panel B: The impact of corruption on risk taking: the role of board size ($\beta_1 + (\beta_1 * \beta_2)$)						
$H_0: \beta_1 = (\beta_1 + (\beta_1 * \beta_2))$	−0.008	−0.588	−0.026	−0.008	−0.923	−0.751
	(0.068)	(0.801)	(0.103)	(0.094)	(1.323)	(1.305)
Panel C: The impact of corruption on risk taking: the role of academic qualification of board members ($\beta_1 + (\beta_1 * \beta_3)$)						
$H_0: \beta_1 = (\beta_1 + (\beta_1 * \beta_3))$	−0.055	−1.846*	−1.240	−1.228*	−0.331	−0.135*
	(1.281)	(1.080)	(1.071)	(0.676)	(1.084)	(0.076)
Panel D: The impact of corruption on risk taking: the role of representation of females on bank board ($\beta_1 + (\beta_1 * \beta_4)$)						
$H_0: \beta_1 = (\beta_1 + (\beta_1 * \beta_4))$	−0.038	−0.125*	−1.010	−0.793*	−0.436	−0.198
	(1.568)	(0.068)	(0.696)	(0.451)	(1.600)	(1.596)

Note: This table reports the results for the role of the conventional governance structure. We use *Z-score* as measure of insolvency risk. *Z-score* is the inverse of the probability of bank insolvency. We break *Z*-score into two risk components; *Leverage risk* calculated as capital assets ratio divided by standard deviation of return on assets, and *Portfolio risk* computed as return on assets divided by standard deviation of return on assets. *CI* is the corruption indicator based on Transparency International's Corruption Perception Index but adjusted by Equation (2). Governance variables include; *board size* that is the number of directors on board, *Academic qualification of board members* is the academic qualification of board members of conventional banks refers to the number of board members with M.Phil/doctorate degrees, as a percentage of the total board members, *Female ratio* is the female ratio computed as the number of female directors divided by total number of directors, *CEO duality* is a dummy variable that takes value one if the CEO is also the chairman of the board, and zero otherwise, *female ratio* is the number of female directors divided by total number of directors, and dummy variables take the value one if the *auditing committee* is independent, and there is a separate *risk management committee* in the board structure, respectively.
*Significant at 10%. **Significant at 5%. ***Significant at 1%.

4.3 | Further Investigations and Robustness Tests

In this section, we conduct further investigations and robustness tests using alternative measures of risk and corruption, as well as additional control variables. We also employ alternative econometric estimations to address potential endogeneity issues.

4.3.1 | Alternative Measures of Bank Risk

We examine the robustness of our findings using three alternative measures of bank risk. Specifically, we use the ratio of loan-loss reserves to gross loans (*LLRs*), the ratio of non-performing loans to gross loans (*NPLs*) and the ratio of loan-loss provisions to average gross loans (*LLPs*). *LLRs* represent manager's assessment of the quality of the loan portfolio, including performing and non-performing loans. *LLRs* takes into account the past performance and the expectation for future performance of the existing loan portfolio (Abedifar et al. 2013). Moreover, its periodic adjustment is reflected in the income statement in the form of loan-loss provision. Therefore, the *LLPs* and *NPLs* both backward-looking proxies for credit risk are also used. These three proxies are widely used in the literature as accounting-based credit risk indicators (Abedifar et al. 2017; Bitar et al. 2020; Sila et al. 2016).

Table 5 (Panel A, models (1) to (6)) reports the results for the ratio of *LLRs* as an alternative measure of bank credit risk. The findings suggest the following: First, models (1) and (2) show that Islamic banks are less exposed to credit risk compared with conventional banks (Abedifar et al. 2013). Second, models (4) to (6) show that corruption is positively associated with bank credit risk for the two bank types. However, the results for the full sample show that the positive effect of corruption is less pronounced on the credit risk of Islamic banks than conventional banks (models (1) and (2)). Panel B further supports our main findings, indicating that the positive effect of corruption appears to be weaker on the credit risk of Islamic banks compared with conventional banks (the coefficient on $(\beta_1+\beta_3)$ is significantly positive at the 5% level but weaker in magnitude and less significant compared with β_1). Third, the size of SSB, the presence of female directors on the SSB, and the presence of members with higher academic qualifications attenuate the positive effect of corruption on the credit risk of Islamic banks. Finally, the results remain highly significant and with the expected signs when we replace the ratio of LLRs with *NPLs* and *LLPs* ratios.

4.3.2 | Alternative Measures of Corruption

Next, we follow Chen et al. (2015) and DeBacker et al. (2015) and use the adjusted Corruption Perception Index (Adj. CI) as an alternative measure of corruption. Particularly, Adj. CI shows the severity of corruption in a country relative to its global average. Adj. CI for a country j in year t is expressed as follows:

$$\text{Adj. CI} = \frac{CI_{jt}}{\left(\sum_{j=1}^{N} CI_{jt}\right)/N} \tag{4}$$

We also refer to the work of Kaufmann et al. (2010) and use World Bank's corruption index (WBCI) as a second proxy of corruption. Data on WBCI are collected from the World Bank's Worldwide Governance Indicators, which is scaled from −2.5 to 2.5, a lower value denotes high corruption in a country. By following Chen et al. (2015), we subtracted WBCI from 0, thus a lower value indicates less corruption. Results are reported in Table 6 and continue to show that corruption has a negative effect on the stability of the two bank types (Panel A) although the effect is less pronounced on the stability of Islamic banks compared with conventional banks (Panel B).

4.3.3 | Additional Control Variables

Now, we address concerns regarding how potential omitted institutional environment and cultural control variables influence the association between corruption and bank stability. Therefore, in addition to bank level and macroeconomic variables, we refer to the banking literature and control for creditor rights, economic freedom, culture, and religion (Houston et al. 2010; Anginer et al. 2014; Anginer et al. 2018; Anginer et al. 2019; Bitar and Tarazi 2019; Bitar and Tarazi 2022; Berger et al. 2021). Strong creditors' rights grant more power to creditors in case of bankruptcy, thus reducing both the adverse selection and moral hazard problems associated with bank lending (Houston et al. 2010) and corporate risk-taking (Acharya et al. 2011). Economic freedom measures such as *judicial effectiveness*, *monetary freedom*, and *financial freedom* are also expected to be positively associated with bank stability. These measures contribute to better functioning of market mechanisms (Goel and Nelson 2005), push banks to maintain higher capital ratios (Alraheb et al. 2019), and create more favorable conditions to successfully implement banking regulation and enhance bank stability (Bitar et al. 2018; Bitar et al. 2021).

Recent literature also shows that culture affects bank risk and performance. Berger et al. (2021) finds that individualism and masculinity are positively associated with bank failure. Bitar et al. (2020) find that banks tend to hold less regulatory capital in individualistic countries while Boubakri et al. (2017) finds that banks in collectivist countries perform better during the subprime crisis. We use Hofstede's (1980, 2001) four cultural dimensions—*individualism*, *power distance*, *uncertainty avoidance*, and *masculinity*—and expect banks to be less stable in countries that are individualistic and masculine because managers in these countries are less risk-averse, overconfident, and tend to underestimate their risk-exposure (Bitar and Tarazi 2022; Berger et al. 2021). We also expect power distance to be negatively associated with bank stability because power distance societies prefer a centralisation of authority, constrained information flow, and favor conformity over innovative risk management solutions (Berger et al. 2021). Besides, we expect uncertainty avoidance to be positively associated with bank stability as people in these countries have lower tolerance for ambiguity; they tend to be less risk averse and are better equipped to monitor borrowers (Boubakri et al. 2017).

Finally, our sample is dominated by Muslim countries and thus it is important to control for the effect of the share of the Muslim population in each country, *Muslim*, especially that the Shari'ah law is based on the Islamic doctrine. The extant literature argues that religiosity increases the ethical behavior and levels of risk aversion of firms (Blau 2017; Cai et al. 2020; Kanagaretnam et al. 2015). Moreover, banks in more religious areas exhibit

TABLE 5 | Robustness test: Alternative measure of risk.

	LLRs models						NPLs models			
	Full sample		Islamic banks		Conventional banks		Full sample		Islamic banks	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A. The impact of corruption on bank risk										
CI (β_1)	2.036**	1.903**	1.118**	0.969**	2.590***	2.523***	0.888***	0.925**	0.113**	0.125**
	(0.825)	(0.793)	(0.508)	(0.398)	(0.971)	(0.926)	(0.263)	(0.413)	(0.050)	(0.050)
Islamic Dummy	−2.10***	−0.313***					−1.144**	−1.268**		
	(0.300)	(0.100)					(0.501)	(0.633)		
CI×Islamic Dummy (β_3)	−1.326**	−1.313**					−0.075*	−0.088**		
	(0.565)	(0.589)					(0.043)	(0.038)		
SSBSZ	−0.180**	−0.183**	−2.518**	−2.950**			−2.855**	−3.208***	−0.34**	−0.316**
	(0.087)	(0.087)	(1.244)	(1.216)			(1.204)	(1.065)	(0.143)	(0.151)
CI×SSBSZ (β_5)	−0.065*	−0.056*	−0.460*	−0.506			−0.174*	−0.180**	−0.094	−0.188*
	(0.036)	(0.034)	(0.258)	(0.380)			(0.090)	(0.090)	(0.063)	(0.110)
SSBACQ	−3.87***	−3.92***	−4.08***	−4.16***			−2.589**	−2.501***	−3.86**	−3.948**
	(1.120)	(1.121)	(1.510)	(1.521)			(1.059)	(0.833)	(1.714)	(1.661)
CI×SSBACQ (β_6)	−0.968**	−0.981**	−0.150***	−0.143**			−0.027	−0.028*	−0.609**	−0.641**
	(0.464)	(0.464)	(0.043)	(0.066)			(0.017)	(0.017)	(0.271)	(0.296)
SSBFR	−3.054**	−2.983**	−1.013*	−1.019**			−3.381***	−3.396***	−3.675***	−3.750***
	(1.499)	(1.471)	(0.594)	(0.465)			(0.714)	(0.715)	(0.970)	(0.989)
CI×SSBFR (β_7)	−0.760*	−0.758**	−0.079**	−0.083**			−1.450*	−1.548**	−0.555**	−0.554*
	(0.424)	(0.334)	(0.039)	(0.038)			(0.790)	(0.664)	(0.276)	(0.318)
Constant	3.811	9.376	7.874	8.260	1.148	12.375*	13.550***	13.713***	9.529	9.090
	(4.776)	(6.815)	(7.048)	(11.470)	(4.526)	(7.506)	(3.676)	(3.610)	(8.080)	(8.525)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	1400	1400	700	700	700	700	1400	1400	700	700
Number of Banks	140	140	70	70	70	70	140	140	70	70
R^2	0.168	0.181	0.247	0.249	0.313	0.325	0.363	0.389	0.420	0.416
Panel B: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)										
$H_0: \beta_1 = (\beta_1 + \beta_3)$	0.710**	0.590**					0.813**	0.838*		
	(0.301)	(0.298)					(0.401)	(0.491)		

(Continues)

TABLE 5 (Continued)

	NPLs models		LLPs models					
	Conventional banks		Full sample		Islamic banks		Conventional banks	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Panel A. The impact of corruption on bank risk								
CI (β_1)	0.688***	0.48***	2.338***	2.00***	1.349**	1.340**	4.10**	4.95***
	(0.238)	(0.160)	(0.588)	(0.575)	(0.535)	(0.534)	(1.845)	(1.458)
Islamic Dummy			−1.951*	−2.224*				
			(1.144)	(1.206)				
CI×Islamic Dummy (β_3)			−1.370**	−1.300*				
			(0.638)	(0.738)				
SSBSZ			−1.280**	−1.29**	−1.790*	−0.20**		
			(0.644)	(0.645)	(0.973)	(0.093)		
CI×SSBSZ (β_5)			−0.208*	−0.215*	−0.214*	−0.211*		
			(0.109)	(0.111)	(0.111)	(0.118)		
SSBACQ			−3.730**	−3.08**	−3.01***	−2.36**		
			(1.789)	(1.278)	(0.753)	(1.020)		
CI×SSBACQ (β_6)			−0.296*	−0.304**	−0.066*	−0.059*		
			(0.164)	(0.140)	(0.040)	(0.031)		
SSBFR			−4.711***	−3.128**	−3.289**	−3.289**		
			(1.334)	(1.266)	(1.599)	(1.606)		
CI×SSBFR (β_7)			−0.643*	−0.301*	−0.153*	−0.121**		
			(0.374)	(0.174)	(0.086)	(0.056)		
Constant	−4.620	−3.491	−17.900	−18.413	7.308	7.506	2.671	3.023
	(3.200)	(3.169)	(10.974)	(11.263)	(4.574)	(4.571)	(2.058)	(2.103)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	700	700	1400	1400	700	700	700	700
Number of Banks	70	70	140	140	70	70	70	70
R^2	0.334	0.301	0.182	0.185	0.263	0.266	0.300	0.308
Panel B: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)								
$H_0: \beta_1 = (\beta_1 + \beta_3)$			0.968**	0.700**				
			(0.440)	(0.333)				

Note: This table reports the results for credit risk models as alternative risk measure. We use *Loan loss reserve (LLRs), Non-performing loans (NPLs), and Loan-loss provisions (LLPs)* as alternative risk measures. *Loan loss reserve is* the ratio of loan loss reserves to gross loans. *Non-performing loans* is the ratio of non-performing loans to gross loans, and *Loan-loss provisions* is the ratio of loan-loss provisions to average gross loans. *CI* is the corruption indicator based on Transparency International's Corruption Perception Index but adjusted by equation (2). *Islamic Dummy* and the interaction term of Islamic dummy with corruption indicator tests whether the risk-taking of Islamic banks could be differently affected by corruption compared with conventional banks. In all regressions, we use a full set of independent and control variables that include corruption indicator, bank and board characteristics and country-level controls. We only report the coefficients of *corruption indicator* and its interaction with *Islamic dummy* for brevity. We apply random effect technique with robust standard errors for our estimations. Robust standard errors are reported in parentheses. *Significant at 10%. **Significant at 5%. ***Significant at 1%.

TABLE 6 | Robustness test: Alternative measures of corruption.

Panel A. The impact of corruption on bank risk												
***Z*-score models**												
	Full sample				**Islamic banks**				**Conventional banks**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Adj.CI (β_1)	−4.988**	−4.150**			−1.355***	−1.469**			−4.225**	−4.113***		
	(1.980)	(1.675)			(0.151)	(0.713)			(1.938)	(1.475)		
WBCI (β_1)			−5.301**	−5.676**			−0.215**	−0.181**			−3.615*	−3.681*
			(2.150)	(2.434)			(0.093)	(0.084)			(2.170)	(2.141)
Islamic Dummy	3.084**	3.169***	2.513*	2.691**								
	(1.378)	(0.718)	(1.470)	(1.268)								
Adj.CI × Islamic Dummy (β_3)	3.463**	3.063**										
	(1.578)	(1.490)										
WBCI×Islamic Dummy (β_3)			4.009**	4.501***								
			(1.734)	(1.648)								
Constant	11.138**	8.275*	12.375**	10.400**	15.275	36.525	13.065	27.488	18.275**	15.550**	22.663***	16.675***
	(5.075)	(4.725)	(6.200)	(5.175)	(16.338)	(54.863)	(16.188)	(55.963)	(9.064)	(7.763)	(7.300)	(4.338)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1400	1400	1400	1400	700	700	700	700	700	700	700	700
Number of Banks	140	140	140	140	70	70	70	70	70	70	70	70
R^2	0.250	0.265	0.287	0.291	0.179	0.183	0.214	0.218	0.155	0.167	0.149	0.152
Panel B: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)												
$H_0: \beta_1 = (\beta_1 + \beta_3)$	−1.525*	−1.088**	−1.293*	−1.175**								
	(0.818)	(0.465)	(0.725)	(0.526)								

Note: This table reports the results for alternative measures of corruption. We use *Z-score* as measure of insolvency risk. *Z-score* is the inverse of the probability of bank insolvency. *Adj.CI* and *WBCI* are the alternative measures of corruption. *Islamic Dummy* and the interaction term of Islamic dummy with corruption indicator tests whether the risk-taking of Islamic banks could be differently affected by corruption compared with conventional banks. We apply random effect technique with robust standard errors for our estimations. Robust standard errors are reported in parentheses.
*Significant at 10%. **Significant at 5%. ***Significant at 1%.

lower risk (Adhikari and Agrawal 2016; Chircop et al. 2017), and stronger religiosity is also associated with lower loan interest spread (Chen et al. 2016), and bank capital decisions (Bitar and Tarazi 2019).

We use the creditor rights index developed by Djankov et al. (2007) to measure creditor rights across countries (Bitar and Tarazi 2019; Gu et al. 2018). This index ranges from 0 (*weak creditor rights*) to 4 (*strong creditor rights*). The data on the economic freedom measures are obtained from the website of The Heritage Foundation. Finally, the data on the share of the Muslim population in a country are obtained from the websites of Pew Research Center (2015), the global economy.com, The Cline Center for Democracy, and survey reports published by each country.

Table 7 (Panel A) reports the results for the effect on corruption on bank stability for the full sample (models 1 to 4), Islamic banks (models 5 to 8), and conventional banks (models 9 to 12) after controlling for creditor rights and economic freedom measures. As we expected, the findings indicate that creditor rights and the three measures of economic freedom have a significantly positive effect on the stability of the two bank types, reflecting strong institutional environment and efficient monitoring mechanisms. Importantly, the association between corruption and bank stability remains significantly negative for the two bank types and the effect of corruption is less pronounced on the stability of Islamic banks (Panel A.1) compared with conventional banks (Panel A).

Table 7 (Panel B) reports the results for the effect of corruption on bank stability for the full sample (models 1 to 5), Islamic banks (models 6 to 10), and conventional banks (models 11 to 15) after controlling for Hofstede's cultural dimensions and the share of Muslim population in a country. The findings indicate that both bank types tend to be less stable in individualistic, masculine, and power distance countries, confirming our expectations. Cultural values in these countries focus on risk-taking, overconfidence, and pushing boundaries to achieve personal goals, regardless of the existing rules (Kanagaretnam et al. 2011; Bitar and Tarazi 2022). In contrast, banks are more stable in countries that favor uncertainty avoidance, reflecting their compliance with regulatory guidelines and risk avoidance. As for religion, we find that the share of the Muslim population increases the stability of the two types of banks although the effect is stronger on the stability of Islamic banks (model 10) than conventional banks (model 15). Islamic banks in countries with a high share of Muslim population may be more inclined to respect the Shari'ah law and engage less in risky activities. Finally, the results continue to indicate that corruption has a negative effect on the stability of the bank types and this effect is less pronounced on the stability of Islamic banks (Panel B.1) compared with conventional banks (Panel B).

4.3.4 | Endogeneity Concerns

Our results so far indicate that corruption increases the risk-taking for conventional and Islamic banks. However, one could argue that this effect might be due to endogeneity concerns. To address endogeneity, we follow the corruption in bank lending literature (see, e.g., Beck et al. 2006; Barth et al. 2009; Houston et al. 2011; Zheng et al. 2013; El Ghoul et al. 2016; Akins et al. 2017; Niu et al. 2022, among others) to identify a valid instrument. Based on this literature, we identify national culture (collectivism) as a valid instrument for the nexus between corruption and bank risk-taking. We argue that collectivism impacts bank risk-taking only through the channel of corruption in bank lending and does not violate the exclusion restriction assumption.

Drawing on the lens of the "cushion hypothesis," we expect that collectivism may increase risk taking appetite of bank managers due to strong group cohesion and support from peers. "Cushion hypothesis" assumes that individuals in collectivist societies are more likely to receive financial help if they are in need (i.e., they could be "cushioned" if they fell), and consequently tend to be more risk seekers than those in individualistic societies (Hsee and Weber 1999). In the case of banking literature, studies also note that individualism reduces bank risk (see, e.g., Illiashenko 2019; Illiashenko and Laidroo 2020; Jin et al. 2022), and the negative relationship between individualism and bank risk is supported through the "cushion hypothesis." Contrary to the collectivist societies, societies with high individualism do not have strong group cohesion, and the lack of help from friends or families enables bank managers to largely rely on formal judicial systems to restrict their risk-taking behaviors (Licht et al. 2005), which, in turn, reduces bank risk (Illiashenko and Laidroo 2020).

However, prior studies also document that individualism increases bank risk taking (Ashraf et al. 2016; Boubakri et al. 2017; Mourouzidou-Damtsa et al. 2019; Bitar and Tarazi 2022; Andries and Balutel 2022). The positive impact of individualism on bank risk can be explained through the following arguments. First, banks operating within individualistic societies may increase risk to cater to the needs of their customers and shareholders whose primary objective is wealth maximization (Yahanpath and Joseph 2011). In such settings, these banks might not give much consideration to the potential repercussions of their risk-taking behavior on the overall stability of the financial system (Mourouzidou-Damtsa et al. 2019). Second, in addition to the preferences of individualistic bank stakeholders, bank managers in such societies are also likely to lean towards embracing risk-taking behavior, and this inclination arises from their prioritization of personal gains over the collective benefits of the group (Ashraf et al. 2016). This argument is supported by research scholars who document that bank risk positively affects the expected value of managerial compensation packages because bank executive remuneration relies heavily on equity-based pay schemes (Srivastav et al. 2014; Vallascas and Hagendorff 2013). Furthermore, individualistic societies tend to display higher levels of tolerance towards income inequality that arises from risk-taking behavior (Conyon and Murphy 2000). Consequently, such societies are more inclined to accept and accommodate managerial behavior aimed at maximizing utility (Mourouzidou-Damtsa et al. 2019).

The existing debate on the individualism/collectivism dichotomy of national culture and bank risk-taking clearly suggests that national culture impacts bank risk-taking. We also argue that, in collectivist societies, banks may face higher risk due to increased corruption in bank lending. In this regard, Zheng et al. (2013) and El Ghoul et al. (2016) study the role of national culture (collectivism in particular) and corruption in bank lending. They argue that the interdependent self-image

TABLE 7 | Robustness test: Additional control variables.

Panel A. The impact of corruption on bank risk: Controlling for the institutional environment												
***Z*-score models**												
	Full Sample				**Islamic Banks**				**Conventional Banks**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
CI (β_1)	−1.265**	−1.285***	−1.273***	−1.475**	−1.288**	−1.575***	−1.450*	−1.138**	−2.303**	−2.628**	−2.475**	−2.530***
	(0.574)	(0.469)	(0.274)	(0.626)	(0.623)	(0.133)	(0.863)	(0.533)	(1.139)	(1.306)	(1.200)	(0.503)
Islamic Dummy	3.979***	4.005***	3.945***	4.426***								
	(0.853)	(0.660)	(0.523)	(0.701)								
CI × Islamic Dummy (β_3)	0.401**	0.635**	0.706**	0.570*								
	(0.168)	(0.274)	(0.301)	(0.314)								
Creditor Rights	0.811***				0.391*				0.069**			
	(0.081)				(0.208)				(0.028)			
Judicial Effectiveness		1.795*				1.109**				0.933***		
		(1.006)				(0.493)				(0.256)		
Monetary Freedom			1.021***				0.610*				0.158*	
			(0.193)				(0.326)				(0.089)	
Financial Freedom				0.320**				0.022*				0.639**
				(0.148)				(0.012)				(0.301)
Constant	18.734***	23.689***	16.888***	15.650**	4.815	3.269	3.245	3.763	41.313***	39.563**	34.025*	36.338*
	(2.701)	(6.200)	(3.926)	(6.200)	(5.715)	(7.346)	(3.751)	(5.194)	(12.300)	(15.975)	(18.800)	(21.938)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1400	1400	1400	1400	700	700	700	700	700	700	700	700
Number of Banks	140	140	140	140	70	70	70	70	70	70	70	70
R^2	0.205	0.224	0.236	0.204	0.367	0.372	0.374	0.372	0.296	0.294	0.301	0.321
Panel A.1: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)												
$H_0: \beta_1 = (\beta_1 + \beta_3)$	−0.864***	−0.650**	−0.566*	−0.905**								
	(0.131)	(0.311)	(0.321)	(0.388)								

Panel B. The impact of corruption on bank risk: Controlling for the national culture and religiosity															
	Full Sample					**Islamic Banks**					**Conventional Banks**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**
CI (β_1)	−1.415***	−2.251***	−1.538***	−1.950**	−1.784**	−1.450*	−1.838**	−1.713**	−1.525**	−1.493**	−2.683***	−2.675*	−2.388***	−2.736**	−3.130**
	(0.338)	(0.725)	(0.426)	(0.850)	(0.748)	(0.811)	(0.731)	(0.784)	(0.633)	(0.601)	(0.341)	(1.588)	(0.556)	(1.269)	(1.505)
Islamic Dummy	3.858***	3.878***	3.905***	3.498**	2.681*										
	(0.399)	(0.405)	(0.409)	(1.398)	(1.530)										

(Continues)

TABLE 7 (Continued)

Panel B. The impact of corruption on bank risk: Controlling for the national culture and religiosity															
	Full Sample					**Islamic Banks**					**Conventional Banks**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**
CI×Islamic Dummy (β_3)	1.150**	0.125***	1.188***	1.225*	1.146**										
	(0.563)	(0.038)	(0.300)	(0.675)	(0.519)										
Individualism	−0.006***					−0.051					−0.011***				
	(0.001)					(0.061)					(0.004)				
Power distance		−0.023***					−0.019**					−0.015***			
		(0.005)					(0.009)					(0.003)			
Uncertainty avoidance			0.059***					0.029**					0.035**		
			(0.010)					(0.014)					(0.018)		
Masculinity				−0.065*					−0.035**					−0.049*	
				(0.035)					(0.016)					(0.026)	
Muslim					2.019**					2.190***					0.380**
					(0.806)					(0.705)					(0.161)
Constant	24.06***	22.798***	23.013***	19.95***	18.52***	5.568***	7.403***	6.148***	5.314**	6.439***	26.601***	27.765***	29.519***	26.20***	26.480***
	(7.354)	(4.085)	(5.893)	(4.809)	(5.030)	(0.989)	(1.259)	(1.036)	(2.603)	(1.446)	(9.019)	(7.835)	(9.639)	(8.559)	(7.405)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1400	1400	1400	1400	1400	700	700	700	700	700	700	700	700	700	700
Number of Banks	140	140	140	140	140	70	70	70	70	70	70	70	70	70	70
R^2	0.199	0.235	0.235	0.236	0.234	0.371	0.395	0.396	0.396	0.374	0.338	0.347	0.347	0.347	0.349
Panel B.1: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)															
$H_0: \beta_1 = (\beta_1 + \beta_3)$	−0.265*	−2.126**	−0.350**	−0.725*	−0.638**										
	(0.150)	(1.030)	(0.049)	(0.415)	(0.268)										

Note: This table reports the results for robustness test using additional control variables. We use *Z-score* as measure of insolvency risk. *CI* is the corruption indicator based on Transparency International's Corruption Perception Index but adjusted by Equation (2). *Islamic Dummy* and the interaction term of Islamic dummy with corruption indicator tests whether the risk-taking of Islamic banks could be differently affected by corruption compared with conventional banks. The institutional variables include; the *creditor rights*, and *the economic freedom measures (judicial effectiveness, monetary freedom and financial freedom).* Four cultural dimensions are also included; *individualism*, *power distance*, *uncertainty avoidance*, and *masculinity.* Finally, *Muslim* is the share of the Muslim population in each country. We apply random effect technique with robust standard errors for our estimations. Robust standard errors are reported in parentheses.
*Significant at 10%. **Significant at 5%. ***Significant at 1%.

TABLE 8 | Robustness test: Addressing the endogeneity issue.

***Z*-score models**									
	Conventional banks			**Islamic banks**			**Full sample**		
	First stage	**2SLS**	**GMM**	**First stage**	**2SLS**	**GMM**	**First stage**	**2SLS**	**GMM**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Panel A: The effect of corruption on bank risk-taking: Baseline results									
Collectivism	−0.321**			−0.176***			−1.818**		
	(0.149)			(0.059)			(0.738)		
Z-Score (−1)	−0.131**			−0.526**			−1.230***		
	(0.055)			(0.251)			(0.378)		
Z-Score (−2)	−0.093*			−0.269			−0.645**		
	(0.051)			(0.343)			(0.311)		
CI (β_1)		−1.626***	−1.634***		−0.756**	−0.628*		−2.026***	−1.915***
		(0.565)	(0.538)		(0.338)	(0.374)		(0.186)	(0.309)
IB_Dummy								0.426***	0.756**
								(0.131)	(0.323)
IB_Dummy×CI (β_3)								0.215**	0.225**
								(0.103)	(0.095)
Panel B: The effect of corruption on bank risk-taking: the role of Shari'ah supervision									
SSBSZ					1.118*	1.315*		1.556**	1.809*
					(0.635)	(0.670)		(0.615)	(1.053)
SSBACQ					0.271	0.695**		1.034	1.135**
					(0.189)	(0.280)		(0.765)	(0.514)
SSBFR					0.279***	0.534***		0.285***	0.556***
					(0.061)	(0.045)		(0.065)	(0.046)
Panel C: The effect of corruption on bank risk-taking: the role of conventional governance									
Board size		0.040	0.045					2.296*	2.445*
		(0.236)	(0.235)					(1.368)	(1.368)
CBACQ		−0.274**	−0.259*					0.029*	−0.269**
		(0.134)	(0.134)					(0.016)	(0.131)
CBFR		0.036**	0.070***					0.028**	0.029**
		(0.018)	(0.018)					(0.011)	(0.011)
Constant	3.689**	13.935**	14.239**	3.254*	23.691**	23.879**	3.763**	41.690***	48.119***
	(1.859)	(5.658)	(5.704)	(1.725)	(11.421)	(11.521)	(1.481)	(1.231)	(1.215)
Observations	700	700	700	700	700	700	1400	1400	1400

(Continues)

TABLE 8 (Continued)

Z-score models

	Conventional banks			Islamic banks			Full sample		
	First stage	2SLS	GMM	First stage	2SLS	GMM	First stage	2SLS	GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen *J*-stat. (Chi-sq.)		0.129	0.130		0.537	0.531		0.723	0.725
Hansen *J*-stat. (Pro.)		0.766	0.768		0.900	0.900		0.614	0.615
KP Wald F-statistics		37.811***	38.019***		8.440***	8.477***		60.018***	60.023***
Panel D: The impact of corruption on risk taking of Islamic bank ($\beta_1 + \beta_3$)									
$H_0: \beta_1 = (\beta_1 + \beta_3)$								−1.811**	−1.69*
								(0.726)	(0.94)

Note: This table reports the results for the relationship between corruption and risk-taking using alternative econometric specifications for the sample of conventional banks, the sample of Islamic banks and the full sample. We use *Z-score*, the measure of insolvency risk. *Z-score* is the inverse of the probability of bank insolvency. *Collectivism*, the dimension of national culture (Hofstede 1980, 2001) is used as the instrumental variable. *CI* is the *corruption indicator* based on Transparency International's Corruption Perception Index but adjusted by Equation (2). Robust standard errors are reported in parentheses.
*Significant at 10%. **Significant at 5%. ***Significant at 1%.

and particularistic norms prevalent in collectivist countries enhance the interactions between bank officers and their affiliated customers. This, in turn, enhances the bank officer's motivation to engage in corruption in bank lending, while simultaneously lowering the barriers to corrupt arrangements between the involved parties. Moreover, the likelihood of corrupt deals being detected and penalized is less, resulting in a higher level of bank corruption within such societies. This is because culture plays a significant role in shaping an individual's ethical decision-making attitudes and perceptions. Consequently, this cultural influence determines to what extent bank officers engage in corrupt behaviors (Husted and Allen 2008). Besides, according to Getz and Volkema (2001), individuals with discretionary power in collectivist societies are more inclined to accept bribes to provide favors and benefits to members of their social groups.

Based on the above discussion, apart from the channel of corruption in bank lending, it is unlikely for collectivism to be correlated with bank risk-taking; therefore, we use collectivism as an instrument for corruption. In addition, we use the lagged values of bank *Z*-score as a second instrument to address reverse causality. The inclusion of the lagged dependent variable on the right-hand side of the empirical model allows to control for unobserved historical factors. These factors may potentially influence bank performance and risk-taking (Semykina and Wooldridge 2010).

We follow Meslier et al. (2017) and Bitar and Tarazi (2019) and employ an instrumental variables (IV) approach using two estimation techniques: two-stage least squares regression (2SLS) and generalized method of moments (GMM). To test for the over-identifying restrictions, we report the Hansen *J*-statistics, whereas the Kleibergen–Paap Wald *F*-statistics is used for the validity of our instrument. The significant Kleibergen–Paap *F*-statistics indicates that the instruments are valid. In addition, the insignificant value of the Hansen *J*-statistics (over-identification test) shows that the instruments are not correlated with the error term.

The results of the first-stage regressions are presented in Table 8, Panel A, model 1 for conventional banks, model 4 for Islamic banks, and model 7 for the full sample. The results show that instruments are negatively associated with corruption. The results for the second-stage regressions are presented in Table 8, Panel A, models 2 and 3 for conventional banks, models 5 and 6 for Islamic banks, and models 8 and 9 for the full sample. The findings continue to show that corruption has a negative effect on the stability of the two bank types and this effect is less significant on the stability of Islamic banks compared with conventional banks. Table 8 Panels B and C report the results after controlling for the role of SSB's attributes of Islamic banks and the board structure of conventional banks. The findings in Panel B, models 5, 6, 8, and 9, continue to show that the negative effect of corruption on the stability of Islamic banks is attenuated by the size of the SSB, the presence of female board members, and higher academic qualifications of SSB members. However, the results in Panel C, models 2, 3, 8, and 9 show that while the board size and the presence of female directors attenuate the negative effect of corruption on the stability of conventional banks, the academically qualified members report opposite signs and thus exhibit inconclusive findings.

5 | Concluding Remarks

We investigate the effect of corruption on the risk-taking of conventional vis-a-vis Islamic banks. Using a matched sample of 140 Islamic and conventional banks operating in 10 OIC countries over the 2010–2019 period, we find consistent evidence that banks in countries with higher corruption have higher bank risk for both bank types. However, our results show that, for Islamic banks, the effect of corruption on risk-taking is reduced with higher representation of women in Shari'ah supervisory boards and higher academic qualifications of board members. Such findings are specific to Islamic banks and do not hold as strongly when investigating the structure of conventional banks' boards of directors.

Our findings have important policy implications for both emerging and developing countries whose economic performance is limited by corruption (Aiyar et al. 2013). On the detrimental side, urgency of the anti-corruption campaigns in these economies is justified from the significant effect of corruption on risk-taking, for both conventional and Islamic banks. Our findings show that the presence of women and academically qualified members on bank boards is useful in limiting corruption. Our results hence lend support to potential regulatory reforms mandating an increase in the share of women and academically qualified members in the Shari'ah supervisory boards of Islamic banks. But our results also point out that, in the case of conventional banks, such reforms may only be successful if combined with the enforcement of independent ethics and conduct boards. Overall, to better fight corruption in countries with dual banking systems there is a need to enforce stricter rules for all types of banks.

Author Contributions

All authors contributed equally. All authors read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

Endnotes

[1] See Jim Yong Kim's address at the "Speak Up Against Corruption" event at World Bank on December 19, 2013.

[2] It consists of Bahrain, Bangladesh, Kuwait, Lebanon, Malaysia, Pakistan, Saudi Arabia, Turkey, United Arab Emirates, and Yemen.

[3] We follow Fonseca and Gonzalez (2008), Allen et al. (2017) and Amin and Motta (2023) and use both country controls and country fixed effects in our regression specifications. In the case of country controls, we include country level variables such as GDP, Oil Rent, Mineral Rent, Entry Barrier, Supervisory Power, and Deposit Insurance. However, in order to control for all country fixed effects, we use country dummies.

[4] We follow Berger et al. (2014) and Safiullah et al. (2019) and include doctorate degrees as a measure of academic qualifications since other undergraduate and postgraduate qualifications are typically nested within a doctorate degree.

References

Abdelbadie, R. A., and A. Salama. 2019. "Corporate Governance and Financial Stability in US Banks: Do Indirect Interlocks Matter?" *Journal of Business Research* 104:85–105. https://doi.org/10.1016/j.jbusres.2019.06.047.

Abdelsalam, O., P. Dimitropoulos, M. Elnahass, and S. Leventis. 2016. "Earnings Management Behaviors Under Different Monitoring Mechanisms: The Case of Islamic and Conventional Banks." *Journal of Economic Behavior & Organization* 132:155–173. https://doi.org/10.1016/j.jebo.2016.04.022.

Abedifar, P., P. Giudici, and S. Q. Hashem. 2017. "Heterogeneous Market Structure and Systemic Risk: Evidence From Dual Banking Systems." *Journal of Financial Stability* 33:96–119. https://doi.org/10.1016/j.jfs.2017.11.002.

Abedifar, P., P. Molyneux, and A. Tarazi. 2013. "Risk in Islamic Banking." *Review of Finance* 17:2035–2096. https://doi.org/10.1093/rof/rfs041.

Acharya, V. V., Y. Amihud, and L. Litov. 2011. "Creditor Rights and Corporate Risk-Taking." *Journal of Financial Economics* 102:150–166. https://doi.org/10.1016/j.jfineco.2011.04.001.

Adams, R. B., and D. Ferreira. 2009. "Women in the Boardroom and their Impact on Governance and Performance." *Journal of Financial Economics* 94 (2): 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007.

Adams, R. B., B. E. Hermalin, and M. S. Weisbach. 2010. "The Role of Boards of Directors in Corporate Governance: A Conceptual Framework and Survey." *Journal of Economic Literature* 48 (1): 58–107. https://www.aeaweb.org/articles?id=10.1257/jel.48.1.58.

Adhikari, B. K., and A. Agrawal. 2016. "Does Local Religiosity Matter for Bank Risk-Taking?" *Journal of Corporate Finance* 38:272–293. https://doi.org/10.1016/j.jcorpfin.2016.01.009.

Aguilera, R. V., and A. K. Vadera. 2008. "The Dark Side of Authority: Antecedents, Mechanisms, and Outcomes of Organizational Corruption." *Journal of Business Ethics* 77 (4): 431–449. https://doi.org/10.1007/s10551-007-9358-8.

Ahern, K. R., and A. K. Dittmar. 2012. "The Changing of the Boards: The Impact on Firm Valuation of Mandated Female Board Representation." *The Quarterly Journal of Economics* 127 (1): 137–197. https://doi.org/10.1093/qje/qjr049.

Aiyar, M. S., M. R. A. Duval, M. D. Puy, M. Y. Wu, and M. L. Zhang. 2013. *Growth Slowdowns and the Middle-Income Trap (No. 13-71).* International Monetary Fund.

Akins, B., Y. Dou, and J. Ng. 2017. "Corruption in Bank Lending: The Role of Timely Loan Loss Recognition." *Journal of Accounting and Economics* 63 (2–3): 454–478. https://doi.org/10.1016/j.jacceco.2016.08.003.

Allen, F., K. Jackowicz, O. Kowalewski, and Ł. Kozłowski. 2017. "Bank Lending, Crises, and Changing Ownership Structure in Central and Eastern European Countries." *Journal of Corporate Finance* 42:494–515. https://doi.org/10.1016/j.jcorpfin.2015.05.001.

Alraheb, T. H., C. Nicolas, and A. Tarazi. 2019. "Institutional Environment and Bank Capital Ratios." *Journal of Financial Stability* 43:1–24. https://doi.org/10.1016/j.jfs.2019.05.016.

Alsaadi, A., M. S. Ebrahim, and A. Jaafar. 2017. "Corporate Social Responsibility, Shariah-Compliance, and Earnings Quality." *Journal of Financial Services Research* 51 (2): 169–194. https://doi.org/10.1007/s10693-016-0263-0.

Amin, M., and V. Motta. 2023. "The Impact of Corruption on SMEs' Access to Finance: Evidence Using Firm-Level Survey Data From Developing Countries." *Journal of Financial Stability* 101175. https://doi.org/10.1016/j.jfs.2023.101175.

Anderson, R. C., D. M. Reeb, A. Upadhyay, and W. Zhao. 2011. "The Economics of Director Heterogeneity." *Financial Management* 40 (1): 5–38. https://doi.org/10.1111/j.1755-053X.2010.01133.x.

Andries, A. M., and D. Balutel. 2022. "The Impact of National Culture on Systemic Risk." *Economic Systems* 46 (2): 100972. https://doi.org/10.1016/j.ecosys.2022.100972.

Anginer, D., A. C. Bertay, R. Cull, A. Demirgüç-Kunt, and D. S. Mare. 2019. *Bank Regulation and Supervision Ten Years After the Global Financial Crisis*. World Bank Policy Research Working Paper, (9044).

Anginer, D., A. Demirgüç-Kunt, and D. S. Mare. 2018. "Bank Capital, Institutional Environment and Systemic Stability." *Journal of Financial Stability* 37:97–106. https://doi.org/10.1016/j.jfs.2018.06.001.

Anginer, D., A. Demirguc-Kunt, and M. Zhu. 2014. "How Does Deposit Insurance Affect Bank Risk? Evidence From the Recent Crisis." *Journal of Banking & Finance* 48:312–321. https://doi.org/10.1016/j.jbankfin.2013.09.013.

Ashraf, B. N., C. Zheng, and S. Arshad. 2016. "Effects of National Culture on Bank Risk-Taking Behavior." *Research in International Business and Finance* 37:309–326. https://doi.org/10.1016/j.ribaf.2016.01.015.

Asteriou, D., K. Pilbeam, and I. Tomuleasa. 2021. "The Impact of Corruption, Economic Freedom, Regulation and Transparency on Bank Profitability and Bank Stability: Evidence From the Eurozone Area." *Journal of Economic Behavior & Organization* 184:150–177. https://doi.org/10.1016/j.jebo.2020.08.023.

Baldenius, T., N. Melumad, and X. Meng. 2014. "Board Composition and CEO Power." *Journal of Financial Economics* 112 (1): 53–68. https://doi.org/10.1016/j.jfineco.2013.10.004.

Barnett, T., K. Bass, and G. Brown. 1996. "Religiosity, Ethical Ideology, and Intentions to Report a Peer's Wrongdoing." *Journal of Business Ethics* 15:1161–1174. https://doi.org/10.1007/BF00412815.

Barth, J. R., C. Lin, P. Lin, and F. M. Song. 2009. "Corruption in Bank Lending to Firms: Cross-Country Micro Evidence on the Beneficial Role of Competition and Information Sharing." *Journal of Financial Economics* 91 (3): 361–388. https://doi.org/10.1016/j.jfineco.2008.04.003.

Beck, T., A. Demirgüç-Kunt, and R. Levine. 2006. "Bank Supervision and Corruption in Lending." *Journal of Monetary Economics* 53 (8): 2131–2163. https://doi.org/10.1016/j.jmoneco.2005.10.014.

Beck, T., A. Demirgüç-Kunt, and O. Merrouche. 2013. "Islamic Vs Conventional Banking: Business Model, Efficiency and Stability." *Journal of Banking Finance* 37:433–447. https://doi.org/10.1016/j.jbankfin.2012.09.016.

Beckman, C. M., and P. R. Haunschild. 2002. "Network Learning: The Effects of partners' Heterogeneity of Experience on Corporate Acquisitions." *Administrative Science Quarterly* 47 (1): 92–124. https://doi.org/10.2307/3094892.

Belkhir, M., J. Grira, M. K. Hassan, and I. Soumaré. 2019. "Islamic Banks and Political Risk: International Evidence." *The Quarterly Review of Economics and Finance* 74:39–55. https://doi.org/10.1016/j.qref.2018.04.006.

Belkhir, M., A. Maghyereh, and B. Awartani. 2016. "Institutions and Corporate Capital Structure in the MENA Region." *Emerging Markets Review* 26:99–129. https://doi.org/10.1016/j.ememar.2016.01.001.

Berger, A. N., T. Kick, and K. Schaeck. 2014. "Executive Board Composition and Bank Risk Taking." *Journal of Corporate Finance* 28:48–65. https://doi.org/10.1016/j.jcorpfin.2013.11.006.

Berger, A. N., X. Li, C. S. Morris, and R. A. Roman. 2021. "The Effects of Cultural Values on Bank Failures Around the World." *Journal of Financial and Quantitative Analysis* 56 (3): 945–993. https://doi.org/10.1017/S0022109020000150.

Bermpei, T., A. N. Kalyvas, and L. Leonida. 2021. "Local Public Corruption and Bank Lending Activity in the United States." *Journal of Business Ethics* 171 (1): 73–98,https://doi.org/10.1007/s10551-019-04410-6 .

Bitar, M., S. Ben Naceur, R. Ayadi, and T. Walker. 2021. "Basel Compliance and Financial Stability: Evidence from Islamic Banks." *Journal of Financial Services Research* 60:81–134. https://doi.org/10.1007/s10693-020-00337-6.

Bitar, M., M. K. Hassan, and W. J. Hippler. 2018. "The Determinants of Islamic Bank Capital Decisions." *Emerging Markets Review* 35:48–68. https://doi.org/10.1016/j.ememar.2017.12.002.

Bitar, M., M. K. Hassan, and W. Saad. 2020. "Culture and the Capital–Performance Nexus in Dual Banking Systems." *Economic Modelling* 87:34–58. https://doi.org/10.1016/j.econmod.2019.07.003.

Bitar, M., and A. Tarazi. 2019. "Creditor Rights and Bank Capital Decisions: Conventional Vs. Islamic Banking." *Journal of Corporate Finance* 55:69–104. https://doi.org/10.1016/j.jcorpfin.2018.11.007.

Bitar, M., and A. Tarazi. 2022. "Individualism, Formal Institutional Environments, and Bank Capital Decisions." *Journal of Corporate Finance* 76:102244. https://doi.org/10.1016/j.jcorpfin.2022.102244.

Blanc, R., C. H. Cho, J. Sopt, and M. C. Branco. 2019. "Disclosure Responses to a Corruption Scandal: The Case of Siemens AG." *Journal of Business Ethics* 156 (2): 545–561. https://doi.org/10.1007/s10551-017-3602-7.

Blau, B. M. 2017. "Religiosity and the Volatility of Stock Prices: A Cross-Country Analysis." *Journal of Business Ethics* 144 (3): 609–621. https://doi.org/10.1007/s10551-015-2842-7.

Bostandzic, D., and G. N. Weiss. 2018. "Why Do Some Banks Contribute More to Global Systemic Risk?" *Journal of Financial Intermediation* 35:17–40. https://doi.org/10.1016/j.jfi.2018.03.003.

Boubakri, N., A. Mirzaei, and A. Samet. 2017. "National Culture and Bank Performance: Evidence From the Recent Financial Crisis." *Journal of Financial Stability* 29:36–56.

Bougatef, K. 2017. "Determinants of Bank Profitability in Tunisia: Does Corruption Matter?" *Journal of Money Laundering Control* 20 1: 70–78. https://doi.org/10.1108/JMLC-10-2015-0044.

Brown, N. C., J. D. Smith, R. M. White, and C. J. Zutter. 2021. "Political Corruption and Firm Value in the US: Do Rents and Monitoring Matter?" *Journal of Business Ethics* 168:335–351. https://doi.org/10.1007/s10551-019-04181-0.

Cai, G., W. Li, and Z. Tang. 2020. "Religion and the Method of Earnings Management: Evidence From China." *Journal of Business Ethics* 161 (1): 71–90. https://doi.org/10.1007/s10551-018-3971-6.

Calkins, M. S. 2000. "Recovering Religion's Prophetic Voice for Business Ethics." *Journal of Business Ethics* 23 339–352. https://doi.org/10.1023/A:1005989824688.

Callen, J. L., and X. Fang. 2015. "Religion and Stock Price Crash Risk." *Journal of Financial and Quantitative Analysis* 50 (1–2): 169–195. https://doi.org/10.1017/S0022109015000046.

Campbell, K., and A. Mínguez-Vera. 2008. "Gender Diversity in the Boardroom and Firm Financial Performance." *Journal of Business Ethics* 83 (3): 435–451. https://doi.org/10.1007/s10551-007-9630-y.

Carter, D. A., F. D'Souza, B. J. Simkins, and W. G. Simpson. 2010. "The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance." *Corporate Governance: An International Review* 18 (5): 396–414. https://doi.org/10.1111/j.1467-8683.2010.00809.x.

Chantziaras, A., E. Dedoulis, V. Grougiou, and S. Leventis. 2020. "The Impact of Religiosity and Corruption on CSR Reporting: The Case of US Banks." *Journal of Business Research* 109:362–374. https://doi.org/10.1016/j.jbusres.2019.12.025.

Chapple, L., and J. E. Humphrey. 2014. "Does Board Gender Diversity Have a Financial Impact? Evidence Using Stock Portfolio Performance." *Journal of Business Ethics* 122 (4): 709–723. https://doi.org/10.1007/s10551-013-1785-0.

Charumilind, C., R. Kali, and Y. Wiwattanakantang. 2006. "Connected Lending: Thailand Before the Financial Crisis." *The Journal of Business* 79 (1): 181–218. https://www.jstor.org/stable/10.1086/497410.

Chen, H., H. H. Huang, G. J. Lobo, and C. Wang. 2016. "Religiosity and the Cost of Debt." *Journal of Banking & Finance* 70:70–85. https://doi.org/10.1016/j.jbankfin.2016.06.005.

Chen, M., B. N. Jeon, R. Wang, and J. Wu. 2015. "Corruption and Bank Risk-Taking: Evidence From Emerging Economies." *Emerging Markets Review* 24:122–148. https://doi.org/10.1016/j.ememar.2015.05.009.

Chen, Y., M. Liu, and J. Su. 2013. "Greasing the Wheels of Bank Lending: Evidence From Private Firms in China." *Journal of Banking & Finance* 37 (7): 2533–2545. https://doi.org/10.1016/j.jbankfin.2013.02.002.

Chircop, J., M. Fabrizi, E. Ipino, and A. Parbonetti. 2017. "Does Branch Religiosity Influence Bank Risk-Taking?" *Journal of Business Finance & Accounting* 44 (1–2): 271–294. https://doi.org/10.1111/jbfa.12227.

Chircop, J., S. Johan, and M. Tarsalewska. 2020. "Does Religiosity Influence Venture Capital Investment Decisions?" *Journal of Corporate Finance* 62:101589. https://doi.org/10.1016/j.jcorpfin.2020.101589.

Choudhury, M. A., and M. N. Alam. 2013. "Corporate Governance in Islamic Perspective." *International Journal of Islamic and Middle Eastern Finance and Management* 6 (3): 180–199. https://doi.org/10.1108/IMEFM-10-2012-0101.

Coles, J. L., N. D. Daniel, and L. Naveen. 2014. "Co-Opted Boards." *The Review of Financial Studies* 27 (6): 1751–1796. https://doi.org/10.1093/rfs/hhu011.

Conyon, M. J., and K. J. Murphy. 2000. "The Prince and the Pauper? CEO Pay in the United States and United Kingdom." *The Economic Journal* 110 (467): 640–671. https://doi.org/10.1111/1468-0297.00577.

Daily, C. M., and D. R. Dalton. 2003. "Women in the Boardroom: A Business Imperative." *Journal of Business Strategy* 24 (5). https://doi.org/10.1108/jbs.2003.28824eaf.002.

Dang, R., A. F. Bender, and M. J. Scotto. 2014. "Women on French Corporate Board of Directors: How Do They Differ From Their Male Counterparts?" *Journal of Applied Business Research* 30 (2): 489–508. https://doi.org/10.19030/jabr.v30i2.8420.

De Andres, P., and E. Vallelado. 2008. "Corporate Governance in Banking: The Role of the Board of Directors." *Journal of Banking & Finance* 32 (12): 2570–2580. https://doi.org/10.1016/j.jbankfin.2008.05.008.

DeBacker, J., B. T. Heim, and A. Tran. 2015. "Importing Corruption Culture From Overseas: Evidence From Corporate Tax Evasion in the United States." *Journal of Financial Economics* 117 (1): 122–138. https://doi.org/10.1016/j.jfineco.2012.11.009.

Dela Rama, M. 2012. "Corporate Governance and Corruption: Ethical Dilemmas of Asian Business Groups." *Journal of Business Ethics* 109 4: 501–519. https://doi.org/10.1007/s10551-011-1142-0.

Djankov, S., C. McLiesh, and A. Shleifer. 2007. "Private Credit in 129 Countries." *Journal of Financial Economics* 84 (2): 299–329. https://doi.org/10.1016/j.jfineco.2006.03.004.

Dong, Y., C. Girardone, and J. M. Kuo. 2017. "Governance, Efficiency and Risk Taking in Chinese Banking." *The British Accounting Review* 49 (2): 211–229. https://doi.org/10.1016/j.bar.2016.08.001.

El Ghoul, S., O. Guedhami, C. C. Kwok, and X. Zheng. 2016. "Collectivism and Corruption in Commercial Loan Production: How to Break the Curse?" *Journal of Business Ethics* 139:225–250. https://doi.org/10.1007/s10551-015-2551-2.

Faleye, O., and K. Krishnan. 2017. "Risky Lending: Does Bank Corporate Governance Matter?" *Journal of Banking & Finance* 83:57–69. https://doi.org/10.1016/j.jbankfin.2017.06.011.

Farag, H., C. Mallin, and K. Ow-Yong. 2018. "Corporate Governance in Islamic Banks: New Insights for Dual Board Structure and Agency Relationships." *Journal of International Financial Markets, Institutions and Money* 54:59–77. https://doi.org/10.1016/j.intfin.2017.08.002.

Ferreira, D. 2015. "Board Diversity: Should We Trust Research to Inform Policy?" *Corporate Governance: An International Review* 23 2: 108–111. https://doi.org/10.1111/corg.12092.

Fonseca, A. R., and F. Gonzalez. 2008. "Cross-Country Determinants of Bank Income Smoothing by Managing Loan-Loss Provisions." *Journal of Banking & Finance* 32 (2): 217–228. https://doi.org/10.1016/j.jbankfin.2007.02.012.

Francis, B., I. Hasan, and Q. Wu. 2015. "Professors in the Boardroom and Their Impact on Corporate Governance and Firm Performance." *Financial Management* 44 (3): 547–581. https://doi.org/10.1111/fima.12069.

Fratzscher, M., and M. Rieth. 2019. "Monetary Policy, Bank Bailouts and the Sovereign-Bank Risk Nexus in the Euro Area." *Review of Finance* 23 (4): 745–775. https://doi.org/10.1093/rof/rfy024.

Fu, X. M., Y. R. Lin, and P. Molyneux. 2014. "Bank Competition and Financial Stability in Asia Pacific." *Journal of Banking & Finance* 38:64–77. https://doi.org/10.1016/j.jbankfin.2013.09.012.

Fu, Y. 2019. "The Value of Corporate Governance: Evidence From the Chinese Anti-Corruption Campaign." *The North American Journal of Economics and Finance* 47 461–476. https://doi.org/10.1016/j.najef.2018.06.001.

Gan, W., and X. Xu. 2019. "Does Anti-Corruption Campaign Promote Corporate R&D Investment? Evidence from China." *Finance Research Letters* 30:292–296. https://doi.org/10.1016/j.frl.2018.10.012.

García-Sánchez, I. M., E. García-Meca, and B. Cuadrado-Ballesteros. 2017. "Do Financial Experts on Audit Committees Matter for Bank Insolvency Risk-Taking? The Monitoring Role of Bank Regulation and Ethical Policy." *Journal of Business Research* 76:52–66. https://doi.org/10.1016/j.jbusres.2017.03.004.

Getz, K. A., and R. J. Volkema. 2001. "Culture, Perceived Corruption, and Economics: A Model of Predictors and Outcomes." *Business & Society* 40 (1): 7–30. https://doi.org/10.1177/000765030104000103.

Goel, R. K., and M. A. Nelson. 2005. "Economic Freedom Versus Political Freedom: Cross-Country Influences on Corruption." *Australian Economic Papers* 44 (2): 121–133. https://doi.org/10.1111/j.1467-8454.2005.00253.x.

Gorsira, M., A. Denkers, and W. Huisman. 2018. "Both Sides of the Coin: Motives for Corruption Among Public Officials and Business Employees." *Journal of Business Ethics* 151 (1): 179–194. https://doi.org/10.1007/s10551-016-3219-2.

Goyeau, D., and A. Tarazi. 1992. *An Empirical Investigation on Bank Risk in Europe*. International Finance Group Working Paper 93–11, the University of Birmingham.

Green, C. P., and S. Homroy. 2018. "Female Directors, Board Committees and Firm Performance." *European Economic Review* 102:19–38. https://doi.org/10.1016/j.euroecorev.2017.12.003.

Grira, J., M. K. Hassan, C. Labidi, and I. Soumaré. 2019. "Equity Pricing in Islamic Banks: International Evidence." *Emerging Markets Finance and Trade* 55 (3): 613–633. https://doi.org/10.1080/1540496X.2018.1451323.

Grira, J., M. K. Hassan, and I. Soumaré. 2016. "Pricing Beliefs: Empirical Evidence From the Implied Cost of Deposit Insurance for Islamic Banks." *Economic Modelling* 55:152–168. https://doi.org/10.1016/j.econmod.2016.01.026.

Grira, J., and C. Labidi. 2021. "Banks, Funds, and Risks in Islamic Finance: Literature & Future Research Avenues." *Finance Research Letters* 41:101815. https://doi.org/10.1016/j.frl.2020.101815.

Gu, X., P. Kadiyala, and X. W. Mahaney-Walter. 2018. "How Creditor Rights Affect the Issuance of Public Debt: The Role of Credit Ratings." *Journal of Financial Stability* 39:133–143. https://doi.org/10.1016/j.jfs.2018.11.001.

Guney, Y., A. Karpuz, and G. Komba. 2020. "The Effects of Board Structure on Corporate Performance: Evidence From East African Frontier Markets." *Research in International Business and Finance* 53:101222. https://doi.org/10.1016/j.ribaf.2020.101222.

Hanousek, J., A. Shamshur, and J. Tresl. 2019. "Firm Efficiency, Foreign Ownership and CEO Gender in Corrupt Environments." *Journal of Corporate Finance* 59:344–360. https://doi.org/10.1016/j.jcorpfin.2017.06.008.

Hofstede, G. 1980. "Culture and Organizations." *International Studies of Management & Organization* 10 4: 15–41. https://doi.org/10.1080/00208825.1980.11656300.

Hofstede, G. 2001. "Culture's Recent Consequences: Using Dimension Scores in Theory and Research." *International Journal of Cross Cultural Management* 1 1: 11–17. https://doi.org/10.1177/147059580111002.

Houston, J. F., C. Lin, P. Lin, and Y. Ma. 2010. "Creditor Rights, Information Sharing, and Bank Risk Taking." *Journal of Financial Economics* 96 (3): 485–512. https://doi.org/10.1016/j.jfineco.2010.02.008.

Houston, J. F., C. Lin, and Y. Ma. 2011. "Media Ownership, Concentration and Corruption in Bank Lending." *Journal of Financial Economics* 100 (2): 326–350. https://doi.org/10.1016/j.jfineco.2010.12.003.

Hsee, C. K., and E. U. Weber. 1999. "Cross-National Differences in Risk Preference and Lay Predictions." *Journal of Behavioral Decision Making* 12 (2): 165–179. https://doi.org/10.1002/(SICI)1099-0771(199906)12:2<165::AID-BDM316>3.0.CO;2-N.

Husted, B. W., and D. B. Allen. 2008. "Toward a Model of Cross-Cultural Business Ethics: The Impact of Individualism and Collectivism on the Ethical Decision-Making Process." *Journal of Business Ethics* 82:293–305. https://doi.org/10.1007/s10551-008-9888-8.

Illiashenko, P. 2019. ""Tough Guy" Vs. "Cushion" Hypothesis: How Does Individualism Affect Risk-Taking?" *Journal of Behavioral and Experimental Finance* 24 100212. https://doi.org/10.1016/j.jbef.2019.04.005.

Illiashenko, P., and L. Laidroo. 2020. "National Culture and Bank Risk-Taking: Contradictory Case of Individualism." *Research in International Business and Finance* 51:101069. https://doi.org/10.1016/j.ribaf.2019.101069.

Jha, C. K., and S. Sarangi. 2018. "Women and Corruption: What Positions Must They Hold to Make a Difference?" *Journal of Economic Behavior & Organization* 151:219–233. https://doi.org/10.1016/j.jebo.2018.03.021.

Jin, Y., X. Gao, and D. Li. 2022. "The Effect of Individualism on Bank Risk and Bank Performance: An International Study." *Journal of International Financial Markets, Institutions and Money* 80:101634. https://doi.org/10.1016/j.intfin.2022.101634.

Joseph, C., J. Gunawan, Y. Sawani, M. Rahmat, J. A. Noyem, and F. Darus. 2016. "A Comparative Study of Anti-Corruption Practice Disclosure Among Malaysian and Indonesian Corporate Social Responsibility (CSR) Best Practice Companies." *Journal of Cleaner Production* 112:2896–2906. https://doi.org/10.1016/j.jclepro.2015.10.091.

Kabir, M. N., A. Worthington, and R. Gupta. 2015. "Comparative Credit Risk in Islamic and Conventional Bank." *Pacific-Basin Finance Journal* 34:327–353. https://doi.org/10.1016/j.pacfin.2015.06.001.

Kanagaretnam, K., C. Y. Lim, and G. J. Lobo. 2011. "Effects of National Culture on Earnings Quality of Banks." *Journal of International Business Studies* 42:853–874. https://doi.org/10.1057/jibs.2011.26.

Kanagaretnam, K., G. J. Lobo, and C. Wang. 2015. "Religiosity and Earnings Management: International Evidence From the Banking Industry." *Journal of Business Ethics* 132 (2): 277–296. https://doi.org/10.1007/s10551-014-2310-9.

Kanagaretnam, K., G. J. Lobo, C. Wang, and D. J. Whalen. 2019. "Cross-Country Evidence on the Relationship Between Societal Trust and Risk-Taking by Banks." *Journal of Financial and Quantitative Analysis* 54 (1): 275–301. https://doi.org/10.1017/S0022109018000455.

Karimalis, E. N., and N. K. Nomikos. 2018. "Measuring Systemic Risk in the European Banking Sector: A Copula CoVaR Approach." *The European Journal of Finance* 24 (11): 944–975. https://doi.org/10.1080/1351847X.2017.1366350.

Kaufmann, D., A. Kraay, and M. Mastruzzi. 2010. "Response to 'What Do the Worldwide Governance Indicators Measure?'." *The European Journal of Development Research* 22 (1): 55–58. https://doi.org/10.1057/ejdr.2009.49.

Khan, F. 2010. "How 'Islamic' Is Islamic Banking?" *Journal of Economic Behavior & Organization* 76 3: 805–820. https://doi.org/10.1016/j.jebo.2010.09.015.

Khan, M. H., A. Fraz, A. Hassan, and P. Abedifar. 2020. "Female Board Representation, Risk-Taking and Performance: Evidence From Dual Banking Systems." *Finance Research Letters* 37:101541. https://doi.org/10.1016/j.frl.2020.101541.

Khan, M. H., A. Fraz, A. Hassan, and S. Z. H. Kazmi. 2021. "Impact of Corruption on Bank Soundness: The Moderating Impact of Shari'ah Supervision." *Journal of Financial Crime* 29 (3): 962–983. https://doi.org/10.1108/JFC-03-2021-0063.

Khan, M. S., H. Scheule, and E. Wu. 2017. "Funding liquidity and bank risk taking." *Journal of Banking & Finance* 82:203–216. https://doi.org/10.1016/j.jbankfin.2016.09.005.

King, T., A. Srivastav, and J. Williams. 2016. "What's in an Education? Implications of CEO Education for Bank Performance." *Journal of Corporate Finance* 37:287–308. https://doi.org/10.1016/j.jcorpfin.2016.01.003.

Laeven, L., and R. Levine. 2009. "Bank Governance, Regulation and Risk Taking." *Journal of Financial Economics* 93 (2): 259–275. https://doi.org/10.1016/j.jfineco.2008.09.003.

Licht, A. N., C. Goldschmidt, and S. H. Schwartz. 2005. "Culture, Law, and Corporate Governance." *International Review of Law and Economics* 25 (2): 229–255. https://doi.org/10.1016/j.irle.2005.06.005.

Liu, Y., Z. Wei, and F. Xie. 2014. "Do Women Directors Improve Firm Performance in China?" *Journal of Corporate Finance* 28:169–184. https://doi.org/10.1016/j.jcorpfin.2013.11.016.

Lombardi, R., R. Trequattrini, B. Cuozzo, and M. Cano-Rubio. 2019. "Corporate Corruption Prevention, Sustainable Governance and Legislation: First Exploratory Evidence From the Italian Scenario." *Journal of Cleaner Production* 217:666–675. https://doi.org/10.1016/j.jclepro.2019.01.214.

Lu, J., and A. Boateng. 2018. "Board Composition, Monitoring and Credit Risk: Evidence From the UK Banking Industry." *Review of Quantitative Finance and Accounting* 51:1107–1128. https://doi.org/10.1007/s11156-017-0698-x.

Masulis, R. W., C. Wang, and F. Xie. 2012. "Globalizing the Boardroom—The Effects of Foreign Directors on Corporate Governance and Firm Performance." *Journal of Accounting and Economics* 53 (3): 527–554. https://doi.org/10.1016/j.jacceco.2011.12.003.

McGuire, S. T., T. C. Omer, and N. Y. Sharp. 2012. "The Impact of Religion on Financial Reporting Irregularities." *The Accounting Review* 87 (2): 645–673. https://doi.org/10.2308/accr-10206.

Meslier, C., T. Risfandy, and A. Tarazi. 2017. "Dual Market Competition and Deposit Rate Setting in Islamic and Conventional Banks." *Economic Modelling* 63:318–333. https://doi.org/10.1016/j.econmod.2017.02.013.

Mollah, S., M. K. Hassan, O. Al Farooque, and A. Mobarek. 2017. "The Governance, Risk-Taking, and Performance of Islamic Banks." *Journal*

of Financial Services Research 51 (2): 195–219. https://doi.org/10.1007/s10693-016-0245-2.

Mollah, S., and M. Zaman. 2015. "Shari'ah Supervision, Corporate Governance and Performance: Conventional Vs. Islamic Banks." *Journal of Banking & Finance* 58:418–435. https://doi.org/10.1016/j.jbankfin.2015.04.030.

Mourouzidou-Damtsa, S., A. Milidonis, and K. Stathopoulos. 2019. "National Culture and Bank Risk-Taking." *Journal of Financial Stability* 40:132–143. https://doi.org/10.1016/j.jfs.2017.08.007.

Nawaz, T. 2019. "Exploring the Nexus Between Human Capital, Corporate Governance and Performance: Evidence From Islamic Banks." *Journal of Business Ethics* 157 2: 567–587. https://doi.org/10.1007/s10551-017-3694-0.

Niu, G., Y. Zhou, W. Lu, and H. Gan. 2022. "Religiosity and Corruption in Bank Lending." *Journal of Business Finance & Accounting* 49 (9–10): 1957–1983.

Omer, T. C., N. Y. Sharp, and D. Wang. 2018. "The Impact of Religion on the Going Concern Reporting Decisions of Local Audit Offices." *Journal of Business Ethics* 149:811–831. https://doi.org/10.1007/s10551-016-3045-6.

Palvia, A., E. Vähämaa, and S. Vähämaa. 2015. "Are Female CEOs and Chairwomen More Conservative and Risk Averse? Evidence From the Banking Industry During the Financial Crisis." *Journal of Business Ethics* 131 (3): 577–594. https://doi.org/10.1007/s10551-014-2288-3.

Pan, X., and G. G. Tian. 2017. "Political Connections and Corporate Investments: Evidence From the Recent Anti-Corruption Campaign in China." *Journal of Banking & Finance* 119:105108. https://doi.org/10.1016/j.jbankfin.2017.03.005.

Park, J. 2012. "Corruption, Soundness of the Banking Sector, and Economic Growth: A Cross-Country Study." *Journal of International Money and Finance* 31 5: 907–929. https://doi.org/10.1016/j.jimonfin.2011.07.007.

Pathan, S. 2009. "Strong Boards, CEO Power and Bank Risk-Taking." *Journal of Banking & Finance* 33 7: 1340–1350.

Pew Research Center. 2015. *Muslims and Islam: Key Findings in the U.S. and Around the World*. http://www.pewresearch.org/fact-tank/2017/08/09/muslims-and-islam-key-findings-in-the-u-s-and-around-the-world/.

Pok, W. C. 2012. "Analysis of Shariah Quantitative Screening Norms among Malaysia Shariah-Compliant Stocks." *Investment Management and Financial Innovations* 9 2: 69–80. https://www.businessperspectives.org/author/wee-ching-pok.

Post, C., and K. Byron. 2015. "Women on Boards and Firm Financial Performance: A Meta-Analysis." *Academy of Management Journal* 58 (5): 1546–1571. https://doi.org/10.5465/amj.2013.0319.

Quttainah, M. A., and A. R. Almutairi. 2017. "Corporate Ethics: Evidence From Islamic Banks." *Journal of Management & Governance* 21 (4): 815–840. https://doi.org/10.1007/s10997-016-9360-6.

Razak, N.. 2011. *The 2012 Budget Speech, Prime Minister Office*. http://www.pmo.gov.my/?menu=speech&page=1676&speech_cat=2&news_id=529.

Robinson, G., and K. Dechant. 1997. "Building a Business Case for Diversity." *Academy of Management Perspectives* 11 (3): 21–31. https://doi.org/10.5465/ame.1997.9709231661.

Roy, A. D. 1952. "Safety First and the Holding of Assets." *Econometrica: Journal of the Econometric Society* 20 431–449. https://www.jstor.org/stable/1907413.

Safiullah, M., and A. Shamsuddin. 2019. "Risk-Adjusted Efficiency and Corporate Governance: Evidence From Islamic and Conventional Banks." *Journal of Corporate Finance* 55:105–140. https://doi.org/10.1016/j.jcorpfin.2018.08.009.

Salem, R., M. Usman, and E. Ezeani. 2021. "Loan Loss Provisions and Audit Quality: Evidence From MENA Islamic and Conventional Banks." *The Quarterly Review of Economics and Finance* 79:345–359. https://doi.org/10.1016/j.qref.2020.07.002.

Sartor, M. A., and P. W. Beamish. 2020. "Private Sector Corruption, Public Sector Corruption and the Organizational Structure of Foreign Subsidiaries." *Journal of Business Ethics* 167 (4): 725–744. https://doi.org/10.1007/s10551-019-04148-1.

Schwartz-Ziv, M., and M. S. Weisbach. 2013. "What Do Boards Really Do? Evidence From Minutes of Board Meetings." *Journal of Financial Economics* 108 (2): 349–366. https://doi.org/10.1016/j.jfineco.2012.04.011.

Semykina, A., and J. M. Wooldridge. 2010. "Estimating Panel Data Models in the Presence of Endogeneity and Selection." *Journal of Econometrics* 157 (2): 375–380. https://doi.org/10.1016/j.jeconom.2010.03.039.

Sena, V., M. Duygun, G. Lubrano, M. Marra, and M. Shaban. 2018. "Board Independence, Corruption and Innovation. Some Evidence on UK Subsidiaries." *Journal of Corporate Finance* 50:22–43. https://doi.org/10.1016/j.jcorpfin.2017.12.028.

Sila, V., A. Gonzalez, and J. Hagendorff. 2016. "Women on Board: Does Boardroom Gender Diversity Affect Firm Risk?" *Journal of Corporate Finance* 36:26–53. https://doi.org/10.1016/j.jcorpfin.2015.10.003.

Srivastav, A., S. Armitage, and J. Hagendorff. 2014. "CEO Inside Debt Holdings and Risk-Shifting: Evidence From Bank Payout Policies." *Journal of Banking & Finance* 47:41–53. https://doi.org/10.1016/j.jbankfin.2014.06.016.

Srivastav, A., and J. Hagendorff. 2016. "Corporate Governance and Bank Risk-Taking." *Corporate Governance: An International Review* 24 (3): 334–345. https://doi.org/10.1111/corg.12133.

Sunstein, C. R. 1996. "Social Norms and Social Rules, 96 Colum." *Law Review* 903 929–930. https://heinonline.org/HOL/LandingPage?handle%3Dhein.journals/clr96%26div%3D37%26id%3D%26page%3D.

Terjesen, S., E. B. Couto, and P. M. Francisco. 2016. "Does the Presence of Independent and Female Directors Impact Firm Performance? A Multi-Country Study of Board Diversity." *Journal of Management & Governance* 20 (3): 447–483. https://doi.org/10.1007/s10997-014-9307-8.

Thakur, B. P. S., and M. Kannadhasan. 2019. "Corruption and Cash Holdings: Evidence From Emerging Market Economies." *Emerging Markets Review* 38:1–17. https://doi.org/10.1016/j.ememar.2018.11.008.

Uhde, A., and U. Heimeshoff. 2009. "Consolidation in Banking and Financial Stability in Europe: Empirical Evidence." *Journal of Banking & Finance* 33 (7): 1299–1311. https://doi.org/10.1016/j.jbankfin.2009.01.006.

Vallascas, F., and J. Hagendorff. 2013. "CEO Bonus Compensation and Bank Default Risk: Evidence From the US and Europe." *Financial Markets, Institutions & Instruments* 22 (2): 47–89. https://doi.org/10.1111/fmii.12004.

Van Vu, H., T. Q. Tran, T. Van Nguyen, and S. Lim. 2018. "Corruption, Types of Corruption and Firm Financial Performance: New Evidence From a Transitional Economy." *Journal of Business Ethics* 148 (4): 847–858. https://doi.org/10.1007/s10551-016-3016-y.

Wang, T., and C. Hsu. 2013. "Board Composition and Operational Risk Events of Financial Institutions." *Journal of Banking & Finance* 37 (6): 2042–2051. https://doi.org/10.1016/j.jbankfin.2013.01.027.

Weill, L. 2011. "How Corruption Affects Bank Lending in Russia." *Economic Systems* 35 2: 230–243. https://doi.org/10.1016/j.ecosys.2010.05.005.

Wellalage, N. H., S. Locke, and H. Samujh. 2019. "Corruption, Gender and Credit Constraints: Evidence From South Asian SMEs." *Journal of Business Ethics* 159 (1): 267–280. https://doi.org/10.1007/s10551-018-3793-6.

Williams, C. C., and A. Martinez-Perez. 2016. "Evaluating the Impacts of Corruption on Firm Performance in Developing Economies: An Institutional Perspective." *International Journal of Business and Globalization* 16 (4): 401–422. https://doi.org/10.1504/IJBG.2016.076845.

Williams, C. C., A. Martinez-Perez, and A. Kedir. 2016. "Does Bribery Have a Negative Impact on Firm Performance? A Firm-Level Analysis across 132 Developing Countries." *International Journal of Entrepreneurial Behavior & Research* 22 (3): 398–415. https://doi.org/10.1108/IJEBR-01-2016-0002.

Yahanpath, N., and T. Joseph. 2011. "A Brief Review of the Role of Shareholder Wealth Maximisation and Other Factors Contributing to the Global Financial Crisis." *Qualitative Research in Financial Markets* 3 (1): 64–77. https://doi.org/10.1108/17554171111124621.

Yakubu, I. N. 2019. "Does Corruption Grease or Sand the Wheels of Bank Profitability in Ghana?" *Cogent Economics & Finance* 7 (1). https://doi.org/10.1080/23322039.2019.1701909.

Zheng, X., S. E. Ghoul, O. Guedhami, and C. C. Kwok. 2013. "Collectivism and Corruption in Bank Lending." *Journal of International Business Studies* 44:363–390. https://doi.org/10.1057/jibs.2013.19.

Appendix A

TABLE A1 | Sample distribution.

Country	Country code	Islamic banks	Conventional banks	Full sample (all banks)	Observations	Percentage (%)
Bahrain	BHR	11	11	22	220	16
Bangladesh	BGD	8	8	16	160	11
Kuwait	KWT	3	3	6	60	4
Lebanon	LBN	2	2	4	40	3
Malaysia	MYS	14	14	28	280	20
Pakistan	PAK	10	10	20	200	14
Saudi Arabia	SAU	4	4	8	80	6
Turkey	TUR	6	6	12	120	9
UAE	ARE	9	9	18	180	13
Yemen	YEM	3	3	6	60	4
Total		**70**	**70**	**140**	**1400**	**100**

Note: This table presents the sample of the study. The study includes 140 banks (70 Islamic and 70 conventional) across 10 OIC countries over the period of 2010–2019. The country-wise distribution of the banks, observations, and percentage are given in columns 3–7.

TABLE A2 | Pair-wise correlation matrix.

	1	2	3	4	5	6	7	8	9	10
Z_Score										
Board Size	0.065									
Female Ratio	0.433**	0.097**								
Duality	−0.252**	0.074*	0.061							
Audit Committee	0.041	0.205**	0.126**	−0.054						
Risk Committee	0.375*	0.209**	0.083*	−0.086*	0.359**					
SSBSZ	0.374**	0.078*	0.211**	−0.022	0.121**	0.107**				
SSBACQ	0.521*	0.061	0.041	−0.054	0.054	0.106**	0.395**			
SSBFR	0.612**	−0.027	0.173**	0.004	0.152**	0.097**	0.415**	0.188**		
Assets Growth	0.029	−0.066*	0.075*	0.017	0.001	−0.041	−0.024	−0.070*	0.050	
Bank Size	0.019	−.0128**	−0.084*	0.011	−0.042	−0.031	−0.131**	−0.042	−0.078*	0.035
Capital Ratio	0.017	−0.129**	−0.061	−0.016	0.085*	0.001	0.076*	0.024	0.043	0.035
Cost Inefficiency	−0.043	0.027	0.078*	0.022	0.044	−0.123**	0.172**	0.023	0.160**	−0.051
NII	−0.203**	−0.049	−0.043	−0.027	0.047	−0.107**	0.152**	0.011	0.183**	0.024
Entry Barrier	0.064	0.061	0.014	0.061	0.042	0.078*	0.132**	0.067	0.138**	0.041
Deposit Insurance	−0.019	−0.029	0.189**	0.035	0.025	−0.021	0.197**	0.025	0.130**	−0.012
CI	−0.526**	−0.117**	−0.139*	0.155**	0.007	−0.090*	0.098*	−0.018	−0.113*	0.034
GDP Growth	0.042	0.195**	0.203**	0.203**	0.091**	0.107**	0.061	0.061	0.136**	0.014
Supervisory Power	0.177*	0.039	0.059	0.077*	0.067	0.110**	0.055	0.069	0.017	0.007
Oil	0.028	−0.057	−0.255*	−0.077*	−0.083*	−0.109**	−0.072	−0.040	−0.211*	−0.113
Mineral	0.059	−0.014	0.216**	0.187**	0.080*	0.026	−0.031	−0.134*	0.106**	0.126**

(Continues)

TABLE A2 (Continued)

	11	12	13	14	15	16	17	18	19	20	21
Z_Score											
Board Size											
Female Ratio											
Duality											
Audit Committee											
Risk Committee											
SSBSZ											
SSBACQ											
SSBFR											
Assets Growth											
Bank Size											
Capital Ratio	0.002										
Cost Inefficiency	0.019	−0.011									
NII	−0.031	0.071*	0.192**								
Entry Barrier	0.015	0.042	0.141**	0.097**							
Deposit Insurance	−0.078*	−0.047	0.061	0.111**	−0.316*						
CI	0.084*	0.002	−0.137*	0.087*	0.061	−0.100*					
GDP Growth	0.117*	−0.041	0.011	0.001	−0.045	0.072	0.123**				
Supervisory Power	0.074*	0.114**	0.074*	0.094**	0.027	0.005	0.331**	0.265**			
Oil	0.096**	−0.017	−0.042	−0.064	0.142**	−0.175*	0.389**	−0.172*	−0.287*		
Mineral	−0.044	0.012	−0.074*	0.001	−0.076*	0.087*	0.132**	0.227**	−0.018	−0.171*	

Note: This table presents correlations of the different variables used in our analysis.
*Correlation is significant at the 0.05 level. **Correlation is significant at the 0.01 level.