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Does the country's political and economic risks trigger risk-taking behavior in the banking sector: a new insight from regional study

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Abstract

This study specifically explores the effect of domestic political and economic risks on risk-taking in the banking sector for 105 countries operating in six various geographical regions between 2009 and 2017. To the best of our knowledge, this may be the first study that attempts to conduct this relationship from this perspective. Remarkably, the dynamic estimation results underscore that a rise in political and economic risks triggers risk-taking behavior in the banking sector globally, in particular in the OECD High-income region. Besides, the estimation results reveal that capital regulation, market power, and income diversification negatively impact risk-taking while credit risk, inefficiency, financial market development, and deposit insurance have a positive effect on risk-taking behavior. The results also stress that the extent of the effect of determinants and significance level vary by changing the region. The results are robust and have significant implications for policymakers and bank managers.

Keywords: Risk-taking behavior, Banking sector, Political risk, Economic risk, Regional study

JEL Classification: G15, G21, G28

1 Introduction

It is well-documented that the banking sector's stability plays an essential role in achieving financial stability and boosting economic growth (Stewart et al. 2021). Banking stability is a gauge to decide whether an economy is adequately resilient enough to resist both internal and external shocks and having safe and sound banking help avoid costly banking system crises and their negative consequences on the real economy. The historical evidence shows that those financial crises which had a stronger association with the banking sector had a more adverse impact on real economic growth. On the other hand, rising instability in the banking sector leads to decreasing the efficiency of resource allocation and increasing uncertainty about future output growth (Jokipii and Monnin 2013). Besides, deterioration in the banking sector stability has an unfavorable impact on the stability of financial markets and the real sector output. Christiano et al. (2010) and Campbell et al. (2016) underscored that disruption of the banking system decreases

the ability of banks to lessen the asymmetric information effectively and there is a significant long-run nexus between banking instability and the credit-risk premium faced by businesses.

Over the last three decades, several scholars investigating the determinants of instability in the banking sector aimed to enhance stability and curb excessive taking risky activities. The studies revealed that the banking-specific factors, namely, capital requirements (Danisman and Demirel 2019), market power (Tabak et al. 2015), and income divariation (AlKhouri and Arouri 2019) negatively affect risk-taking, whereas inefficiency and credit risk has a positive effect on banks' risk-taking (Hassan et al. 2019). Besides, Ioannidou and Penas (2010) and Athari and Bahreini (2021) highlighted that country-specific factors, namely, deposit insurance and financial market development positively impact banks' risk-taking. More specifically, some studies showed that country risk factors have a significant effect on increasing bank instability. Rezgallah et al. (2019) and Athari (2021) revealed that banks are triggered to take excessive risky activities by a rising in domestic political risk to compensate for unexpected future losses and avoid earnings volatility. Calmes and Théoret (2014) and Athari (2021) also argued that banks by increasing economic instability have more incentive to take riskier investments as they have less ability to forecast better investment opportunities, have lower profitability, and are more exposed to adverse selection and moral hazard problems.

While the effect of political and economic instability has been analyzed, much less attention has been paid to how banking sectors are influenced extensively. This study contributes by the inclusion of novel the political risk index and economic risk index to empirically corroborate the existence of a nexus between the country's risk factors and risk-taking in the banking sector. These indices are so comprehensive and also accurate proxies for measuring the political and economic risk factors.¹ Another novelty of this study is also to answer how risk-taking in the banking sector reacted to the domestic political and economic risks in the different geographical regions. Therefore, the objective of this study is to examine the impact of domestic political and economic risk indices, as well as other traditional factors, on risk-taking in the banking sector both regionally and globally. In our knowledge, this study is the first study to investigate this relationship from this perspective, and the findings open an entirely new discussion in the banking literature.

The article is organized as follows. Section 2 describes the data and methodology. Section 3 explains the results and discussions. Section 4 concludes the article.

2 Data and methodology

2.1 Data and descriptive statistics

The final sample of this study encompasses the banking sector of 105 countries during the 2009–2017 period. In choosing the period of the study and the final sample size, consideration is given to the availability and matching of data from sources including the World Bank and the International Monetary Fund (IMF). The countries in this study have been classified into different regions according to the World Bank classification. We

¹ See Athari (2021).

Table 1 Variables' descriptions

Variables	Definitions	Sources
Dependent variable		
Earnings volatility	The standard deviation of the commercial banks' pre-tax income to yearly averaged total assets, calculated over 3-year overlapping periods [$\sigma(\text{ROA})$]	The author's calculation is based on the World Bank
Explanatory variable		
Banking-sector specific variables		
Capital regulation	Bank regulatory capital to risk-weighted assets (RQ/RA)	World Bank
Credit risk	Bank non-performing loans to gross loans (NPL/GL)	World Bank
Inefficiency	Bank cost to income ratio (C/I)	World Bank
Market power	Lerner index (LI)	World Bank
Income divarication	Bank noninterest income to total income (NI/TI)	World Bank
Country-level variables		
Financial development	Domestic credit provided by banking sector to GDP (DC)	World Bank
Deposit insurance	It equals 1 if a country has implemented explicit deposit insurance (DI)	IMF
Political risk	The political risk index includes government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality. A higher score indicates a lower political risk (PRI)	www.prsgroup.com
Economic risk	The economic risk index includes the GDP per head, real GDP growth, annual inflation rate, budget balance (% GDP), and current account (% GDP). A higher score indicates a lower economic risk (ERI)	www.prsgroup.com

This table shows the definitions and sources of variables that are used in the econometric model. As shown, the data for the banking-sector-specific variables were collected from World Bank. Likewise, the data for country-level variables were collected from various sources including World Bank, IMF, and PRS group

collected specific data from the World Bank and International Monetary Fund (IMF) for the banking sector and country level in this study. Likewise, data for domestic political and economic risk indices were obtained from PRS.² There have been numerous studies (e.g., Kirikkaleli et al. 2021; Kondoz et al. 2021; Athari 2022b) suggesting that the PRS group data can be used to measure a country's vulnerability to political, economic, and financial risks. Moreover, we used the IMF database to measure deposit insurance across countries. Table 1 shows the variables, definitions, and sources.

Table 2 presents the descriptive summary of variables and shows that earning volatility is relatively higher in Sub-Saharan Africa and Europe and Central Asia regions with a median of 0.641 and 0.677 than in other regions, respectively. Besides, it reveals Sub-Saharan Africa with a median of 54.542 and 31.500 and OECD High income with a median of 79.042 and 38.500 have the least and most political and economic stability environments, correspondingly.

² www.prsgroup.com.

Table 2 Descriptive summary (2009–2017)

Variables	Sub-Saharan Africa (N = 22)		Middle East and North Africa (N = 12)		Europe and Central Asia (N = 10)		Latin America and Caribbean (N = 18)		South and East Asia and Pacific (N = 10)		OECD high income (N = 33)		All countries (N = 105)	
	Median	St.Dev	Median	St.Dev	Median	St.Dev	Median	St.Dev	Median	St.Dev	Median	St.Dev	Median	St.Dev
[α (ROA)]	0.641	1.347	0.185	0.386	0.677	3.641	0.256	0.395	0.198	0.454	0.240	3.932	0.321	2.599
RQ/RA	17.902	5.838	16.900	3.244	16.943	3.305	16.166	2.381	15.985	2.584	15.413	4.827	16.300	4.172
NPL/GL	7.236	6.448	5.260	5.659	12.886	10.517	2.729	1.021	2.263	3.772	3.309	6.655	3.757	7.136
C/I	60.022	11.056	40.303	8.771	54.459	11.859	62.985	9.025	46.574	9.998	58.003	12.767	55.890	12.807
LI	0.291	0.098	0.416	0.131	0.264	0.088	0.306	0.248	0.323	0.182	0.257	0.165	0.286	0.175
NI/PI	42.372	12.189	31.411	12.624	33.033	15.805	31.814	11.631	29.866	11.774	41.282	15.379	35.928	14.462
DC	15.061	8.292	54.858	32.433	45.446	59.575	39.821	17.775	73.622	59.318	96.826	42.942	48.780	50.576
DI	0.000	0.482	1.000	0.495	1.000	0.000	1.000	0.449	1.000	0.402	1.000	0.239	1.000	0.442
PRI	54.542	7.885	62.979	11.663	65.333	5.569	64.271	8.137	60.646	11.146	79.042	6.595	66.833	12.414
ERI	31.500	4.498	35.542	7.196	33.667	3.870	34.854	3.181	37.854	4.099	38.500	4.160	35.542	5.095

The description of variables is presented in this table. Table 2 only shows the median values for each variable, since it has a more accurate measurement for centering the data in presence of extremely large values

Table 3 displays the Pearson correlation matrix. The correlation results imply that the multicollinearity problems are not considered severe. Table 3 also presents the Variance Inflation Factors (VIF), showing that multicollinearity is not a serious problem.

2.2 Methodology

Before performing analysis, we winsorized all using variables at the top and bottom 1% for each year to avoid outlier problems. Besides, as the data are at the country level, the existence of cross-sectional dependence among countries is tested. For estimating the model, this study follows the study by Rezgallah et al. (2019) and uses the dynamic panel data technique (GMM-System) (Arellano and Bover 1995; Blundell and Bond 1998) to avoid the endogeneity problems and unobserved country-fixed effects. As Rezgallah et al. (2019) argued, applying the System-GMM is more appropriate, because the System-GMM estimator contains both the levels and the first difference equations and outperforms the Difference-GMM methodology.³ The specific following practical form is employed to test the determinants of risk-taking.

$$\text{Risk taking} = f(\text{Banking sector specific, country level})$$

Following the recent study by Rezgallah et al. (2019) and Athari (2022a), we use the proxy of $(\sigma(\text{ROA}))$ for measuring the banking sector risk-taking. The banking sector-specific variables included capital regulation (RQ/RA); credit risk (NPL/GL); inefficiency (C/I); market power (LI); and income divarication (NI/TI). Besides, the country-level variables include financial market development (DC); deposit insurance (DI); political risk index (PRI); and economic risk index (ERI).

Equation (1) presents the expanded aforementioned practical form:

$$\begin{aligned} (\sigma(\text{ROA}))_{it} = & \alpha_0 + \alpha_1(\sigma(\text{ROA}))_{it-1} \\ & + \alpha_2\text{RQ/RA}_{it} + \alpha_3\text{NPL/GL}_{it} \\ & + \alpha_4\text{C/I}_{it} + \alpha_5\text{LI}_{it} + \alpha_6\text{NI/TI}_{it} \\ & + \alpha_7\text{DC}_{it} + \alpha_8\text{DI}_{it} + \alpha_9\text{PRI}_{it} \\ & + \alpha_{10}\text{ERI}_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

where i represents country and t represents time, respectively. ε_{it} is an independent error term.

3 Empirical results

Table 4 shows that capital regulation (RQ/RA) negatively impacts risk-taking and banks with more capital are less exposed to moral hazard risk. Besides, the results support the study by Hassan et al. (2019) and reveal that credit risk (NPL/GL) positively impacts risk-taking, though the effect is pronounced in Europe and Central Asia region. Likewise, consistent with the bad management hypothesis, the results highlight that a rise in inefficiency (C/I) increases risk-taking, in particular, in Latin America and the Caribbean region. The results also confirm the structure-conduct performance hypothesis and show that banks with more market power (LI) have less risk-taking behavior, especially in the Middle East and North Africa region. Furthermore, Table 4 shows that income

³ We found similar results by the Difference-GMM panel data technique though the GMM-System results are only reported.

Table 3 Pearson correlation matrix

	RQ/RA	NPL/GL	C/I	LI	NI/TI	DC	DI	PRI	ERI	VIF
RQ/RA	1.000									1.14
NPL/GL	0.235***	1.000								1.08
C/I	0.003	0.078***	1.000							1.12
LI	-0.014	0.031	-0.241***	1.000						1.10
NI/TI	-0.068***	-0.174***	0.321***	-0.094***	1.000					1.05
DC	0.112***	0.155***	-0.117	0.252***	-0.108***	1.000				1.13
DI	0.214***	0.251***	0.246	0.106***	0.0251	0.061***	1.000			1.12
PRI	0.093***	-0.101***	-0.171***	0.136***	0.107***	0.105***	0.142***	1.000		1.06
ERI	0.101***	-0.106***	-0.149***	0.035	0.141***	-0.08***	0.103***	0.043	1.000	1.15

The symbol *** indicate statistical significance at the 1% level

Table 4 Effect of political and economic risks on banking sector risk-taking in the different regions (2009–2017)

Variables	Sub-Saharan Africa	Middle East and North Africa	Europe and Central Asia	Latin America and Caribbean	South and East Asia and Pacific	OECD high income	All investigated countries
Lag [$\sigma(\text{ROA})$]	0.873*** (3.24)	0.802*** (2.91)	0.867*** (5.54)	0.831*** (3.70)	0.847** (2.24)	0.825*** (3.42)	0.824*** (4.66)
RQ/RA	− 0.001 (− 0.94)	− 0.003 (− 1.28)	− 0.002 (− 1.27)	− 0.001*** (− 2.95)	− 0.007* (− 1.68)	− 0.001*** (− 4.07)	− 0.001 (− 0.76)
NPL/GL	0.004** (2.15)	0.003* (1.68)	0.006*** (3.31)	0.002 (0.86)	0.002*** (3.28)	0.003*** (4.21)	0.002*** (3.18)
C/I	0.005** (2.12)	0.002*** (4.57)	0.003 (1.11)	0.006** (2.10)	0.002* (1.96)	0.004** (2.12)	0.005* (1.67)
LI	− 0.001** (− 2.48)	− 0.005** (− 2.06)	− 0.002*** (− 3.19)	− 0.001*** (− 3.51)	− 0.001 (− 1.03)	− 0.002*** (− 4.03)	− 0.002** (− 2.12)
NI/TI	− 0.012** (− 2.07)	− 0.003 (− 0.47)	− 0.003*** (− 3.70)	− 0.002 (− 0.44)	− 0.002** (− 2.12)	− 0.006*** (− 3.48)	− 0.001 (− 0.46)
DC	0.001 (1.47)	0.003** (2.05)	0.003 (1.03)	0.004 (0.69)	0.005*** (4.25)	0.019*** (3.93)	0.003** (2.09)
DI	0.031 (0.39)	0.195*** (3.20)	0.158 (1.12)	0.123** (2.01)	0.176 (0.63)	0.197* (1.76)	0.007 (0.14)
PRI	− 0.012*** (− 2.05)	− 0.013*** (− 2.78)	− 0.014*** (− 4.55)	− 0.011** (− 2.55)	− 0.012** (− 2.02)	− 0.017*** (− 3.18)	− 0.017*** (− 4.64)
ERI	− 0.011*** (− 2.79)	− 0.013** (− 2.16)	− 0.012* (− 1.84)	− 0.016*** (− 6.09)	− 0.015* (− 1.68)	− 0.023*** (− 5.22)	− 0.041** (− 2.51)
Constant	0.711 (1.28)	0.177 (0.87)	0.069* (1.67)	0.385 (0.92)	0.472*** (5.26)	0.841 (1.27)	0.801*** (3.37)
Time dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen-test	(0.536)	(0.527)	(0.478)	(0.624)	(0.435)	(0.426)	(0.454)
Sargan-test	(0.442)	(0.356)	(0.219)	(0.425)	(0.226)	(0.611)	(0.233)
AR (2)	(0.476)	(0.469)	(0.526)	(0.522)	(0.595)	(0.535)	(0.575)

The Z-statistics are reported in parentheses

The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively

divarication (NI/TI) negatively impacts risk-taking. Moreover, the results highlight that financial development (DC) and deposit insurance (DI) positively impact risk-taking.

Table 4 also reveals that a rise in political (PRI) and economic (ERI) instabilities leads to rising risk-taking, especially in the OECD High-income region. This finding supports prior studies (e.g., Chi and Li 2017; Athari 2021, 2022a; Uddin et al. 2020) and indicates that banks with rising political and economic risks are likely to involve excessive risk-taking activities to offset unpredicted future losses and prevent earnings volatility. Results also imply that banking sectors react differently to the rise of political and economic risk factors depending on the geographical region. In line with the findings of previous studies (Calmes and Théoret 2014; Belkhir et al. 2019), banking sectors that operate in more politically and economically stable environments are less exposed to profitability decline, credit risk, assets volatility, adverse selection and moral hazard problems, and also have more ability to predict better investment opportunities. In addition, banking managers

Table 5 Robustness test

Variables	Sub-Saharan Africa	Middle East and North Africa	Europe and Central Asia	Latin America and Caribbean	South and East Asia and Pacific	OECD high income	All investigated countries
Lag [$\sigma(\text{ROA})$]	0.854*** (3.92)	0.808*** (2.61)	0.865*** (3.31)	0.816*** (4.54)	0.831*** (4.53)	0.836*** (4.21)	0.832*** (5.32)
C/TA	-0.001*** (-4.87)	-0.001 (-1.22)	-0.001* (-1.68)	-0.004 (-1.24)	-0.002* (-1.73)	-0.001*** (-2.69)	-0.004** (-2.07)
NPL/GL	0.005*** (4.27)	0.004** (2.05)	0.007** (2.10)	0.001** (2.06)	0.001 (0.86)	0.002*** (3.20)	0.001** (2.05)
OC/TA	0.023*** (3.53)	0.005 (1.09)	0.003** (2.03)	0.026*** (4.35)	0.004* (1.86)	0.008*** (4.67)	0.015** (2.12)
LI	-0.002* (-1.68)	-0.007** (-2.13)	-0.004* (-1.67)	-0.002 (-1.31)	-0.004 (0.94)	-0.007 (-1.58)	-0.002*** (-2.73)
NI/TI	-0.013** (-2.09)	-0.002 (-0.77)	-0.021 (-1.39)	-0.003** (-2.04)	-0.001* (-1.68)	-0.006*** (-2.61)	-0.011*** (-5.37)
DC	0.002 (1.21)	0.006 (0.79)	0.003** (2.04)	0.002* (1.89)	0.005** (2.06)	0.012*** (3.63)	0.002*** (4.19)
DI	0.033 (0.69)	0.107** (1.99)	0.046* (1.73)	0.131*** (2.77)	0.017* (1.82)	0.036** (2.13)	0.053* (1.73)
PS	-0.023** (-2.21)	-0.053** (-2.02)	-0.054* (-1.67)	-0.068* (-1.83)	-0.048* (-1.84)	-0.097** (-2.23)	-0.006*** (-3.17)
ERI	-0.011*** (-4.21)	-0.016*** (-3.40)	-0.015** (-2.04)	-0.013** (-2.16)	-0.015* (-1.86)	-0.018*** (-3.44)	-0.018*** (-4.64)
Constant	0.687*** (4.60)	0.282* (1.71)	0.079 (1.18)	0.597** (2.50)	0.526 (1.42)	-0.976 (-1.09)	-0.191 (-1.06)
Time dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen-test	(0.545)	(0.457)	(0.465)	(0.644)	(0.442)	(0.405)	(0.441)
Sargan-test	(0.433)	(0.349)	(0.339)	(0.511)	(0.451)	(0.522)	(0.433)
AR (2)	(0.524)	(0.534)	(0.437)	(0.447)	(0.536)	(0.446)	(0.527)

See Table 4. C/TA is capital regulation; OC/TA is inefficiency

PS is political stability

The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively

Table 6 Granger causality test

Null Hypothesis		F-statistics	[Prob. value]	Causality
Capital regulation	→	Banking risk-taking	2.381** [0.023]	Yes
Credit risk	→	Banking risk-taking	5.424*** [0.000]	Yes
Inefficiency	→	Banking risk-taking	4.446*** [0.000]	Yes
Market power	→	Banking risk-taking	2.345** [0.021]	Yes
Income divarication	→	Banking risk-taking	5.135*** [0.001]	Yes
Financial development	→	Banking risk-taking	4.354*** [0.000]	Yes
Deposit insurance	→	Banking risk-taking	5.112*** [0.001]	Yes
Political risk	→	Banking risk-taking	2.425** [0.021]	Yes
Economic risk	→	Banking risk-taking	4.216*** [0.001]	Yes

The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively

have less motivation to take excessive risky actions to compensate for unexpected losses as countries are less vulnerable to political and economic risks.

3.1 Robustness check

This study re-estimates Eq. 1 by applying the new proxies of the “bank capital to total assets” (C/TA), “bank overhead costs to total assets” (OC/TA), and “political stability” (PS) from World Bank for measuring capital regulation, inefficiency, and political stability, respectively. Table 5 shows that the results are similar to those presented in Table 4. Besides, it conducted the Hansen, Sargan, and serial correlation [AR (2)] diagnostic tests for examining the validity of the estimated models.

Similar to the recent study by Athari and Bahreini (2021), we also performed the Granger causality test to control the direction of linkage between the studied factors. As shown in Table 6, there is statistically significant evidence of Granger causality from the set of independent variables (capital regulation, credit risk, inefficiency, market power, income divarication, financial development, deposit insurance, political risk, economic risk) to banking sector risk-taking in the panel countries. This suggests the historical information of the examining explanatory variables is capable of suggesting future information about banking sector risk-taking in the panel countries.

4 Conclusions

This study empirically investigates the effect of domestic political and economic risk indices on risk-taking in the banking sector for 105 countries operating in six different geographical regions. The results show that a rise in political and economic risks leads to increased risk-taking in the banking sector globally; however, the extent of the effect varies depending on geographical region. Besides, the results support the prior studies and indicate that the traditional banking sector and country-specific factors are significant drivers of risk-taking in the banking sector both regionally and internationally.

The results suggest that policymakers to increase financial stability and boost economic growth should be provided more politically and economically stable environments by decreasing internal and external conflicts, corruption, religious and ethnic tensions, and inflation and also increasing government stability, democratic accountability, bureaucracy quality, and GDP growth. Otherwise, having political and economic unstable environments would be deteriorated banking sector stability, which has an unfavorable effect on the stability of financial markets and the real sector output. For further study. It would be interesting to consider the impact of global volatility risk and also a geopolitical risk on the banking sector risk-taking of economies.

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Author contributions

SAA: data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, supervision, writing—original draft, writing—review and editing. FI: conceptualization, investigation, validation. Both authors read and approved the final manuscript.

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Availability of data and materials

The data sets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations**Competing interests**

No potential competing interests was reported by the authors.

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