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Institutional quality as a moderator of CSR's effect on bank stability: Evidence from MENA banks

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ABSTRACT

The main objective of this paper is to explore the moderating role of institutional quality (IQ) in the relationship between corporate social responsibility (CSR) and banking stability. Using a panel dataset of banks from the Middle East and North Africa (MENA) region spanning 2010–2022, the analysis employs the system generalized method of moments (SGMM) to mitigate potential endogeneity and heterogeneity issues. The findings reveal that CSR is negatively and significantly associated with bank stability. In contrast, institutional quality has a positive and significant effect on the stability of MENA banks. Moreover, the interaction between CSR and institutional quality further enhances bank stability. This research fills an important gap in the debate on the moderating role of institutional quality in the CSR–bank stability relationship in the MENA region. The study also offers practical insights for policymakers, regulators, and bank executives seeking to promote sustainable banking practices.

Contribution/ Originality: This research contributes to the sustainable finance literature by demonstrating that institutional quality amplifies the CSR impact on bank stability in MENA countries. As it embeds institutional quality into the CSR–stability framework, it helps provide empirical evidence and policy suggestions towards promoting responsible banking and institutional sustainability for emerging countries.

1. INTRODUCTION

The connection between Corporate Social Responsibility (CSR) and the stability of banks is gaining increasing attention, especially following the last financial crisis, and banks are experiencing growing pressure to behave responsibly and sustainably [1, 2]. There is often a consensus that CSR relates positively to bank stability through reputation, trust among stakeholders, and better risk management [3]. However, the extent and direction of these relationships are not universal and may relate to the institutional settings. The research to date predominantly considers bank internal governance attributes, such as board characteristics, as contextualizing this relationship [4]. The governance of banks in relation to the external institutional context (i.e., the quality of institutions) is, however, not widely researched.

Banks operate within broader political, legal, and regulatory institutions that shape their conduct and performance. Banks are the principal promoters of economic growth and financial stability in the MENA region. The region, however, is also marked by high heterogeneity in institutional quality, such as divergence in regulatory enforcement, control of corruption, legal frameworks, and political stability. Over the past two decades, the majority

of MENA countries have embarked on reforms toward improved transparency, governance, and financial modernization under the pressure of international organizations and investors' expectations [5, 6]. The reforms have created a demand for CSR and corporate accountability, yet the success of CSR initiatives remains contingent on the quality of institutional environments.

Though CSR may protect an institution's reputation or serve to align it with the broader social purpose, credibility and capacity to uphold its reputation are mostly determined by institutional frameworks. In weak institutional environments, CSR may be more symbolic or driven externally than truly based on values inherent to an organization. On the contrary, where institutional quality is high and subject to regulation and stakeholder legitimacy, CSR will flourish as a part of a bank's strategy. Thus, institutional quality serves as an important moderating variable in the relationship between CSR and bank stability.

Corporate Social Responsibility (CSR) can be viewed both as a voluntary ethical practice and as a way for firms to achieve legitimacy in their institutional environments. According to legitimacy theory, organizations engage in CSR to demonstrate their alignment with established norms and expectations in society and to obtain societal approval. Institutional economics builds on this perspective by pointing out how formal rules, governance structures, and institutional quality all constrain (and enable) corporate behavior and resource allocation decisions. Combining these two frameworks suggests that CSR activities might not solely be symbolic, but exist within institutional contexts, where effectiveness is dependent on the quality of regulatory, legal, and governance structures.

While a growing number of studies have examined the relationship between CSR and financial performance, there are few studies that have empirically tested the moderating role of institutional quality in the MENA region, especially in the banking sector. This is noteworthy, as the region experiences a unique combination of diverse institutions, an economy that is deeply dependent on banks, and a range of CSR institutional development when compared to other countries. Prior research has primarily focused on internal governance mechanisms or single-country studies, leading to limited generalizability and policy implications.

To fill this gap, the current study examines whether and to what extent institutional quality moderates the CSR-bank stability relationship using panel data from commercial banks in the MENA region. Specifically, the study contributes to our understanding of the CSR-bank stability nexus in three distinct ways. First, the study provides empirical evidence of the CSR-bank stability nexus in an under-researched context such as the MENA region. Second, the study introduces institutional quality as a new moderating variable in the relationship between CSR and bank stability, allowing for a more sophisticated understanding of how external factors shape the impact of the CSR experience. Third, through the use of dynamic panel estimation and by placing the analysis in the context of a large number of MENA countries over time, the study contributes to the rigor and policy relevance of the findings. The rest of the paper is structured as follows. Section 2 summarizes the literature, both theoretical and empirical. Section 3 explains the data, variables, and research design. Section 4 presents the empirical results. Section 5 discusses the results in light of theories and prior studies. Section 6 concludes by discussing policy implications and future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. CSR and Bank Stability

The connection between Corporate Social Responsibility (CSR) and bank stability has attracted increasing interest in modern literature. CSR has become more than a moral commitment; it is now considered a value-enhancement resource for bank stability and operational efficiency. Several theoretical ideas can be applied here:

- Stakeholder Theory [7]: Banks that consider the interests of stakeholders, or constituents (customers, employees, regulators, and society), obtain long-term legitimacy and trust, which are essential for financial stability.

- Legitimacy Theory (the scorecard) - CSR allows financial institutions to maintain their social license to operate, potentially reducing reputational and regulatory risks.
- Resource-Based View [8]- CSR is an intangible resource that creates a sustainable competitive advantage, particularly in compliance and trust industries.

Various academic papers have studied the link between CSR and bank stability in different settings. Octrina and Hanif [9] evaluated CSR practices in Indonesian banks using Data Envelopment Analysis. Khémiri et al. [10] considered an Islamic banking system in five GCC countries. Bouattour et al. [11] used a regime-switching model to examine the relevance of Environmental, Social, and Governance (ESG) ratings for banks in Europe. Li et al. [12] focused on CSR practices in the U.S. banking sector, with particular regard to deregulation and market factor elements.

CSR and bank stability. Several studies emphasize various mechanisms through which CSR can help maintain financial stability. Cornett et al. [1] explained how CSR can increase openness, ethical behavior, and governance. Fernando et al. [13] noted that CSR practices can bring in long-term, sustainability-focused investors. Salim et al. [14] studied banks' corporate social and environmental performance, while Djalilov and Hartwell [15] studied CSR's environmental and social aspects in transition economies. Although empirical evidence generally supports a stabilizing role for CSR, the magnitude of these effects varies by institutional and regulatory context.

H_1: Banks with higher CSR engagement exhibit greater financial stability.

2.2. Institutional Quality and Bank Stability

The literature has examined the role of institutional quality in promoting bank stability in depth. Cohen et al. [16] indicated that higher-quality institutions lessen the negative impact of information asymmetry and lower transaction costs, while Francis et al. [17] suggested that political instability raises the cost of borrowing in syndicated loan markets. Bushman and Piotroski [18] argued that when institutions are rated more positively, they improve corporate transparency and reduce problems with accountability. The negative impact of corruption on banking has also been studied: Toader et al. [19] implied that corruption leads to higher loan loss, Wei [20] recognized corruption as a multiplier for asymmetries in lending rates, and Zheng et al. [21] argued that it encourages banks to take excessive risks. In a similar trajectory, Park [22] identified corruption as a factor related to lower profitability and increasing non-performing loans. Chen et al. [23] also maintained that corruption causes banks to allocate capital to unproductive investments. Additionally, Lalountas et al. [24] provided the conjecture that while corruption may cause banks to increase profitability in the short run, it ultimately damages banking stability in the long run.

Based on this literature review, we provide the following short hypothesis: H2: *Higher institutional quality improves bank stability.*

2.3. Institutional Quality as a Moderator in the CSR–Bank Stability Relationship

The connection between Corporate Social Responsibility (CSR) initiatives and bank stability has attracted increasing scholarly attention recently, with institutional quality serving as an important moderating variable in this relationship. Strong institutional contexts defined by an effective rule of law, regulatory efficiency, and low corruption enhance the legitimacy and effectiveness of CSR initiatives by supporting transparency, accountability, and the enforcement of ethical conduct. Under these circumstances, CSR initiatives are more likely to be perceived as genuine commitments to sustainable and responsible banking rather than symbolic or strategic responses to external stakeholder demands. CSR initiatives help build stakeholder trust, reduce reputational and regulatory risks, and ultimately strengthen financial stability.

Weak institutional settings, on the other hand, can diminish the effectiveness of CSR efforts through ineffective monitoring and enforcement. Many goals of CSR initiatives may be undermined in weak institutional settings or

fully prevent CSR from having the stabilizing effects intended. Weak institutional contexts are likely to increase the risk of "greenwashing," misdirect resources, and undermine stakeholder confidence. As such, institutional quality plays a significant role in determining the extent to which CSR enhances bank stability.

Based on the discussion above, the following hypothesis is proposed: *H3 – Institutional quality moderates the relationship between CSR and bank stability.*

2.4. Research Gap and Contribution

Although the literature provides extensive evidence on the relationships between CSR, institutional quality, and bank stability, several gaps remain. First, most studies focus on CSR or institutional quality independently, without exploring the interaction between these two factors in influencing bank stability. Second, empirical evidence in the MENA region is limited, particularly regarding how institutional quality shapes the effectiveness of CSR initiatives in enhancing stability. Third, while prior research highlights the importance of regulatory and institutional contexts, there is insufficient attention to the moderating role of institutional quality in the CSR–bank stability nexus.

This study addresses these gaps by examining not only the direct effects of CSR and institutional quality on bank stability but also the moderating influence of institutional quality on the CSR–stability relationship. By focusing on banks in the MENA region, this paper provides novel insights into how institutional contexts can amplify or constrain the stabilizing role of CSR, thereby contributing both to the theoretical literature and to practical policy discussions on sustainable banking practices in emerging markets.

3. EMPIRICAL DESIGN

3.1. The Sample

Using a sample of conventional banks from ten MENA countries over the period 2010–2022, this study examines whether board characteristics moderate the relationship between corporate social responsibility (CSR) and bank stability within the region. The initial dataset included 76 banks; however, several banks were excluded due to issues related to data consistency and availability. Consequently, the final sample consists of 40 conventional banks, as presented in Table 1.

Table 1. Distribution of the sample by country.

Middle East North Africa countries		
Countries	**Number of banks**	**%**
Jordan	4	10%
Kuwait	4	10%
Oman	2	5%
Lebanon	1	2.5%
Qatar	4	10%
Saudi Arabia	6	17.5%
United Arab Emirates	6	15%
Egypt	1	2.5%
Morocco	2	5%
Tunisia	10	25%
Number of banks	**40**	**100**%

3.2. Variable Selection and Theoretical Justification

3.2.1. Dependent Variable: Bank Stability

In this research, we contribute to the literature by analyzing how corporate social responsibility (CSR) and board characteristics influence bank stability. To reflect bank stability, we operationalized it as the dependent variable, using the Z-score based on return on assets (ROA). This operationalization captures various aspects of

bank stability, consistent with those adopted by Zaghdoudi [25]. The Z-score (ROA) is calculated as the mean return on assets plus the capital adequacy ratio, divided by the standard deviation of return on assets. A higher Z-score indicates greater bank stability, signifying the bank's increased capacity to absorb risk-based losses rather than less.

$$Z - SCORE(ROA) = \frac{ROA+EQTA}{\partial(ROA)}$$

3.2.2. Main Explanatory Variable: Corporate Social Responsibility

According to Boussaada et al. [26], the study applies a pillar score of Environmental, Social, and Governance (ESG). This pillar score provides a general and balanced indication of the performance of a firm based on environmental, social, and governance dimensions. The values of this score range between 0 and 100.

3.2.3. Other Explanatory Variable: Institutional Quality

To evaluate governance institutions across MENA countries, this study employs the six key dimensions of governance identified by Kaufmann et al. [27] within the Worldwide Governance Indicators (WGI) framework. These dimensions include government effectiveness, control of corruption, political stability and absence of violence, voice and accountability, regulatory quality, and rule of law. Each indicator provides a country-level score on a standardized scale ranging from approximately −2.5 to 2.5, where higher values reflect stronger governance performance. Following Kaufmann et al. [27], institutional quality is computed as the average of these six indicators, with scores ranging from −2.5 (indicating weak governance) to 2.5 (indicating strong governance).

3.2.4. Control Variables

As previously stated, our econometric model consists of several control variables that can be grouped into three categories. The first category contains bank-specific factors, including bank size (BS), which reflects differences in banks' stability [28], and the capital adequacy ratio (CAR), the most correlated variable with stability [29]. Bank diversification is represented by the non-interest income ratio (NII) and was included as an explanatory variable to account for income structure, as past studies have shown that non-traditional banking activities also drive banks' performance [30]. The second category includes industry-specific variables, such as bank concentration (CONC), which has been shown to be a key driver of banks' stability [30]. The third category includes macroeconomic conditions and the wider financial environment, represented by GDP growth (GDPG) and inflation (INF), which also affect the performance of the banking sector [31].

Bank-level data, including financial and accounting variables, were sourced from the Refinitiv Eikon database. The data on macroeconomic variables, bank concentration, and institutional quality were obtained from the World Bank database, specifically the World Bank Indicators (WDI), Global Financial Development (GFD), and Worldwide Governance Indicators (WGI).

3.3. Empirical Approach and Model Specification

To examine the moderating role of institutional quality in the relationship between corporate social responsibility (CSR) and bank stability, we employed the System Generalized Method of Moments (SGMM) as our empirical technique. The SGMM approach is particularly suitable for addressing endogeneity, a common issue in corporate and banking finance. In contrast, traditional OLS and fixed- and random-effects (FE and RE) models often face challenges related to measurement errors and omitted variable bias. Following the methodology proposed by Blundell and Bond [32], the SGMM technique provides more reliable and robust estimates, as supported by studies such as Zhou [33], Teixeira and Queirós [34], Danisman and Tarazi [35], and Hakimi et al. [36]. For the analysis of moderator effects, we adopted the two-step approach of Sharma et al. [37], and Ping Jr [38]. The first step involves examining the main effects of the explanatory variables on the dependent variable,

while the second step focuses on assessing the interaction effects to determine the moderating influence. The empirical technique outlined in this research consists of three phases. First, we examined the relationship between corporate social responsibility and bank stability. The econometric model to be validated in this step is presented in Equation 1.

$$Z-ROA_{i,t} = \beta_0 + \beta_1 Z-ROA_{i,t-1} + \beta_2 ESG_{i,t} + \beta_3 BS_{i,t} + \beta_4 CAR_{i,t} + \beta_5 NII_{i,t} + \beta_6 CONC_{i,t} + \beta_7 GDPG_{i,t} + \beta_8 INF_{i,t} + \varepsilon_{i,t} \quad (1)$$

In the second stage, we investigated how Institutional quality affected bank stability. The following Equation 2 displays the econometric model.

$$Z-ROA_{i,t} = \beta_0 + \beta_1 Z-ROA_{i,t-1} + \beta_2 IQ_{i,t} + \beta_3 BS_{i,t} + \beta_4 CAR_{i,t} + \beta_5 NII_{i,t} + \beta_6 CONC_{i,t} + \beta_7 GDPG_{i,t} + \beta_8 INF_{i,t} + \varepsilon_{i,t} \quad (2)$$

In the third step, we examine whether institutional quality moderates the relationship between corporate social responsibility (CSR) and bank stability. To test this, an interaction term between CSR and institutional quality is included in the econometric model to capture their combined effect. The model to be estimated is presented in Equation 3.

$$Z-ROA_{i,t} = \beta_0 + \beta_1 Z-ROA_{i,t-1} + \beta_2 ESG \times IQ_{i,t} + \beta_3 BS_{i,t} + \beta_4 CAR_{i,t} + \beta_5 NII_{i,t} + \beta_6 CONC_{i,t} + \beta_7 GDPG_{i,t} + \beta_8 INF_{i,t} + \varepsilon_{i,t} \quad (3)$$

All variables' definitions are given in Table 2.

Table 2. Definition and measurement of variables.

Variables	Definitions	Measures
Dependent variables (Z-ROA)		
Z-ROA	Bank stability	The ratio of the sum of the average ROA and the CAR to the standard deviations of ROA. We applied the natural logarithm to Z-ROA.
Corporate social responsibility and institutional quality		
ESG	ESG score	Composite environmental/ social/governance score
IQ	Institutional quality	An index of IQ
ESG*IQ	Interactional variable	The interaction between ESG and IQ
Bank specifics		
BS	Bank size	Natural logarithm of total assets
CAR	Capital adequacy ratio	Bank capital to total assets (%)
NII	Bank diversification	Non-interest income in % of total income
Industry specifics		
CONC	Bank concentration	Bank concentration (%)
Financial environment and macroeconomic conditions		
GDPG	The growth rate of GDP	Annual growth rate of GDP (%)
INF	The inflation rate	Consumer price index (%)

4. EMPIRICAL RESULTS

4.1. Summary Statistics and Correlation Matrix

As shown in Table 3, the average level of bank stability, measured by Z-ROA, is 2.811, with a maximum value of 4.333 and a minimum of -0.5525. The average ESG score (ESG) is 40.358, with a maximum of 80.794 and a minimum of 12.843. In the MENA region, the institutional quality index (IQ) ranges from a high value of 0.971 to a low level of 0.171.

Regarding bank-specific factors, the average bank size (BS) is 23.5, with values ranging from a minimum of 20.942 to a maximum of 26.512. The CAR stands for Capital Adequacy Ratio, which averages 15.839%, ranging from 1.25% to 40.350%. Bank diversification, measured by NII, records a mean value of 38.121, with a minimum of 9.552 and a maximum of 96. Concerning industry specifics, Table 3 reports that the mean level of bank concentration (CONC) is 80.888%, with a maximum of 100% and a minimum of 56.035%. For macroeconomic

conditions, the MENA region experienced the highest GDP growth rate of 19.592% and the lowest level of -21.4%. The inflation rate ranges from a low value of -3.749% to a maximum value of 171.205%, with an average of 3.878%. The highest level of inflation was registered by Lebanon in 2022.

Table 3. Descriptive statistics.

Variable	Mean	Std. Dev.	Min.	Max.
ZROA	2.811	2.512	-0.525	4.333
ESG	40.358	12.703	12.843	80.794
Qi_index	0.662	0.167	0.171	0.971
BS	23.5	1.313	20.942	26.512
CAR	15.839	10.987	1.256	40.350
CONC	80.886	13.979	56.035	100
NII	38.121	17.5	9.552	96
INF	3.816	10.791	-3.749	171.205
GDPG	2.547	4.035	-21.4	19.592

The correlation matrix provides insights into the level and nature of relationships between variables by calculating the coefficients of their linear connections. Table 4 displays the correlation matrix for each variable used in this study. From this table, we conclude that there are no significant issues with collinearity problems.

Table 4. Pairwise correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ZROA	1.000								
(2) ESG	0.000	1.000							
	(0.996)								
(3) BS	0.256*	0.253*	1.000						
	(0.000)	(0.000)							
(4) CAR	0.163*	0.009	0.239*	1.000					
	(0.000)	(0.836)	(0.000)						
(5) CONC	0.233*	-0.152*	0.416*	0.208*	1.000				
	(0.000)	(0.001)	(0.000)	(0.000)					
(6) NII	-0.073	-0.150*	0.342*	0.151*	0.225*	1.000			
	(0.097)	(0.001)	(0.000)	(0.001)	(0.000)				
(7) INF	0.005	-0.018	-0.047	-0.063	-0.149*	-0.153*	1.000		
	(0.907)	(0.682)	(0.332)	(0.154)	(0.001)	(0.001)			
(8) GDPG	0.027	0.011	0.085	0.039	0.139*	0.111*	-0.181*	1.000	
	(0.544)	(0.814)	(0.080)	(0.381)	(0.002)	(0.012)	(0.000)		
(9) Qi_index	0.013	0.058	0.413*	0.105*	0.525*	0.085	-0.323*	0.214*	1.000
	(0.762)	(0.198)	(0.000)	(0.017)	(0.000)	(0.056)	(0.000)	(0.000)	

Note: * indicates significance at 1%.

4.2. Discussion of the Empirical Findings

4.2.1. Findings of the Effect of Corporate Social Responsibility on Bank Stability

The first step in the empirical strategy of this paper is to examine the effect of CSR on bank stability in the MENA region, using the Z-ROA as the measure of stability. The empirical results are outlined in Table 5. The diagnostic tests, specifically the Sargan test and serial correlation test, show p-values greater than 5%. This indicates that the null hypotheses of the validity of over-identifying restrictions and the absence of serial correlation cannot be rejected.

Table 5. Regression results: the effect of ESG on ZROA.

ZROA	Coef.	Std. Err.	t-value	p-value
ZROA(-1)	0.880	0.009	91.82	0.000***
ESG	-0.020	0.008	-2.43	0.015**
BS	1.688	0.146	11.50	0.000***
CAR	-0.004	0.004	-0.93	0.350
CONC	0.055	0.008	6.40	0.000***
NII	-0.006	0.007	-0.97	0.384
INF	-0.034	0.005	-5.85	0.000***
GDPG	0.079	0.013	5.97	0.000***
Constant	-41.013	3.093	-13.26	0.000***
obs		416		
AR (1)		-2.4199		
Prob		0.0155		
AR (2)		-0.7799		
Prob		0.4354		
Sargan test		31.2044		
Prob		1.0000		

Note: *** p<0.01, ** p<0.05.

The findings displayed in Table 5 indicate that the lagged dependent variable has a positive and significant effect, meaning that bank stability in the previous year positively influences the current year's bank stability.

Additionally, Table 5 shows that the coefficient of ESG is negatively and significantly associated with the dependent variable (Z-ROA). This suggests that corporate social responsibility significantly decreases bank stability. Even though corporate social responsibility (CSR) is normally viewed in its positive role, it could destabilize banks under certain conditions. First, if CSR activities are of poor quality or inconsistent with a bank's business model, they would divert funds from core business, risk management, or operational necessities, thereby causing inefficiency and exposure. Second, wasteful or cosmetic CSR spending, especially where control is weak, can reduce profitability, exhaust capital cushions, and weaken a bank's financial resilience. Third, where the regulatory environment and accountability are weak, CSR can be used for image-making or political favoritism rather than genuine risk reduction or stakeholder engagement. This is likely to mask underlying financial or governance flaws, increasing long-term risk. Finally, if investors or stakeholders view CSR activities as hypocritical or pretentious, it may erode trust and reputation, leading to negative market reactions. In these situations, rather than stabilizing the bank, CSR can cause instability by eroding financial discipline and stakeholder confidence. This result is divergent from the findings of Djalilov and Hartwell [15]. Therefore, we accept H1.

Concerning the effect of bank specifics, findings indicate that bank size is significant for banking stability at a 1% significance level. The larger the size of a bank, the more it can positively affect bank stability through higher diversification, economies of scale, and improved access to capital and liquidity. Larger banks typically operate in multiple regions and offer a wider range of financial products, hence reducing their exposure to particular market or credit risk. They have more stable revenues and improved risk management systems because of greater resources and infrastructure. Furthermore, large banks gain from increased market confidence and access to liquidity, particularly in times of economic hardship. For others, their systemic relevance may generate more regulatory oversight or implicit government backing, also enhancing stability. Overall, the size of banks enables more robustness and improved resilience to shocks and benefits financial well-being. This result aligns with the findings of Adusei [39].

The bank concentration positively and significantly influences banking stability. Bank concentration has a positive impact on bank stability through increased discipline and close oversight of the banking sector. Concentrated banking regimes have a few large banks dominating the market, resulting in greater profitability through diminished competition and higher margins. This financial power enables banks to develop capital buffers, enhance risk management, and better cope with economic shocks. Additionally, larger and more powerful banks are

subject to increased scrutiny by regulators, leading to stricter supervision and enforcement. Concentration can also promote relationship lending and long-term customer relations, which can reduce credit risk. Furthermore, bank failure can be more easily identified, and authorities can intervene more readily in a concentrated banking market, potentially reducing systemic contagion. While excessive concentration is risky, reasonable bank concentration can contribute to a more stable and healthier banking industry. These results are consistent with the findings of Berti et al. [40].

Regarding macroeconomic effects, the results show that GDP growth has a positive and significant impact on bank stability. GDP growth positively affects bank stability by improving the overall quality of the economic environment in which banks operate.

With economic growth, firms perform better, unemployment falls, and household incomes rise, which means greater loan repayment capacity and lower credit risk. As a result, banks experience fewer NPLs, thus improving their asset quality and financial stability. GDP growth also stimulates greater demand for banking services such as loans, deposits, and investments, and hence boosts bank profitability and enables them to build capital buffers. Further, higher economic activity enhances investor and depositor confidence in the banking system, which also contributes to financial stability.

Overall, sustained GDP growth offers a favorable setting for banks to operate efficiently and absorb shocks effectively, and hence their stability improves. This result corroborates the findings of Espinoza and Prasad [41] and Klein [42].

We also found that inflation is inversely related to bank stability. Inflation can have negative effects on the stability of banks through several significant channels. Unstable or high inflation diminishes the real value of loan repayments, especially when interest rates are fixed or adjust slowly, leading to reduced bank revenues and profitability. It can further decrease borrowers' purchasing power and debt-servicing ability and increase the likelihood of loan defaults and NPLs.

Moreover, inflation creates uncertainty in the economy and discourages long-term lending and investment, which has the effect of lowering financial intermediation and credit growth. Central banks, in the process of curbing inflation, can raise interest rates significantly, increasing banks' cost of funds and compressing interest margins. Inflation distorts financial accounts and the valuations of assets, increasing risk appraisal and management. Generally, unstable or chronic inflation degrades the creditworthiness, profitability, and faith in the banking sector, thereby reducing its stability at large. This result supports the findings of Khemiri [43].

4.2.2. Findings of the Effect of Institutional Quality on Bank Stability

The results presented in Table 6 pertain to the impact of institutional quality on bank stability, as measured by Z-ROA. The findings indicate that the institutional quality index significantly enhances bank stability in the MENA region. Institutional quality positively influences bank stability by fostering a transparent, predictable, and well-regulated financial environment. Strong institutions ensure the strict implementation of banking regulations, reduce corruption and political interference, and promote sound legal structures that enforce property rights and contracts. These characteristics mitigate operational and credit risks by enhancing borrower discipline and reducing opportunistic behavior.

In addition, sound institutional quality promotes transparency and accountability of information, strengthening market discipline and prudential risk management by banks. It also supports effective regulatory supervision and crisis management arrangements, which reduce the likelihood of financial instability. Overall, robust institutional frameworks give a strong foundation for banks to operate efficiently and in a sustainable manner. This finding is in line with the works of Laeven and Levine [44] and Kim and Choi [45]. Hence, we accept H2.

Table 6. Regression results: The effect of QI_index on ZROA.

ZROA	Coef.	Std. Err.	t-value	p-value
ZROA(-1)	0.874	0.006	130.48	0.000***
QI_index	7.679	1.568	4.90	0.000***
BS	1.153	0.152	7.55	0.000***
CAR	0.007	0.002	2.42	0.015**
CONC	0.020	0.012	1.65	0.099*
NII	0.014	0.006	2.35	0.019
INF	-0.028	0.003	-7.59	0.000***
GDPG	0.067	0.009	7.42	0.000***
Constant	-32.34	3.288	-9.83	0.000***
obs	419			
AR (1)	-2.464			
Prob	0.0137			
AR (2)	-0.8133			
Prob	0.4160			
Sargan test	29.9877			
Prob	1.0000			

Note: *** p<0.01, ** p<0.05, * p<0.1.

Regarding the effects of macroeconomic conditions, there are no significant changes compared to the results presented in Table 5. While, for bank-specific factors, the capital adequacy ratio becomes positive and significant at a 5% significance level. The capital adequacy ratio (CAR) positively affects the stability of banks because it guarantees that banks are well-capitalized to cover losses and stay in business even when there is financial stress. The ratio of CAR being higher means that a bank holds more equity relative to its risk-weighted assets, providing a buffer for unexpected losses resulting from loan default or market fluctuations. This reduces the risk of insolvency and enhances the bank's resistance to economic downturns. A strong capital position also enhances depositors', investors', and regulators' confidence, which can prevent bank runs and maintain stability in the financial system. Well-capitalized banks are also likely to be able to raise funds at lower costs and satisfy regulatory requirements, which further enhances their resilience. Overall, a sound CAR strengthens the solvency and credibility of banks, making them more stable and less vulnerable to crises. This finding is consistent with the works of Bourke [46] and Molyneux and Thornton [47].

Bank diversification has a positive impact on bank stability. Banks' diversification has a beneficial effect on bank stability since it reduces the institution's exposure to specific risks. As soon as a bank diversifies its operations by sectors, geographically, customer segments, or products, it spreads its risk so that a drop in one segment can be offset by growth in others. This stabilizes revenues and makes it less probable to incur massive losses. Diversification also diminishes concentration risk, i.e., the bank is less vulnerable to shocks impacting a particular group of borrowers, industry, or geographic area. Moreover, diversified banks also experience more elastic revenue flows and, therefore, are better placed to adapt to changing market conditions. Overall, by smoothing income and reducing exposure to specific shocks, diversification renders a bank stronger and enhances financial stability.

4.2.3. Findings of the Interactional Effect of Corporate Social Responsibility and Institutional Quality on Bank Stability

The empirical results presented in Table 7 examine the moderating effect of institutional quality on the relationship between corporate social responsibility (CSR) and bank stability. The coefficient of the interaction between CSR and institutional quality (*ESG*IQ_index*) is positive and statistically significant at 1%, with a magnitude of 0.03, indicating that higher institutional quality amplifies the stabilizing effect of CSR on banks. These results suggest that the interplay between CSR and institutional quality creates a synergistic effect that supports bank stability. In high-quality institutional environments, strong regulatory frameworks, governance systems, and legal enforcement enhance the credibility and effectiveness of CSR initiatives.

The findings indicate that the interplay between corporate social responsibility and institutional quality

positively impacts the stability of the bank. The relationship between institutional quality and corporate social responsibility (CSR) can have a synergistic effect that mutually supports bank stability. When banks engage in strong CSR activities in a high-quality institutional environment, the impact of CSR activities is supported and becomes more effective and credible. In such settings, institutions like regulatory agencies, governance systems, and legal systems ensure transparency, accountability, and effective enforcement, which reduce the likelihood of CSR being implemented as a reputation strategy without core change. Strong institutions reinforce trust and legitimacy in CSR efforts, leading to stronger stakeholder relationships, customer loyalty, and diminished reputational and compliance risks. Moreover, the integration of CSR and good institutions guarantees ethical banking practices, cautious lending, and better risk management, which cumulatively translate to more stable and resilient banking operations. Institutional quality thus improves the implementation and effectiveness of CSR, and collectively they offer an entrenching device for boosting financial stability in banking. Hence, we accept H3.

Regarding the effects of bank-specific factors, industry characteristics, and macroeconomic conditions, there are no significant changes compared to the results presented in Table 5.

Table 7. Regression results: The moderating effect of ESG*QI_index on ZROA.

ZROA	Coef.	Std. Err.	t-value	p-value
ZROA(-1)	0.877	0.008	108.49	0.000***
ESG*IQ	0.030	0.010	2.94	0.003***
BS	1.855	0.195	9.47	0.000***
CAR	-0.004	0.004	-0.92	0.357
CONC	0.055	0.009	6.14	0.000***
NII	-0.022	0.007	-0.36	0.719
INF	-0.036	0.006	-5.26	0.000***
GDPG	0.079	0.010	7.32	0.000***
Constant	-45.018	4.004	-11.24	0.000***
obs		419		
AR (1)		-2.417		
Prob		0.015		
AR (2)		-0.787		
Prob		0.430		
Sargan test		31.65004		
Prob		1.0000		

Note: *** p<0.01, * p<0.1.

5. CONCLUDING REMARKS AND POLICY RECOMMENDATION

This research investigates the relationship between bank stability and corporate social responsibility (CSR) in the MENA region and whether institutional quality mediates this relationship. From a panel of MENA banks between 2010 and 2022, the study employed the system generalized method of moments (SGMM) to address endogeneity and unobserved heterogeneity. CSR was measured by a composite indicator, while institutional quality was estimated using the principal governance indicators. Bank stability was measured by the Z-score.

The empirical findings convey three significant messages. First, CSR was found to have a negative and significant relationship with bank stability, which means that in the absence of enabling governance environments, CSR can be an economic burden or a symbolic device, undermining bank resilience. Second, institutional quality was shown to have a positive and significant effect on the stability of banks, corroborating further the crucial role of governance, rule of law, and transparency in guaranteeing financial solidity. Third, and more importantly, the interactive impact of CSR and institutional quality showed a positive and significant effect on the stability of banks, which suggests that sound institutional quality can transform CSR into a stability force instead of being a source of instability. Specifically, the interaction between CSR and institutional quality (ESG*IQ) increases the Z-score by 0.03 at 1% significance, indicating that CSR initiatives are more effective in promoting bank stability when supported by strong institutional environments. These results highlight the importance of aligning CSR strategies

with robust institutional frameworks to achieve sustainable and resilient banking operations.

These conclusions have significant policy implications for regulators, policymakers, and practitioners in banks across the MENA region. They underpin the need to enhance institutional frameworks such as enforcing the law, anti-corruption measures, and regulation to ensure that CSR is suitably aligned with long-term financial stability goals. Banks can be encouraged to undertake CSR not as a discrete image-building effort but as part of an inclusive element of governance and risk management, particularly in situations where there is effective institutional support.

These results provide actionable policy insights:

- Strengthen the legal and regulatory framework: Strengthening the rule of law, transparency, and the enforcement of regulations will ensure CSR is not just an exercise in symbolism and can be impactful, credible, and sustainable.
- Encourage anti-corruption: A reduction in corruption enhances the overall stability of the financial system and results in the effectiveness of CSR, while making banks more resilient to risk.
- Promote ethical and sustainable banking: Regulators can motivate banks to implement CSR programs that address sustainability and long-term viability; they can do that by linking CSR programs with regulatory compliance and supervisory engagement.
- Encourage stakeholder engagement: Policies that implicitly advocate for banks' active engagement with customers, employees, and communities will work to strengthen trust and legitimacy and, in turn, reduce reputational and operational risk.
- Integrate into Governance and Risk Management Models: Banks should incorporate CSR into governance and risk management frameworks, as institutions with better CSR efforts are associated with increased resilience to financial and economic shocks.
- Tailor policies that align with institutional quality: For those countries with relatively weaker institutional quality or conditions, policymakers should pay more attention and provide the necessary oversight to ensure that CSR results in actual stability benefits, rather than greenwashing or resource extraction.

Overall, when strategies for CSR align with institutional quality and conditions, not only are banks stabilized, but also there is an opportunity for financial certainty for the sustainability or growth of the financial service sector with lower ethical violations.

Despite the robustness of the findings, some limitations must be acknowledged. First, while SGMM mitigates endogeneity problems, the consistency and quality of CSR and institutional quality data across countries may generate measurement problems. Second, regional context, as much as it is desirable for contextual richness, may limit the generalizability of findings to other institutional settings. Third, institutional quality and CSR are dynamic factors that respond to shifting regulatory, political, and social circumstances not included here.

Future research can extend these findings by making regional comparisons between regions with varying institutional capacities or decomposing CSR into its environmental, social, and governance factors and testing differential effects. Longitudinal studies can also speak to the extent to which changes in institutional quality over time recast the CSR–stability relationship. In addition, incorporating new themes like ESG disclosures, green finance rules, and digital compliance frameworks might give us a more nuanced perspective on how institutional settings mediate the effects of CSR on financial performance and resilience.

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