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Country governance nexus with the financial stability of banks: The moderating effect of country's income level

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Abstract

This study examines the relationships between a country's governance indicators and bank financial stability and the moderating effect of a country's income level on those relationships. This study uses unbalanced country-level panel data of 110 countries from the World Bank from 2010 to 2021. Ordinary least squares (OLS) estimation fails to pass heteroskedasticity, first-order autocorrelation, and cross-sectional dependence tests. To ensure robustness in the estimation, this study uses panel corrected standard error (PCSE) estimation model for the direct and moderating effect analysis. The findings show that banks' financial stability mostly depends on bank-specific factors, and better country governance enhances bank financial stability. This study also finds that a country's high-income, upper-middle-income, and lower-middle-income moderate the relationships between a country's governance indicators and the bank's financial stability. This finding will help bankers, regulators, and policymakers adopt effective governance policies to strengthen the financial stability of the banking sector. Unlike previous studies, this study overcomes the limited regional context and scope of measuring the relationships between a country's governance indicators and a bank's financial stability and also measures the moderating effect of the country's income level on the same.

Keywords: *Country governance, Financial stability, Country's income level, Banking sector, Moderating effect.*

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1. Introduction

The sustainable economic development of a country depends to a great extent on the financial stability of the banking sector, as instability in this sector hinders the economic development of a country (Tölö & Virén, 2021). Amadi et al. (2021) find that stability of the banking sector is a prerequisite for the sustainable financial development of a country. Kharel and Pokhrel (2012) also show that the banking sector plays a key role as compared to the capital market for economic progress in some countries. However, the banking sector has suffered from financial instability in different countries and economic regions and scholars are restlessly investigating the determinants of bank's financial stability in different contexts. To explain a bank's financial stability, most of the studies focus on bank-specific factors such as bank size, capital adequacy, assets quality, operating efficiency, etc., and macroeconomic factors such as gross domestic product (GDP) growth rate, inflation rate, exchange rate, unemployment rates, etc. (Abad-González et al., 2018; Ali & Puah, 2019; Azmi et al., 2019; Chand et al., 2021; Ghosh et al., 2018).

Going beyond the usual bank-specific and macroeconomic-based investigation, some scholars have tried to connect country governance with a bank's financial stability (Asteriou et al., 2016; Eichler & Sobański, 2016; Ozili, 2018; Pathrose, 2022; Toader et al., 2018). Few studies also find the relationship between country governance and financial performance indicators of banks (Almaqtari et al., 2022; Cerulli et al., 2020; El-Chaarani & El-Abiad, 2022; Kamarudin et al., 2016a, 2016b; Lee et al., 2020; Schiantarelli et al., 2020). However, the existing studies suffer from limited contexts and scope and fail to generalize the overall impact of a country's governance indicators on a bank's financial stability; some focus on specific geographical areas, i.e., Europe, Africa, some focus on specific countries, specific nature of banks or specific elements of country governance and finds mixed relationship between country governance and the various financial aspects of banks. Moreover, the existing studies ignore one important context, a country's income level classified as high-income, upper-middle income, lower-middle-income, and low-income countries by the World Bank based on their respective per capita gross national income (GNI), measuring the relationship between a country's governance indicators and bank's financial stability.

Acknowledging the importance of a country's income level, Dietrich and Wanzenried (2014) conducted a study on the determinants of bank profitability in low-, middle- and high-income countries and found that the determinants of bank profitability widely differ among those groups of countries. Asteriou et al. (2016) also find differences in the association between regulation and bank financial stability in high-income and upper-middle-income countries in Europe. According to Resource Dependence Theory, the banking sector highly depends on external resources for its deposits and other investable funds. The operating activities and financial performance of the same are influenced by the external environment, e.g., favorable sociopolitical situations and financial and regulatory policies of governments. Our

preliminary investigation finds that the average values (refer to Table 1) of the country's governance indicators and Z-score (an indicator of financial stability) vary in lower-middle-income, upper-middle-income, and high-income countries. Eventually, a country's income level can influence the quality of country governance and the financial performance of banks, which could ultimately change the relationship between them; however, no study has been conducted in this regard.

Although Ozili (2018), Asteriou et al. (2016), and Pathrose (2022) investigate the connection between country governance and bank financial stability, those studies do not consider cross-sectional dependence (CD) of panel data in model selection. Moreover, their findings are also inconsistent because of the limited scope and contexts and fail to generalize the effect of country governance on the financial stability of banks. Furthermore, a country's income level that affects the relationship between a country's governance indicators and the financial stability of banks has not yet been investigated. Eventually, this study aims to contribute to the existing literature in two distinct ways- firstly, this study generalizes the effect of each country's governance indicator on the financial stability of banks using country-level data, overcoming the limited scope and contextual issues of previous studies and secondly, how a country's income level moderates the relationship between each country's governance indicator and the financial stability of banks. The findings of this study will help regulators and policymakers formulate and implement appropriate regulatory, financial, and other policies to ensure greater financial stability in the banking sector.

2. Literature Review

To ensure sustainable economic development in different counties, economic regions, and geographical areas, financial stabilization in the banking sector is a matter of concern for scholars, regulators, and policymakers over time. To identify the factors that stimulate banks' financial stability, some authors focus on bank-specific factors; some focus on both bank-specific factors and macroeconomic factors. Chand et al. (2021) find that bank-specific factors, such as credit risk, funding risk, and bank size, and macroeconomic factors, such as inflation and GDP growth, have a significant positive impact on the financial stability of banks. In contrast, loan-to-asset ratio is negatively associated with the same. Using the generalized method of moments (GMM) estimation, Azmi et al. (2019) show that return on assets (ROA), gross loan to total asset, lag-one of Z-score, and size of banks are positively associated with the financial stability of banks. On the contrary, liquidity to total assets, cost to income ratio, inflation, GDP growth rate, and financial crisis are negatively associated with the same. Using the fixed effect model, Ghosh et al. (2018) also find that return on equity (ROE) and ROA have statistically significant positive relationships with bank financial stability.

In a study on bank solvency in European countries, Abad-González et al. (2018) find that capital, assets, and liquidity of banks have a significant positive association with

bank solvency. In contrast, management quality, inflation rate, and short-term interest rate have a significant negative association with the same. In this study, earnings of banks, GDP growth rate, unemployment rate, exchange rate, long-term interest rate, and changes in property prices are found statistically insignificant to explain bank solvency. Ali and Puah (2019) show that bank size, credit risk, and liquidity risk are negative, and funding risk is positively associated with the financial stability of banks. Silva (2019) finds that excess liquidity transformation because of competitors' mismatched liquidity policies enhances bank default risk. Asteriou et al. (2016) find that ROA, ROE, and net interest margin (NIM) positively affect a bank's financial stability. Adusei (2015) shows that funding risk, ROE, inflation, and GDP significantly affect bank financial stability positively, whereas bank size, liquidity risk, and credit risk are insignificant.

The banking sector is a highly regulated sector. Its activities and financial performance are affected by the rules, regulations, and policies of a country. Some scholars find that a country's governance indicators or its elements significantly affect the non-performing loans of banks (Cerulli et al., 2020; Ozili, 2018; Schiantarelli et al., 2020). Kamarudin et al. (2022) find that a country's governance indicators affect the revenue efficiency of Islamic and conventional banks at different scales, and their impacts differ between Islamic and conventional banks. In the Middle East and North Africa (MENA) countries, Pathrose (2022) finds that the quality of bank regulation positively affects bank financial stability. In Europe, Asteriou et al. (2016) find that regulation and policies that control corruption significantly affect bank financial stability. However, the impact of these on financial stability differs in high-income and upper-middle-income countries. Toader et al. (2018) find that lower-level corruption positively affects bank financial stability. In another study on commercial banks in African countries, Ozili (2018) finds a mixed significant and insignificant association between a country's governance indicators and bank financial stability. Control of corruption and government effectiveness positively and significantly affect bank stability, whereas political stability significantly and negatively affects the same. However, the nature of relationships and significance level differ in pre-crisis, during, and post-crisis periods.

Moreover, the findings from Pathrose (2022), Asteriou et al. (2016), and Ozili (2018) suffer from limited context and scope and make it difficult to generalize the effect of a country's governance indicators on bank financial stability. Furthermore, some studies find that the determinants of bank performance differ in countries based on income level. Using data on bank-specific, macroeconomic, and industry-specific variables from 118 countries of 10,165 banks, Dietrich and Wanzenried (2014) show that the determinants of bank profitability widely differ in high-income, middle-income, and low-income countries. Asteriou et al. (2016) also find that the level of significance and values of coeffects differ in measuring the association between the regulation and policies that control corruption and bank financial stability in high-income and upper-middle-income countries.

Resource Dependence Theory demonstrates that organizations depend on the external resources they use for their goal achievement. The activities and policies of the same are influenced by external factors, such as regulatory policies, rules and laws, and control of corruption activities. As the baking sector depends on external stakeholders for deposits and other funds, a country's income level can influence fund supply to the money market, affecting banks' lending and other investment activities and their operating performance. Our initial investigation finds that the quality of a country's governance and bank financial stability differ based on a country's income level. For example, high-income countries have the highest quality of Control of Corruption Index and Rule of Law Index compared to lower-middle-income countries. Ozili (2018) finds a significant positive impact of controlling corruption on bank financial stability, which is consistent with the Theory of Corruption. However, the Collective Action Theory states that where corruption is remarkably high, it persists despite existing anticorruption activities, and even anti-corruption activities can backfire.

On the other hand, the Legal Theory of Finance represents that too much enforcement of rules and laws destabilizes the financial market. As the quality of a country's governance and bank financial stability differ in the country's income levels and the findings of previous studies suffer from limited scope and context, this study plans to contribute to the existing literature by generalizing the effect of country governance indicators of bank financial stability and measuring the moderating effect of a country's income level on those relationships and develop the following research framework where MV means moderating variables, IV means independent variables, and DV means dependent variables.

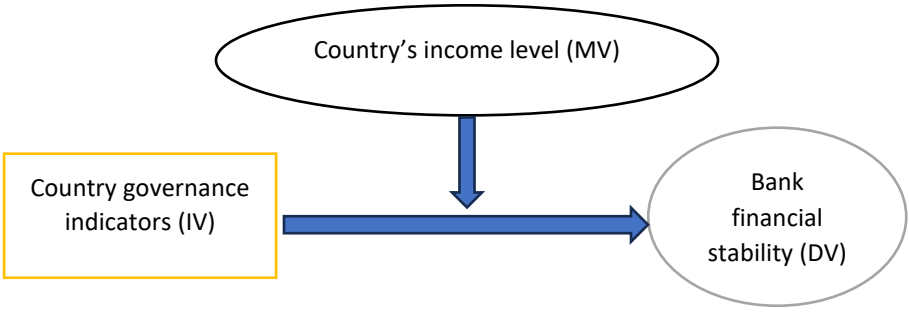

Figure 1. The research framework for this study

3. Methodology

This is a quantitative study based on secondary data from the World Bank, and this section includes the entire methodological procedure followed to achieve our research goal.

3.1. Variable selection

To measure the relationship between country governance indicators and bank financial stability and how a country's income level moderates the relationship between them, this study hypothesizes that bank financial stability is a function of country governance indicators, bank-specific factors, and macroeconomic factors, which can be expressed as follows:

Financial stability = f (country's governance indicators, bank-specific factors, macroeconomic factors)

Some scholars (Ali & Puah, 2019; Chand et al., 2021; Chen, 2022; Ghosh et al., 2018; Ozili, 2018; Pathrose, 2022; Shome & Verma, 2020) use Z-score to measure financial stability. The World Bank reports Z-score to present the default/bankruptcy probability of a country's banking system. In this study, financial stability means bankruptcy probability measured by the World Bank-reported **Z-Score**. Our main independent variables are six country's governance indicators such as Control of Corruption Index (CCI), Regulatory Quality Index (RQI), Government Effectiveness Index (GEI), Rule of Law Index (RLI), Voice and Accountability Index (VAI) and Political Stability and Absence of Violence/Terrorism Index (PSAVTI) that are developed by Kaufmann et al. (2009, 2010) and continually reported by the World Bank.

Bank-specific control variables such as bank capital to total assets (BCTA), bank costs to income ratio (BCIR), non-performing loans (NPL), return on assets (ROA), return on equity (ROE), and net interest margin (NIM) are selected based on some research publications (Azmi et al., 2019; Ghosh et al., 2018; Ozili, 2018) . The reasons behind selecting the above bank-specific control variables are as follows: Bank capital and the bank costs to income ratio (which stands for bank-level efficiency) are very important for financial stability. Excess non-performing loans and unstable profitability cause bank failure in the long run. Two macroeconomic control variables, GDP growth rate (GDPG) and inflation rate (IR), are selected for some previous studies (Abad-González et al., 2018; Azmi et al., 2019; Ozili, 2018). The reasons behind selecting these two macroeconomic variables are that most of the studies used them, and the existing literature finds them very important for the banking sector.

Some scholars (DaSouza et al., 2023; Demirgüç-Kunt et al., 2021; Mateev et al., 2024; Ramakrishna & Kalpakam, 2022; Xiazi & Shabir, 2022) find that COVID-19 significantly affected the financial performance of business firms and financial markets. This study also uses dummy variables to control the COVID-19 effect on financial stability over the non-COVID period (COVID-D1 and COVID-D2 denote dummy variables for non-COVID and COVID periods, respectively). CI_DUM is a proxy for dummy variables of a country's income level. It is replaced by HI_DUM, UMI_DUM, and LMI_DUM for high-income, upper-middle-income, and lower-middle-income countries, respectively, to measure the moderating effect of the same on the relationship between country governance indicators and bank financial stability. The following

two equations are developed to determine the direct effect of country governance indicators on financial stability and the moderating effect of a country's income level on the relationship between each country governance indicator and bank financial stability. In the equation, Z-score stands for financial stability, and β_0 stands for constant. In equations one and two, β_1 to β_{15} represent the coefficients of the selected variables. In equation two, β_{17} to β_{22} are the coefficients of the interaction terms of a country's income level and governance indicators. Furthermore, ε denotes the error term, i stands for individual country, and t stands for time.

$$Z\_Score_{it} = \beta_0+\beta_1 CCI_{it} + \beta_2 GEI_{it} + \beta_3 RQI_{it} + \beta_4 RLI_{it} + \beta_5 PSAVTI_{it} + \beta_6 VAI_{it} + \beta_7 BCTA_{it} + \beta_8 BCIR_{it} + \beta_9 NPL_{it} + \beta_{10} ROE_{it} + \beta_{11} ROA_{it} + \beta_{12} NIM_{it} + \beta_{13} GDPG_{it} + \beta_{14} IR_{it} + \beta_{15} COVID\_D2_{it} + \varepsilon_{it} \quad (1)$$

$$Z\_Score_{it} = \beta_0+\beta_1 CCI_{it} + \beta_2 GEI_{it} + \beta_3 RQI_{it} + \beta_4 RLI_{it} + \beta_5 PSAVTI_{it} + \beta_6 VAI_{it} + \beta_7 BCTA_{it} + \beta_8 BCIR_{it} + \beta_9 NPL_{it} + \beta_{10} ROE_{it} + \beta_{11} ROA_{it} + \beta_{12} NIM_{it} + \beta_{13} GDPG_{it} + \beta_{14} IR_{it} + \beta_{15} COVID\_D2_{it} + \beta_{16} CI\_DUM_{it} + \beta_{17} CCI * CI\_DUM_{it} + \beta_{18} GEI * CI\_DUM_{it} + \beta_{19} RQI * CI\_DUM_{it} + \beta_{20} RLI * CI\_DUM_{it} + \beta_{21} PSAVTI * CI\_DUM_{it} + \beta_{22} VAI * CI\_DUM_{it} + \varepsilon_{it} \quad (2)$$

3.2. Data collection

The secondary data on the selected variables are collected from the World Bank. Primarily, the country-level data on the dependent, independent, and control variables are collected for 214 countries (N) for the period of twelve years (T) starting from the year 2010 to 2021. So, each variable has a maximum of 110×12= 1320 observations. In the data screening process, we find missing data in the data set. To have a useful data set, we dropped 104 countries, and the final data set has 110 countries: 46 high-income, 36 upper-middle-income, and 28 lower-middle-income countries. However, some countries have missing observations for a few years in the data set. Low-income countries are excluded from the data set because of the unavailability of adequate data.

3.3. Data analysis

Our statistical analysis started with descriptive analysis using mean, standard deviation, maximum, and minimum values, presented in Table 1. Descriptive statistics are presented for the whole sample and each group of countries. After descriptive analysis, we clean our data. To do so, we run OLS (ordinary list squares) estimation and predict residuals using 'rstudent' command in STATA-15 and delete all the rows having residuals greater than two. To measure the association between a country's governance indicators and bank financial stability, we start with OLS estimation using clean data. The variance inflation factor (VIF) test is used (refer to panel-A in table-A1 in the appendix) to check multicollinearity in the regressors, and the result shows some of our independent variables suffer from multicollinearity

having VIF value more than five. Multiple correlation matrices (refer to panel-B in Table-A1 in appendix-1) are developed to verify how independent variables are correlated with each other to double-check the presence of multicollinearity. Eventually, several models were developed for the direct and moderating effects measurement to resolve the multicollinearity effects. Moreover, this study also uses the augmented component-plus-residual plot, suggested by Mallows, (1986), to identify the presence of nonlinearity between the relationships between Z_Score and country governance indicators (refer to Figure 2 in appendix-2) and does not find any pattern in the residuals that can claim nonlinearities among them.

Furthermore, the Breusch-Pagan and Wooldridge tests are used to check the presence of heteroskedasticity and first-order serial correlation in the residual, respectively. This study also uses Pesaran (2015) panel cross-sectional dependence (CD) test to verify the cross-sectional dependence in the residuals. Primarily, we planned to use both fixed effect and generalized method of moments (GMM) estimation. The fixed effects model can generate robust estimation by removing the effect of time-invariant omitted variables. The same with cluster ID can control heteroskedasticity and serial correlation but fails to control panel cross-sectional dependence. Moreover, we have a dummy variable for the COVID-19 period, which will be excluded from the model in fixed effect estimation. On the other hand, GMM estimation is more robust than the fixed effect model as it controls endogeneity, heteroskedasticity, and serial correlation and includes lagged dependent variables in the model (Roodman, 2009). However, Sarafidis and Robertson (2009) find that GMM cannot produce robust inferences when panel data suffer from cross-section dependence, as the standard moment of conditions used by this method becomes invalid because of cross-sectional dependence. Eventually, we had to forgo both the fixed effect model and GMM estimation.

Hoechle (2007) demonstrates that in panel data analysis, feasible generalized least squares (FGLS) can generate robust estimation by generating robust standard errors in STATA controlling autocorrelation, heteroskedasticity, and cross-sectional dependence when N<T. In contrast, Panel corrected standard errors (PCSE) estimation does the same when N>T. Although FGLS can generate robust standard errors for balanced data, it fails to do so for unbalanced data and when N>T. Moundigbaye et al. (2018) concludes that PCSE can do so for the unbalanced data even for any ratio T/N. As all three diagnostic tests (heteroskedasticity, serial correlation, and cross-sectional dependence) are statistically significant, we use the PCSE estimation model. To ensure greater robustness in estimation, we control panel-specific serial correlation, heteroskedasticity, and cross-sectional dependence in the residuals under PCSE estimation, which are impossible under Fixed effect, GMM, and FGLS estimations. Breitung et al. (2022) also suggest PCSE estimation over GMM estimation when panel data suffer from cross-sectional correlated errors including heteroskedasticity and autocorrelation**.**

4. Results and discussion

4.1. Descriptive analysis

In Table 1, panel A represents the descriptive statistics for the whole sample, panel B represents the same for high-income countries, panel C for upper-middle-income countries, and panel D for lower-middle-income countries. The mean of Z_Score in panel A is higher than the mean values of the same in panel B and panel C but lower than the mean value in panel D. According to the mean values of Z_Score, banks in lower-middle-income countries are more solvent than those of in high-income and upper-middle-income countries.

Table 1. Descriptive statistics of the selected variables

	Panel A					Panel B				
Variables	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**	**Obs**	**Mean**	**Std.Dev.**	**Min**	**Max**
Z_Score	1,303	17.2255	9.8306	-0.3260	62.4372	548	16.7744	10.157	-0.3260	57.4407
CCI	1,320	0.1957	1.0278	-1.4679	2.3993	552	1.1620	0.753	-0.4644	2.3993
GEI	1,320	0.3393	0.9039	-1.2918	2.3249	552	1.2092	0.557	-0.3086	2.3249
PSAVTI	1,320	0.0330	0.8590	-2.8100	1.6393	552	0.6949	0.553	-1.3412	1.6393
RQI	1,320	0.3735	0.8965	-1.7298	2.2553	552	1.2077	0.559	-0.2685	2.2553
RLI	1,320	0.2358	0.9705	-1.7917	2.1248	552	1.1826	0.594	-0.2044	2.1248
VAI	1,320	0.1618	0.9391	-2.1244	1.7518	552	0.8674	0.777	-1.9072	1.7518
BCTA	1,115	9.8775	3.1936	1.4904	21.7845	467	8.4003	2.905	3.6450	21.0568
BCIR	1,298	54.8172	13.1618	5.0325	202.0408	544	55.8035	14.159	5.0325	118.1902
NPL	1,261	6.1139	7.3613	0.0923	54.8233	533	5.2314	8.059	0.0923	47.7479
ROA	1,296	1.1512	1.8578	-23.8873	38.3006	542	0.7841	1.969	-9.5307	38.3006
ROE	1,296	10.4691	12.1930	-117.6733	259.0125	544	7.2414	11.740	-117.6733	34.0596
NIM	1,294	3.8956	2.4201	0.1686	15.4414	542	2.1110	1.238	0.3684	8.9296
GDPG	1,320	2.8687	4.3942	-54.2359	25.1228	552	2.1403	4.634	-54.2359	25.1228
IR	1,296	3.9771	6.5034	-3.7491	154.7561	550	1.9002	1.880	-2.4046	10.5492
	Panel C					**Panel D**				
Variables	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Z_Score	425	16.9466	10.5490	1.4717	62.4372	330	18.3335	8.1135	3.8604	38.6815
CCI	432	-0.3336	0.5224	-1.4472	1.0034	336	-0.7114	0.3885	-1.4679	0.2797
GEI	432	-0.1037	0.5078	-1.2918	1.1609	336	-0.5201	0.3654	-1.2466	0.4055
PSAVTI	432	-0.2242	0.6902	-2.6038	1.1111	336	-0.7237	0.6393	-2.8100	0.4568
RQI	432	0.0235	0.5180	-1.3236	1.1969	336	-0.5471	0.3869	-1.7298	0.4039
RLI	432	-0.2754	0.5189	-1.7917	1.0240	336	-0.6623	0.3975	-1.4524	0.1729
VAI	432	-0.1831	0.6858	-1.6805	1.1516	336	-0.5539	0.6230	-2.1244	0.5968
BCTA	378	11.0005	2.6731	5.7687	21.7845	270	10.8604	3.3281	1.4904	20.4935
BCIR	423	54.3531	11.5164	9.8619	98.9287	331	53.7895	13.3581	26.6499	202.0408
NPL	417	5.7496	4.8680	0.9537	23.8194	311	8.1147	8.4536	0.7092	54.8233
ROA	424	1.3871	1.4603	-8.6517	22.0458	330	1.4511	2.0208	-23.8873	6.0908
ROE	424	12.1316	14.3537	-41.2204	259.0125	328	13.6732	7.8852	-29.7094	42.2313
NIM	422	4.7367	1.8799	0.1686	11.4859	330	5.7510	2.5236	1.6888	15.4414
GDPG	432	2.9245	4.4649	-21.3999	15.3359	336	3.9934	3.5937	-10.0789	14.0471
IR	418	4.5329	9.6395	-3.7491	154.7561	328	6.7516	5.2624	-0.7314	48.6999

Source: Authors' data analysis

The mean values of country governance indicators in high-income countries are higher than the overall mean values of the same presented in panel A, and the mean values of country governance indicators in panel B (mostly negative) and panel C (all negative) are lower than the overall mean values of the same. The values of country governance indicators vary between -2.5 and 2.5. The mean values evidence that high-income countries are better in country governance, whereas lower-middle-income countries show a weaker form of country governance. Conversely, upper-middle-income countries also demonstrate a weak form of country governance except for RQI, but better than lower-middle-income countries.

The level of NPL in lower-middle-income countries is higher than in high-income and upper-middle-income countries. Regarding profitability, the banking sector in lower-middle-income countries is better than in high-income and upper-middle-income countries. The mean values of ROA, ROE, and NIM are higher in lower-middle-income countries than the other two groups. Banks have the highest BCTA in upper-middle-income countries, followed by high-income and lower-middle-income countries. However, high-income countries have the highest average value of BCTR, followed by upper-middle-income and lower-middle-income countries. Regarding GDP growth rate, high-income countries get the first position, upper-middle-income countries hold the second, and lower-middle-income countries hold the last position, but inflation represents the reverse.

4.2. Measurement of direct effects

To measure the impacts of a country's governance indicators on the financial stability of banks, this study starts with OLS estimation, summarized in Model-1 in Table 2. However, OLS estimation suffers from heteroskedasticity and first-order serial correlation, as the Breusch-Pagan test for heteroskedasticity and the Wooldridge test for first-order serial correlation are significant. Eventually, OLS estimation is no longer robust for relationship analysis. Apart from that, OLS estimation also suffers from cross-sectional dependence, as Pesaran (2015) panel cross-sectional dependence (CD) test is also statistically significant. From the VIF analysis presented in Table A1, CCI, GEI, RQI, and RLI hold VIF values of more than ten, which indicates that those variables suffer from multicollinearity. To double-check, a correlation matrix is generated (refer to Table A1 in the appendix). Most of the governance indicators have a high degree of significant positive correlation among them. Although the VIF values of VAI and PSAVTI are below five, their correlation coefficient is 0.659, which is statistically significant. Eventually, we have developed a separate model for each indicator.

Table 2A. Relationship between country governance and bank financial stability

	OLS	Panel Corrected Standard Error (PCSE) Estimation			
Variables	**Model 1**	**Model2**	**Model 3**	**Model 4**	**Model 5**
CCI	**-0.8421**			**0.7484****	
	(0.324)			**(0.026)**	
GEI	1.1342				**0.7550****
	(0.277)				**(0.014)**
RQI	-1.4689*				
	(0.085)				
RLI	1.9975*				
	(0.096)				
PSAVTI	0.1584				
	(0.725)				
VAI	-1.1463**				
	(0.022)				
BCTA	-0.3762***	0.2567***	0.1562**	0.1978***	0.1761**
	(0.000)	(0.000)	(0.014)	(0.002)	(0.006)
BCIR	0.01121	-0.0339***	-0.0394***	-0.03893***	-0.0389***
	(0.615)	(0.000)	(0.000)	(0.000)	(0.000)
NPL	-0.20834***	-0.1156***	-0.1438***	-0.13883***	-0.1408***
	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)
ROA	0.0445	0.0814**	0.0903**	0.0886**	0.0874**
	(0.778)	(0.024)	(0.038)	(0.031)	(0.039)
ROE	0.1074**	0.0861***	0.0856***	0.0840***	0.0855***
	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)
NIM	0.7382***	0.1956**	0.1472**	0.1976**	0.2015***
	(0.000)	(0.008)	(0.041)	(0.005)	(0.003)
GDPG	-0.0231		-0.0120	-0.0119	-0.0115
	(0.695)		(0.485)	(0.495)	(0.495)
IR	-0.2508***		-0.0463**	-0.0372*	-0.03848*
	(0.000)		(0.028)	(0.078)	(0.070)
COVID_D2	-0.3988		-0.7493**	-0.7281**	-0.6997**
	(0.566)		(0.008)	(0.010)	(0.014)
C	17.3824***	13.7488***	15.5466***	14.8539***	14.9731***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.1217	0.7847	0.8060	0.8026	0.8069
F-stat/Wald	9.22	249.82***	251.01***	302.30***	295.03***
chi2	(0.000)	(000)	(0.000)	(0.000)	(0.000)
Breusch-Pagan chi2	18.31*** (0.000)				
Wooldridge test F-statistics	83.382*** (0.000)				
Pesaran (2015) CD test	2.532** (0.011)				

Table 2B. Relationship between country governance and bank financial stability

	Panel Corrected Standard Error (PCSE) Estimation			
Variables	**Model 6**	**Model 7**	**Model 8**	**Model 9**
CCI				
GEI				
RQI	**0.8890****			
	(0.006)			
RLI		**0.7291****		
		(0.030)		
PSAVTI			**0.5543****	
			(0.025)	
VAI				**0.6346****
				(0.029)
BCTA	0.2101***	0.1906***	0.1657**	0.2231***
	(0.001)	(0.002)	(0.008)	(0.000)
BCIR	-0.0364***	0.0384***	-0.0395***	-0.0375***
	(0.000)	(0.000)	(0.000)	(0.000)
NPL	-0.1429***	-0.1409***	-0.1385***	-0.1472***
	(0.000)	(0.000)	(0.000)	(0.000)
ROA	0.0861**	0.0874**	0.0874**	0.0823**
	(0.038)	(0.038)	(0.041)	(0.048)
ROE	0.0845***	0.0854***	0.0855***	0.0844***
	(0.000)	(0.000)	(0.000)	(0.000)
NIM	0.2059***	0.2031***	0.1783**	0.1640**
	(0.003)	(0.004)	(0.009)	(0.013)
GDPG	-0.0119	-0.0117	-0.0115	-0.0117
	(0.477)	(0.502)	(0.495)	(0.509)
IR	-0.0355	-0.0382*	-0.0391*	-0.0404*
	(0.102)	(0.072)	(0.066)	(0.065)
COVID_D2	-0.6861**	-0.7098**	-0.7296**	-0.7129**
	(0.014)	(0.014)	(0.011)	(0.009)
C	14.2252***	14.8320***	15.3207***	14.5364***
	(0.000)	0.000	(0.000)	(0.000)
R^2	0.7951	0.8050	0.8047	0.8049
F-stat/Wald	305.26***	310.56***	251.17***	280.05***
chi2	(0.000)	(0.000)	(0.000)	(0.000)

Note (s): P-values are presented inside the first brackets. ***, **, and * represent statistical significance at 1%, 5%, and 10% levels of significance, respectively. Model 2 to Model 7 are developed to remove the multicollinearity effect from the model. Source: Authors' data analysis

Furthermore, from Figure A1 (in Appendix), the augmented component-plus-residual plots do not produce any pattern that can demonstrate the presence of nonlinearity in the relationship between Z_Score and country governance indicators, as residuals are very scattered, and median splines do not produce any curved line like U, inverse U or other shape that can show the presence of nonlinearity. To

control heteroskedasticity, first-order autocorrelation, and cross-sectional dependence issues, this study uses PCSE estimation and generates six models (from Model-4 to Model-9) to deal with multicollinearity among the regressors.

Model 2 is developed to represent the impacts of bank-specific factors on financial stability. The resulting R2 value is 0.7847, which means that bank-specific factors can explain 78.47% of changes in bank financial stability. Likewise, in Model-3, the selected bank-specific and macroeconomic factors jointly can explain 80.60% of changes in the same; the R2 value in Model-3 is 0.8060. From Model-2 to Model-9, the positive coefficients of BCTA are statistically significant, meaning that an improvement in bank capital to total assets ratio increases bank financial stability, and this finding is consistent with the findings of Abad-González et al. (2018) and Ozili (2018). Likewise, bank profitability indicators such as ROA, ROE, and NIM are positively associated with bank financial stability, and these findings are consistent with the findings of Adusei (2015), Asteriou et al. (2016), Azmi et al. (2019) and Ghosh et al. (2018). On the other hand, two bank-specific factors, BCIR and NPL, have significant negative associated with bank financial stability. If BCIR, operating inefficiency, and NPL increase, banks' financial stability decreases. These findings are consistent with Azmi et al. (2019) and Ozili (2018).

GDPG is negatively associated with bank financial stability but statistically insignificant, and the resulting negative association is consistent with Azmi et al. (2019) but inconsistent with the positive association found by Chand et al. (2021) and Ozili (2018). The association between IR and bank financial stability is marginally significant, and this finding is consistent with the findings of Abad-González et al. (2018), Azmi et al. (2019), and Ozili (2018), but inconsistent with the positive association between them found by Chand et al. (2021). This study also finds a significant negative relationship between COVID-19 and bank financial stability, showing that COVID-19 significantly reduces the financial stability of the banking sector. This negative association might be the slowdown of economic activities during COVID-19.

In Model 4, the resulting significant positive association between CCI and bank financial stability denotes that controlling corruption enhances the financial stability of the banking sector. In the same way, this study finds that GEI, RQI, RLI, PSAVT, and VAI in Models 5, 6, 7, 8, and 9, respectively, are positively associated with bank financial stability, and those associations are statistically significant. The resulting significant positive associations between country governance indicators and the bank's financial stability demonstrate that better country governance boosts the financial stability of the banking sector. These findings are consistent with the findings of Ozili (2018) for CCI and GE but inconsistent with the negative association between RQI, RLI, PSAVT, and VAI and banks' financial stability found by Ozili (2018). Of the six indicators, RQI has the highest contribution to financial stability, which acknowledges the importance of regulatory compliance in the banking sector. As the banking sector is highly regulated, it is influenced by a country's regulatory and

financial policies and other external factors. Overall, the findings of this study confirm the influences of external factors on the performance of an organization, as explained by Resource Dependence Theory.

4.3. Measurement of moderating effects

4.3.1. Moderating effect of high income

This section measures the moderating effect of a country's high income (HI) on the relationship between country governance indicators and bank financial stability, presented in Table 3a. In Model-10a, the resulting coefficient of CCI*HI_DUM is negative and statistically insignificant, meaning that a country's HI weakens the positive relationship between CCI and bank financial stability but is not statistically significant. The similar insignificant negative moderating effects of HI on the relationships between RLI and PSAVTI, and bank financial stability are found in Model-13a and Model-14a, respectively. In contrast, the positive coefficients of interaction terms GEI*HI_DUM and RQI*HI_DUM in Model-11a and Model-12a, respectively, are not statistically significant as well, which means that a country's high income insignificantly strengthens the positive relationship between GEI and RQI, and bank financial stability. In Model-15a, the negative relationship between VAI*HI_DUM and bank financial stability is statistically significant, meaning that a country's high income significantly weakens the positive relationship between VAI and bank financial stability. In other words, in high-income countries, further improvement in VAI will reduce the positive impact of VAI on bank financial stability. In most cases, HI shows insignificant moderating effects. The reason behind this may be that in high-income countries, the quality of country governance is high. Although improvements in country governance indicators enhance bank financial stability, further progress in countries' income will not significantly change the effect of country governance indicators on bank financial stability.

Table 3A. Moderating effect of a country's high income (HI) on the relationship between country governance indicators and bank financial stability

	PCSE Estimation					
Variables	**Model-10a**	**Model-11a**	**Model-12a**	**Model-13a**	**Model-14a**	**Model-15a**
CCI	1.2062***					
	(0.001)					
GEI		0.3245				
		(0.436)				
RQI			0.4296			
			(0.356)			
RLI				0.9114***		
				(0.020)		
PSAVTI					0.4634	
					(0.109)	

Table 3A (cont.)

	PCSE Estimation					
Variables	**Model-10a**	**Model-11a**	**Model-12a**	**Model-13a**	**Model-14a**	**Model-15a**
VAI						0.9046**
						(0.013)
HI_DUM	1.0677	0.1055	0.9418	0.7716	1.4352**	3.1070***
	(0.124)	(0.906)	(0.252)	(0.373)	(0.030)	(0.001)
CCI*HI_DUM	**-1.2481**					
	(0.105)					
GEI*HI_DUM		**0.9862**				
		(0.278)				
RQI*HI_DUM			**0.4291**			
			(0.635)			
RLI*HI_DUM				**-0.9406**		
				(0.310)		
PSAVTI*HI_DUM					**-0.4597**	
					(0.395)	
VAI*HI_DUM						**-2.2824****
						(0.011)
BCTA	0.2221***	0.2946***	0.2584***	0.2375***	0.1946	0.2266***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)
BCIR	-0.0383***	-0.0375***	0.0357***	-0.0373***	-0.0393***	-0.0363***
	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)
NPL	-0.1498***	-0.1555***	-0.1538***	-0.1537***	-.01454***	-0.1453***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROA	0.0835**	0.0781*	.0820**	0.0824**	0.0861**	0.0828**
	(0.030)	(0.056)	(0.039)	(0.034)	(0.037)	(0.035)
ROE	0.0870***	0.0872***	0.0864***	0.0824***	0.0856***	0.0843***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NIM	0.2272***	0.2277**	0.2344**	0.2224***	0.2244***	0.2230***
	(0.000)	(0.008)	(0.040)	(0.001)	(0.000)	(0.000)
GDPG	-0.0092	-0.0111	-0.0112	-0.0090	-0.0093	-0.0084
	(0.578)	(0.524)	(0.518)	(0.586)	(0.566)	(0.616)
IR	-0.0313	-0.0302	-0.0304	-0.0316	-0.0339**	-0.0360**
	(0.122)	(0.158)	(0.157)	(0.126)	(0.104)	(0.090)
COVID_D2	-0.6710**	-0.5845**	-.6233**	-0.6388**	-0.6821**	-0.6647**
	(0.018)	(0.038)	(0.027)	(0.027)	(0.018)	(0.016)
C	14.3371***	12.9304***	13.0041***	13.9934***	14.3658***	13.8541***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.7977	0.7759	0.7902	0.7877	0.7965	0.8115
Wald chi2	331.69***	399.30***	399.30***	360.52***	263.92***	319.22***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note (s): P-values are presented inside the first brackets. ***, **, and * represent statistical significance at 1%, 5%, and 10% levels of significance, respectively. Source: Authors' data analysis

4.3.2. Moderating effect of upper-middle-income

This section represents the moderating effect of a country's upper-middle-income (UMI) on the relationship between country governance indicators and bank financial stability, and the resulting outputs are presented in Table 3b. In Model-10b, the negative relationship between CCI*UMI_DUM and bank financial stability is statistically significant. This finding shows that a country's UMI significantly weakens the positive relationship between CCI and bank financial stability. Similarly, the negative coefficients of GEI*UMI_DUM and RQI*UMI_DUM in Models 11b and 12b, respectively, are statistically significant. These findings mean that a country's UMI significantly weakens the positive relationships between GEI and RQI, and bank financial stability. The negative coefficient of RLI*UMI_DUM in Model-13b is marginally significant, which means that a country's UMI weakens the positive relationship between RLI and bank financial stability with marginal significance.

Table 3B. Moderating effect of a country's upper-middle-income (UMI) on the relationship between country governance indicators and bank financial stability

	PCSE Estimation					
Variables	**Model-10b**	**Model-11b**	**Model-12b**	**Model-13b**	**Model-14b**	**Model-15b**
CCI	0.9702**					
	(0.010)					
GEI		1.0470***				
		(0.003)				
RQI			1.2581***			
			(0.001)			
RLI				0.8537**		
				(0.026)		
PSAVTI					0.6165*	
					(0.058)	
VAI						0.4155
						(0.244)
UMI_DUM	-0.4692	-0.1244	0.2779	-0.3115	-.5391	-0.6214
	(0.354)	(0.794)	(0.600)	(0.515)	(0.366)	(0.242)
CCI*UMI_DUM	**-1.6993****					
	(0.006)					
GEI*UMI_DUM		**-1.2632****				
		(0.027)				
RQI*UMI_DUM			**-2.5365*****			
			(0.000)			
RLI*UMI_DUM				**-1.2894***		
				(0.060)		
PSAVTI*UMI_DUM					**1.6942*****	
					(0.000)	
VAI*UMI_DUM						**0.1883**
						(0.726)

Table 3B. (Cont.)

	PCSE Estimation					
Variables	**Model-10b**	**Model-11b**	**Model-12b**	**Model-13b**	**Model-14b**	**Model-15b**
BCTA	0.2963***	0.2522***	0.2617***	0.2729***	0.2611***	0.2696***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BCIR	-0.0357***	-0.0363***	-0.0368***	-.0359***	-0.0264***	-0.0356**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
NPL	-0.1461***	-0.1476***	-0.1501***	-.1494***	-0.1380***	-0.1484***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROA	0.0857**	0.0847**	0.0840**	0.0836**	0.0932**	0.0852**
	(0.034)	(0.045)	(0.045)	(0.048)	(0.034)	(0.049)
ROE	0.0832***	0.0847***	0.0836***	0.0846***	0.0824***	0.0852***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NIM	0.2400***	0.2321***	0.2395***	0.2287***	0.2298***	0.1858***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.004)
GDPG	-0.0141	-0.0133	-0.0135	-0.0142	-0.0143	-0.0123
	(0.434)	(0.445)	(0.417)	(0.423)	(0.382)	(0.501)
IR	-0.0311	-0.0330	-0.0348	-0.0333	-0.0510**	-.0421*
	(0.138)	(0.118)	(0.101)	(0.112)	(0.025)	(0.053)
COVID_D2	-0.6561**	-0.6595**	-0.6197**	-0.6432**	-0.6684**	-0.7175***
	(0.014)	(0.016)	(0.018)	(0.020)	(0.017)	(0.007)
C	13.5791***	13.9881***	13.6837***	13.9117***	13.6720***	14.5680***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.8254	0.8417	0.8553	0.8354	0.8015	0.8042
Wald chi2	353.98***	307.33***	305.19***	327.71***	268.95***	271.92***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note (s): P-values are presented inside the first brackets. ***, **, and * represent statistical significance at 1%, 5%, and 10% levels of significance, respectively.
Source: Authors' data analysis

On the other hand, the positive coefficient of PSAVTI*UMI_DUM in Model-14b is statistically significant, which means that a country's UMI significantly strengthens the positive relationship between PSAVTI and bank financial stability. Likewise, the insignificant positive coefficient of VAI*UMI_DUM in Model-15b denotes that a country's UMI insignificantly strengthens the positive relationship between VAI and bank financial stability. To sum up, whenever a country's income level shifts to upper-middle-income, the positive impact of CCI, GEI, RQI, and RLI on bank financial stability is weakened; however, the positive impact of PSAVTI and VAI on the same is strengthened.

4.3.3. Moderating effect of lower-middle-income

Table 3c represents the moderating effects of a country's lower-middle-income (LMI) on the relationship between country governance indicators and bank financial stability. The positive coefficients of interaction terms CCI*LMI_DUM,

RQI*LMI_DUM, and RLI*LMI_DUM in Models 10c, 12c, and 13c, respectively, are statistically significant. Moreover, the coefficients of interaction terms are much higher than those of CCI, RQI, and RLI in the direct effect analysis in Models 4, 6, and 7 in Table 2. These findings show that a country's LMI significantly strengthens the positive relationships between CCI, RQI, and RLI and bank financial stability.

The positive coefficients of GEI*LMI_DUM and VAI*LMI_DUM in Models 11c and 15c are not statistically significant, respectively. These findings mean that a country's lower-middle income strengthens the positive relationships between GEI and VAI, and bank financial stability; however, the moderating effects are statistically insignificant. On the other hand, only the coefficient of PSAVTI*LMI_DUM is negative and statistically insignificant, which means that a country's lower-middle-income insignificantly weakens the positive relationship between PSAVTI and bank financial stability. To summarize, a country's lower-middle-income strengthens the positive relationship between country governance indicators and bank financial stability, except for PSAVTI. This may be because in LMI countries, CCI, RQI, and RLI show very poor values and the country's lower-middle-income provides lower investable funds to the banking sector. Moreover, high corruption and weak enforcement of regulatory control and the rule of law create an unfavorable working environment for the banking sector (for example, banks cannot recover NPLs from the borrowers and can ensure prompt legal actions against defaulters), ultimately weakening the financial stability of the same. Eventually, a country is shifted to the lower-middle-income level, and the positive effects of CCI, RQI, and RLI on bank financial stability are significantly strengthened and become higher than HI and UMI countries.

Table 3C. Moderating effect of a country's lower-middle-income (LMI) on the relationship between country governance indicators and bank financial stability

	PCSE Estimation					
Variables	**Model-10c**	**Model-11c**	**Model-12c**	**Model-13c**	**Model-14c**	**Model-15c**
CCI	0.1675					
	(0.644)					
GEI		0.6115*				
		(0.077)				
RQI			0.3164			
			(0.406)			
RLI				0.2271		
				(0.553)		
PSAVTI					0.6378**	
					(0.042)	
VAI						0.1019
						(0.776)
LMI_DUM	3.7047***	0.5812	2.7286***	2.8566***	-0.6108	0.2724
	(0.000)	(0.264)	(0.000)	(0.001)	(0.386)	(0.232)
CCI*LMI_DUM	**4.9100*** **					
	(0.000)					

Table 3C. (Cont.)

	PCSE Estimation					
Variables	**Model-10c**	**Model-11c**	**Model-12c**	**Model-13c**	**Model-14c**	**Model-15c**
GEI*LMI_DUM		**1.2320**				
		(0.178)				
RQI*LMI_DUM			**4.7420*** **			
			(0.000)			
RLI*LMI_DUM				**4.5169*** **		
				(0.000)		
PSAVTI*LMI_DUM					**-0.3906**	
					(0.490)	
VAI*LMI_DUM						**1.0348**
						(0.107)
BCTA	0.2473***	0.2799***	0.2329***	0.2832***	0.2577***	0.2724***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BCIR	-0.0337***	-.0323***	-0.0351***	-.0315***	-0.0343***	-0.0329***
	(0.000)	(0.000)	(0.000)	(0.000	(0.000)	(0.000)
NPL	-0.1463***	-.1448***	-0.1531***	-0.1453***	-0.1433***	-.1434***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROA	0.0881**	0.0843**	0.0785*	0.0838**	0.0837**	0.0798**
	(0.025)	(0.036)	(0.058)	(0.0391)	(0.041)	(0.045)
ROE	0.0831***	0.0846***	0.0850***	0.0837***	0.0856***	0.0848***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NIM	0.1950**	0.2283***	0.2056***	0.2161***	0.2131	0.2010***
	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.002)
GDPG	-0.0126	-0.0127	-0.0121	-0.0141	-0.0118	-0.0114
	(0.447)	(0.457)	(0.472)	(0.409)	(0.506)	(0.508)
IR	-0.0324	-0.0342	-0.0336	-0.0362*	-0.0355*	-0.0386*
	(0.125)	(0.105)	(0.162)	(0.094)	(0.091)	(0.074)
COVID_D2	-0.7127	-0.6641**	-0.6749 **	-0.6717**	-0.6490**	-0.6440**
	(0.009)	(0.016)	(0.013)	(0.017)	(0.020)	(0.016)
C	14.4726***	13.7033***	14.5391***	13.8569***	14.2251***	14.0726***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.8317	0.8123	0.8303	0.8270	0.8146	0.8243
Wald chi2	326.77***	345.08***	382.36***	325.42***	309.01***	309.28***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note (s): P-values are presented inside the first brackets. ***, **, and * represent statistical significance at 1%, 5%, and 10% levels of significance, respectively.
Source: Authors' data analysis

5. Summary of the findings

This study finds that bank financial stability (BFS) largely depends on bank-specific factors because the differences in R^2 values in Model-2 and other direct and moderating effect analysis models are low. All the governance indicators have a significant positive impact on bank financial stability, meaning that progress in country governance enhances the financial stability of banks. Moreover, this study

also finds a mixed moderating effect of a country's income level on the relationship between country governance indicators and bank financial stability. Table 4 represents the summary of the direct and moderating effect analysis of this study. The moderating effect of a country's HI is mostly insignificant except for the relationship between VAI and bank financial stability, where the moderating effect is negative and statistically significant. The same of UMI is mostly negative and statistically significant; the exception is the relationship between PSAVTI and BFS, where the moderating effect is negative and significant. The positive moderating effects of LMI on the relationship between CCI, RQI, RLI, and BFS are statistically significant; for other insignificant.

Table 4. Summary of direct and moderating effect analysis

			Moderating effect of					
Relationship between	**Direct effect**		**High-income**		**Upper-middle-income**		**Lower-middle-income**	
CCI and BFS	Positive	Sig.	Negative	Insig.	negative	Sig.	positive	Sig.
GEI and BFS	Positive	Sig.	Positive	Insig.	negative	Sig.	positive	Insig.
RQI and BFS	Positive	Sig.	Positive	Insig.	negative	Sig.	positive	Sig.
RLI and BFS	Positive	Sig.	Negative	Insig.	negative	Sig.	positive	Sig.
PSAVTI and BFS	Positive	Sig.	Negative	Insig.	Positive	Sig.	negative	Insig.
VAI and BFS	Positive	Sig.	Negative	Sig.	Positive	Insig.	positive	Insig.

6. Conclusion

This study examines the relationships between country governance indicators and bank financial stability and how a country's income level moderates the relationships between them. From the quantitative analysis, this study finds that better country governance enhances bank's financial stability. However, a country's income level differently moderates the relationships between country governance indicators and bank financial stability. More specifically, the moderating effects of a country's HI on the relationship between country governance indicators and bank financial stability are mostly insignificant. The same of UMI is mixed; however, it is mostly negative and significant. On the other hand, LMI has a mostly significant positive moderating effect on the relationship between country governance indicators and bank financial stability. Eventually, we conclude that the financial stability of the banking sector mostly depends on bank-specific internal factors. However, better country governance accelerates the financial stability of the same differently based on its income level. The findings have both theoretical and practical implications. More specifically, In LMI countries, regulators and policymakers should focus on the progress in CCI, RQI, and RLI to ensure greater financial stability in the banking sector. Accordingly, progress in PSAVTI will strengthen the financial stability in UMI countries. We note that this study is conducted based on country-level data to generalize the overall impact of country governance indicators on bank financial stability. Scholars can conduct further investigations on the same based on the bank-

level data for bank-specific factors controlling the nature and types of banks in those groups of countries.

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Appendix-1. Measurement of multicollinearity

Table A1. Results of multiple correlation and VIF tests for multicollinearity detection among the regressors

	CCI	GEI	RQI	RLI	PSAVTI	VAI	BCTA	BCIR	NPL	ROA	ROE	NIM	GDPG	IR	COVID_D2
Panel A															
VIF value	13.35	15.89	10.65	24.19	2.54	4.03	1.89	1.43	1.28	1.65	2.22	3.46	1.22	1.31	1.16
Panel B															
CCI	1														
GEI	0.928***	1													
RQI	0.888***	0.927***	1												
RLI	0.952***	0.952***	0.934***	1											
PSAVTI	0.748***	0.724***	0.722***	0.755***	1										
VAI	0.754***	0.714***	0.771***	0.78***	0.65***	1									
BCTA	-0.428***	-0.43***	-0.381***	-0.44***	-0.28***	-0.44***	1								
BCIR	0.099***	0.035	0.059*	0.074**	0.10***	0.30***	-0.13***	1							
NPL	-0.207***	-0.19***	-0.181***	-0.16***	-0.16***	-0.032	0.071**	0.006	1						
ROA	-0.091***	-0.14***	-0.121***	-0.12***	-0.034	-0.12***	0.27***	-0.22***	-0.19***	1					
ROE	-0.167***	-0.22***	-0.209***	-0.22***	-0.127**	-0.22***	0.13***	-0.25***	-0.26***	0.56***	1				
NIM	-0.607***	-0.70***	-0.613***	-0.67***	-0.42***	-0.42***	0.54***	0	0.09***	0.26***	0.40***	1			
GDPG	-0.143***	-0.14***	-0.142***	-0.14***	-0.12***	-0.15***	0.14***	-0.078**	-0.074**	0.15***	0.23***	0.16***	1		
IR	-0.348***	-0.41***	-0.431***	-0.39***	-0.34***	-0.35***	0.20***	-0.03	0.066**	0.052*	0.15***	0.38***	0.10***	1	
COVID_D2	0.011	0.007	-0.006	0.013	0.008	0.003	0.003	-0.02	-0.066**	-0.043	-0.075**	-0.09***	-0.31***	-0.045	1

Note (s): ****, **, and * represent statistical significance at 1%, 5%, and 10% levels of significance, respectively.*

Appendix-2. Detection of non-linearity

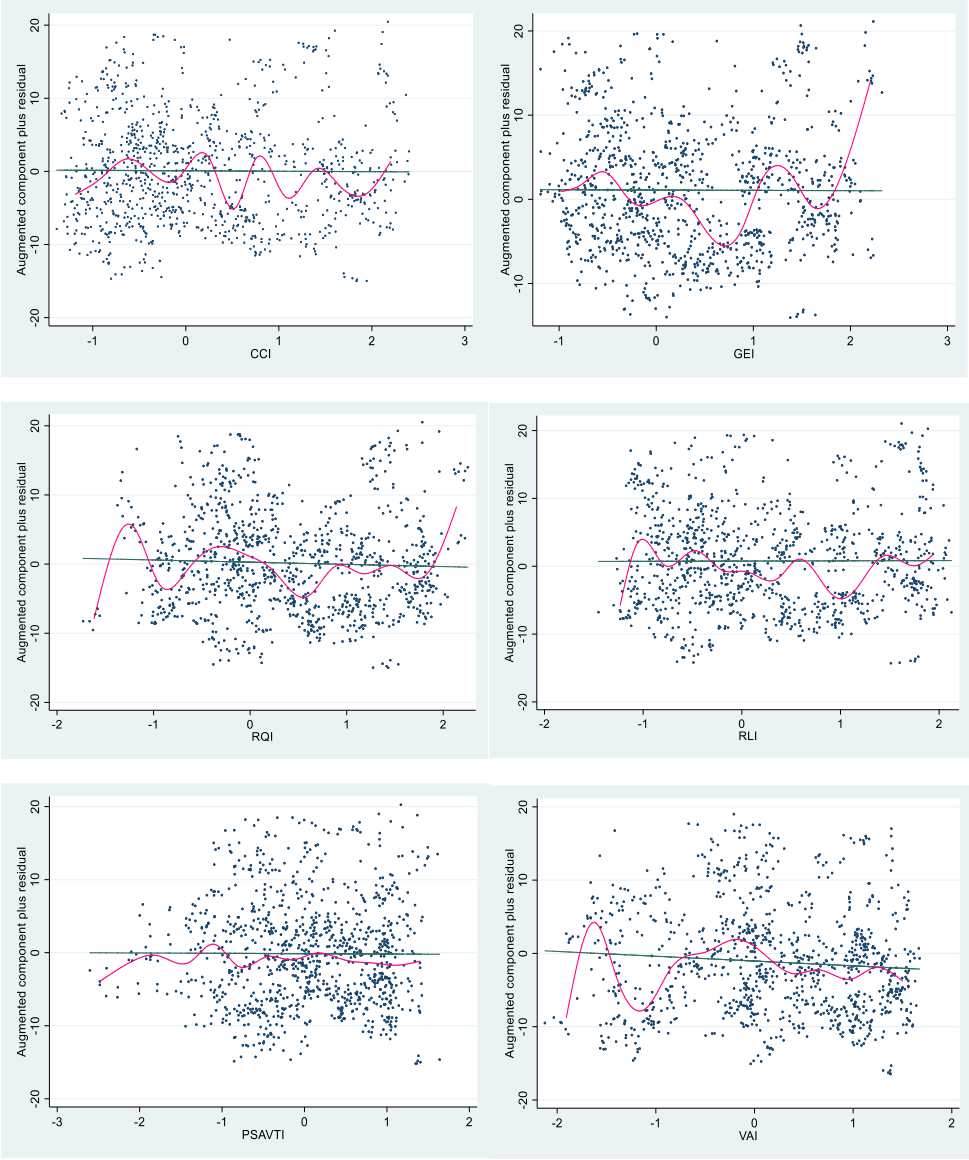

Figure A1. Results of augmented component-plus-residual plot estimation to identify the presence of non-linear relationship between Z_Score and country governance indicators