Do better governance, stricter regulations and higher depository insurance improve market discipline?

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Abstract

The study examines the impact of financial regulations and governance quality on market discipline in a cross-country setup. I assess the differential influence of bank regulation, supervision, institutions, government stability, and the rule of law on the market discipline using panel fixed-effect models. The findings suggest that entry and activity restrictions increase deposit growth, while state ownership, higher supervision, and higher insurance limits lower deposits. Additionally, the impact of governance quality in emerging and advanced countries is compared. In advanced countries, governance quality is found to be linked to deposit growth, in contrast to emerging countries where the association is statistically insignificant.

Keywords: bank risk, market discipline, governance quality, financial regulations, deposit insurance
JEL: C23, G10, G21, G28, G30

1. Introduction

In a market economy, market discipline should be the first line of defense against excessive risk-taking and moral hazard. - Ben Bernanke

Market discipline is a regulatory mechanism in banking that plays a crucial role in disciplining financial institutions, complementing regulatory oversight, and promoting stability in the financial system. Numerous studies Demirgüç-Kunt and Detragiache (1998), Laeven and Valencia (2012) have explored the effectiveness of depositor discipline across different countries and financial environments, shedding light on its mechanisms, determinants, and implications. However, only a few studies Barth et al. (2016), Beck et al. (2006) consider the effect of governance and regulations on deposit growth.

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In this study, a cross-country analysis of the impact of governance quality and banking regulations on market discipline is conducted. I assess the differential impact using a comparative analysis framework between two distinct sets of countries. The first group comprises high-income countries selected from advanced economies, while the second group encompasses middle-income countries chosen to represent a diverse range of emerging economies. The primary objective is to investigate the impact of governance quality and financial regulations on depositor behavior by exploiting the heterogeneity in regulatory decision-making across these contrasting economies.

More precisely, the study answers following questions: (i) Do political and government stability influence banks' riskiness? (ii) Do banking regulations and better rule of law lower banks' credit risk?; (iii) Do depositors in advanced economies behave differently than depositors in emerging countries?; (iv) Is supervisory effectiveness proportional to the scope of powers vested within the supervisors themselves?; and (v) To what degree do changes in market discipline rely on a country's banking regulations, supervision, and institutions?

I use the annual bank-level data for five emerging and advanced countries from 2010-23. The key variable of interest is the change in Deposits (Deposit growth), used here as a proxy for market discipline. To measure bank risk, we use Z-score, Equity Ratio, and Loan loss provision as direct measures of banks' insolvency, liquidity, and credit risk. For governance quality, I use the World Bank's institutional quality indicators, while for financial regulations, the ownership, entry restriction, activity restrictions, and the power of the supervisory agency are considered.

The main findings can be summarised as follows: (i) In advanced economies, we found evidence of depositors being sensitive to the governance quality; (ii) Depositors behaviour are sensitive to the level of income of the country; (iii) Higher government ownership, more supervisory control and higher depository insurance coverage limit negatively impact the market discipline; and (iv) Entry of foreign banks positively impact depositor behaviour.

This work contributes in advancing the literature based on the relationship between the governance and market discipline. The differences among depositor behaviour based on the economies, shed light on the various dimensions of regulatory and governance issues that affect depositors' behavior and safety in different economic situations. Paper contributes in finding the evidence that depositors in high-income groups can firmly discipline banks' risk-taking activity compared to middle-income countries. This information will help policymakers, regulators, and stakeholders make evidence-based decisions and promote depositor confidence in diverse economic settings. Ultimately, through an in-depth analysis of the disparity in depositor behaviour between advanced and emerging economies, this research seeks to contribute to a deeper understanding of the complex interplay between economic factors, institutional environments, and individual decision-making processes in retail banking and financial intermediation.

The remainder of the paper is organised as follows. In Section 2, a concise overview of relevant works is provided, which is followed by a detailed description of data, model, and primary variables in Section 3. The outcome is illustrated in Section 4. The conclusion is provided in Section 5.

2. Literature review and hypothesis development

Market discipline is a critical component of financial stability and cross-country analyses provide valuable insights into its effectiveness and the role of regulatory frameworks. Demirgüç-Kunt and Detragiache (1998), Peria and Schmukler (2001) provided early insights into the relationship between market discipline and bank risk-taking behavior, while Laeven and Valencia (2012) examined the effectiveness of market discipline in influencing risk-taking bank's behavior across different regulatory environments. Barth et al. (2004) examine the correlation between regulatory and supervisory methods and the development of the banking sector. They demonstrate the positive impacts of regulations that mandate precise information disclosure and encourage private entities to exercise corporate governance in fostering bank development. They demonstrate that policies overly dependent on official supervision and restrictions on banking operations are detrimental to financial development and stability. Beck et al. (2006) found that bank concentration enhances financial stability. Differences in bank entry barriers, restrictions on non-traditional bank activities, official supervision, government bank ownership, governance quality, and institutions all may be responsible for differences across countries. Barth et al. (2016) highlighted the dual role of market discipline in banking crises as both a preventive mechanism and a corrective force. Overall, one would expect better performance in markets where the regulatory and institutional environment promote market discipline ex-ante instead of ex-post measure to deal with banking crisis.[1]

2.1. Measures of financial regulation

Following Cubillas et al. (2012), I use five different variables to measure quality of financial regulation: (i) Restriction on foreign entities (FORENTRY); (ii) Restrictions on financial activities (RESTRICT); (iii) Powers invested in supervisory authorities (OFFICIAL); (iv) Government ownership of financial firms (STATE); and (v) Deposit insurance limit (INSURANCE).

Restrictions on foreign entities lower competition thus increasing the charter value of financial institutions, but the lower competition makes them inefficient. Similarly is the

[1] As emphasised by Flannery (2001), the "previous literature has concentrated primarily on whether the market prices react adversely to information about risk". But this does not reveal the degree to which market discipline is effective as an incentive scheme, i.e., to what degree the existence of market discipline influences bank behaviour as pointed out by Berger and Mester (1997).

effect of restrictions on non-traditional bank activities that generate non-interest income, such as securities, insurance, real estate, and bank ownership of non-financial firms. Cubillas et al. (2012) suggests that the theoretical link between such regulatory restrictions and market discipline enforced by depositors is unclear. Limiting banks' activities might reduce their opportunities for diversification and risk-taking. However, empirical studies suggest that more regulated markets have highly inefficient banks due to limited competition (see Claessens and Laeven (2003)). Based on this evidence, I anticipate market discipline to be less developed in countries with stricter financial activity restrictions. The first hypothesis is:

Hypothesis 1: Restrictions on entry and activities lowers the market discipline.

Enhanced regulatory oversight seeks to mitigate bank risk-taking and compensates for the insufficient incentives of minor depositors to manage bank risk. Cubillas et al. (2012) finds evidence consistent with this argument. Therefore, I expect a weakening market discipline in countries with more official supervisory power. If the government is deemed creditworthy, the government-owned banks mostly have the implicit deposit guarantee. I predict that depositors will demonstrate diminished market discipline in nations with a predominantly government-owned banking system, as they expect a government intervention to rescue banks in the event of insolvency. Therefore, I anticipate a minor change in market discipline in countries with higher bank government-ownership.

Hypothesis 2: More official supervisory power and higher government bank ownership lowers market discipline.

Using cross-country information on deposit insurance, Kunt and Huizinga (2004) shows that the market discipline is weaker in the presence of explicit deposit insurance. However, Peria and Schmukler (2001) shows that in countries like Argentina, Chile and Mexico, depositors are sensitive to banks' riskiness even with the presence of deposit insurance schemes. Hence, explicit depositor protection schemes may not always be fully credible. On similar lines, I anticipate that the higher insurance coverage lower the depositor's incentive to monitor the banks.

Hypothesis 3: Higher depository insurance limit lowers market discipline.

2.2. Measure of governance quality

Following Demirgüç-Kunt and Levine (2005), I use six separate variables to measure governance quality (i) Voice and accountability; (ii) Political stability; (iii) Government effectiveness; (iv) Regulatory quality; (v) Rule of law; and (vi) Control of corruption-based on the Worldwide Governance Indicators published by the World Bank.

Voice and accountability measures the citizens of the country's perception related to the participation in governance, as well as freedom of expression & association, and a free media Kunt and Huizinga (2004), Cubillas et al. (2012). Political stability captures the perceptions related to political instability, while the perceptions regarding the quality of

public and civil services and the degree of its independence from political pressures, the quality of policy implementation, and the credibility of the government's commitment is measured by Government effectiveness. Regulatory quality captures the perceptions of the government's capacity to devise and enforce sound policies and regulations that facilitate and encourage private sector development. The rule of law measures the perceptions of the degree to which agents have faith in and adhere to the rules of society, including the quality of contract enforcement, property rights, the police, and the courts, as well as the probability of crime and violence, following Kunt and Huizinga (2004). The corruption variables measures the perceptions of the extent to which public power is exerted for private gain.

Following the existent literature, I anticipate that better governance quality translates to higher trust in private markets, contract enforcements, and publicly available information thus resulting in higher market discipline. Since developed economies have better governance quality, I expect market discipline to be more pronounced in developed countries.

Hypothesis 4: Better governance quality will positively impact market discipline.

3. Data description and methodology

3.1. Data

The sample data consists of annual observations covering 402 financial institutions in ten economies from 2010 to 2023 further subgroup from 2010 to 2017. I include in sample not only the commercial banks but also those that are deposit taking financial institutions to minimize the "selection bias". The banks sampled in this paper are fairly representative of the banking market where they operate Wang et al. (2024). The data used in this study were obtained from various sources. The regulatory and supervisory variables are sourced from the World Bank's Bank Regulation and Supervision Database. The information on bank concentration and country level indicators are taken from the the World Bank databases of Bank Concentration and Financial Structure and Development. Macroeconomic variables are obtained from the International Monetary Fund (IMF) database, International Financial Statistics.

Table 1 outlines the dependent and independent variables employed in the model, along with their definitions and the expected relationships as indicated in the literature. Table 2 presents the descriptive statistics in three panels. Panel A shows the statistics of all variables used in the model for advanced and emerging economies. Panel B shows country-wise and year-wise division of average mean and standard deviation of Deposits. Panel C presents the correlation matrix.

Table 1 Data description and expected relationship

The table provides a brief description, data source, expected association with deposit growth and related references for variables considered in the analysis Narula and Singh (2024).

Variables	Description	Source	Expected variation	References
Explanatory Variables				
Measure of Bank risk				
Equity ratio	Ratio of Total equity to Total Assets. It is the ratio of liquid assets to Total Assets as a proxy for liquidity risk	Bankfocus	(-)	Peria and Schmukler (2001), Cubillas et al. (2012), Hadad et al. (2011)
Z score	A proxy for bank insolvency risk. Z-score equals the return on assets plus the capital asset ratio divided by the standard deviation of asset returns. A higher Z-score indicates that a bank is more stable because it is inversely related to the probability of bank insolvency.	World Bank	(-)	Hadad et al. (2011), Laeven and Valencia (2012)
Loanloss/NII	The ratio of loan-loss provision to total gross loans as a proxy for credit risk	Bankfocus	(-)	Gropp and Vesala (2001), Cubillas et al. (2012)
Measure of Regulations				
REG	Combination of five measures. i. Foreign bank's percentage of owning domestic banks and enter a country's banking industry (FORENTRY) ii. Whether bank activities in the insurance, and real estate markets and bank ownership and control of non-financial firms are restricted (RESTRICT) iii. The power of the commercial bank supervisory agency (OFFICIAL) iv. The government bank ownership's influence (STATE) in country	Bank Regulation and Supervision Survey	(-)	Cubillas et al. (2012)
INSURANCE	Depository Insurance coverage limit in each country	IADI reports		
Measure of Governance				
Governance	It is an indicator of the quality of a country's institutional environment. This is calculated for six indicators: voice and accountability in the political system, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption.	World Bank	(-)	Kaufman et al. (2001), Demirgüç-Kunt and Levine (2001), Cubillas et al. (2012)
Measure of Banking Fundamentals				
Capital Ratio	Ratio of Tier-1 capital to Total Assets	Bankfocus	(+)	Peria and Schmukler (2001)
log(Total Assets)	Total Assets in millions. It is a measure of bank size	Bankfocus	(-)	Peria and Schmukler (2001), Cubillas et al. (2012)
NIM	Net interest margin is the ratio of average total earning assets to Total Assets	Bankfocus	(+)	Peria and Schmukler (2001)
Bank concentration	Measure of bank structure. Ratio of of assets of the three largest banks as a share of assets of all commercial bank	World Bank	(+)	Cubillas et al. (2012), Hadad et al. (2011)
privatecreditFI	Private credit by deposit money banks and other financial institutions over GDP is a proxy for bank development.	World Bank	(-)	Beck et al. (2006), Cubillas et al. (2012)
overhead	Overhead is non-interest bank expenses divided by Total Assets.	World Bank	(+)	Kunt and Huizinga (2004), Cubillas et al. (2012)
Measure of Macroeconomic control				
GDP growth	Real GDP growth rate	Word Development Indicator	(+)	Ghosh and Das (2006), Hadad et al. (2011)
GDP deflator	The annual percentage change in CPI (Consumer Price Index)	Word Development Indicator	(–)	Ghosh and Das (2006), Hadad et al. (2011)
Dependent variables				
Deposit	Total Deposits	Bankfocus		

3.2. Methodology

Following Cubillas et al. (2012), I use the fixed-effect panel regression model represented as:

$$Deposits_{i,j,t} = \alpha_i + \gamma_t + \beta_0 Deposits_{i,j,t-1} + \beta_1 Bank\ risk_{i,j,t} + \underbrace{\beta_2 Bank\ risk_{i,j,t} * Regulations_j}_{\text{variable of interest}} + \beta_3 Banking\ fundamentals + \beta_4 macrocontrol_{i,j,t} + countrycontrol_j + \epsilon_{i,j,t} \quad (1)$$

$$Deposits_{i,j,t} = \alpha_i + \gamma_t + \beta_0 Deposits_{i,j,t-1} + \beta_1 Bank\ risk_{i,j,t} + \underbrace{\beta_2 Bank\ risk_{i,j,t} * Governance_{j,t}}_{\text{variable of interest}} + \beta_3 Banking\ fundamentals + \beta_4 macrocontrol_{i,j,t} + countrycontrol_j + \epsilon_{i,j,t} \quad (2)$$

where, i, j and t are used to denote bank, country, and year, respectively. $Deposits_{i,t}$ is the the dependent variable. $countrycontrol$ is a dummy variable that takes a value of 1 for the country effect and 0 otherwise Wang et al. (2024). Regulations and governance serve as proxies for the "banking regulations" and "governance" of the banks.

Table 2 Descriptive Statistics

Panel A documents the summary statistics for the advanced and emerging economies. Panel B reports year-wise as well as country-wise statistics in comparative form, while Panel C documents the correlation matrix.

Panel A	**Advanced Economies**					**Emerging Economies**				
Statistic	N	Mean	St. Dev.	Min	Max	N	Mean	St. Dev.	Min	Max
Deposits (in millions)	1,337	195.22	421.56	0.0002	3,046.32	875	47.74	104.00	0.00	848.58
Capital Ratio	1,337	45.28	39.34	4.89	1,141.14	875	40.28	20.40	0.06	276.60
Total Assets (in millions)	1,337	210.30	467.75	0.01	2,692.53	875	38.80	83.55	.01	556.3
Equity Ratio	1,337	8.39	7.04	-2.05	95.60	875	11.72	8.77	-19.65	88.27
NIM	1,337	1.81	1.80	-0.65	30.38	875	5.10	4.43	-36.55	33.07
Interest Expense	1,337	1.11	2.46	-0.003	18.21	875	1.09	2.58	0.00	21.40
Loanloss/NII	1,337	50.68	783.91	-3,064.29	28,419.03	875	43.72	141.85	-1,813.01	1,645.62
private creditFI	1,337	106.88	27.71	75.48	186.72	875	50.55	34.83	0.79	146.81
overhead	1,337	1.39	0.42	0.49	2.37	875	7.45	12.40	1.67	81.90
Bank concentration	1,337	62.87	7.61	49.11	78.60	875	48.30	16.45	26.93	79.18
Z score	1,337	14.97	5.06	6.84	26.40	875	11.89	5.32	5.65	21.37

Panel B	Advanced Economies		Emerging Economies		
Country	Number of Banks	Deposits(in millions)	Country	Number of Banks	Deposits(in millions)
Australia (AU)	25	141.32 (290.80)	Brazil (BR)	20	42.13 (112.81)
Germany (DE)	63	124.33 (119.72)	India (IN)	26	112.42 (138.92)
France (FR)	107	233.20 (442.37)	Mexico (MX)	19	26.22 (32.09)
United Kingdom (GB)	62	448.84 (688.12)	Russia (RU)	32	28.53 (97.02)
Italy (IT)	40	63.00 (174.93)	South Africa (ZA)	8	96.02 (59.91)

Panel C-Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Deposits	1.00											
(2) Capital Ratio	-0.05											
(3) Total Assets	0.97	-0.05										
(4) Equity Ratio	-0.19	0.57	-0.19									
(5) NIM	-0.17	-0.03	-0.17	0.22								
(6) Interest Expense	0.65	-0.08	0.59	-0.16	-0.07							
(7) Loanloss/NII	-0.01	0.00	-0.02	0.07	-0.02	-0.01						
(8) privatecreditFI	0.30	0.06	0.29	-0.16	-0.37	0.11	-0.01					
(9) overhead	-0.14	-0.06	-0.15	0.12	0.36	-0.07	-0.01	-0.69				
(10) Bank concentration	0.03	0.10	0.05	-0.04	-0.23	-0.05	0.00	0.57	-0.64			
(11) Z-score	0.00	0.08	0.02	-0.08	-0.19	0.03	-0.02	0.07	-0.40	0.33		
(12) GDP growth	0.08	-0.02	0.05	-0.08	-0.03	0.18	-0.02	-0.08	0.09	-0.43	0.21	
(13) GDP deflator	-0.14	-0.07	-0.14	0.12	0.37	0.00	-0.01	-0.61	0.69	-0.48	-0.31	0.06

Banking fundamentals, *macrocontrol*, and *Bank risk* represent vectors of bank characteristics, macroeconomic conditions and bank risk (credit risk, insolvency risk and liquidity risk) respectively. α_i denotes bank-specific time-invariant fixed effects, and $\epsilon_{i,j,t}$ represents idiosyncratic errors. To mitigate endogeneity concerns, we use the one-year lagged observations for the deposit growth. Heteroskedasticity robust standard errors are employed, with standard errors clustered at the country level.

4. Results

4.1. Financial regulations and deposit growth

Table 3 shows the outcomes derived from the panel fixed-effects analysis, investigating the interplay between deposit growth and financial regulations concerning various bank-risk measures (credit risk, liquidity risk and insolvency). The findings suggest that government ownership (STATE) positively impacts deposit growth by lowering credit risk whereas negatively impacts the deposit growth through Equity Ratio.

I also observe that greater restrictiveness to foreign banks entry (FORENTRY) and more restrictions on activities (RESTRICT) increases deposit flows whereas higher government

ownership (STATE), higher power of supervisors to take prompt corrective measures (OFFICIAL) and higher depository insurance coverage limit (INSURANCE) lowers deposit flows (weakens the market discipline). Additionally, I find NIM (net interest margin) and size to positively impact deposit growth, while the impact of Capital Ratio to be negative and statistically significant. The analysis includes the country effect on the observed relationships within advanced and emerging economies. Of particular interest, the first lag of deposit growth is found to be positively significant, suggesting that depositors within the sample are indeed sensitive to variations in deposit growth.

4.2. Governance quality and deposit growth

Table 4 shows the findings. I found political stability and regulations (rule of law and control of corruption) to be positively (negatively) and statistically significantly associated with deposits for the developed countries, while no governance indicator to be statistically associated in emerging countries. For the interaction term (Z-score and governance), I found the impact of political stability and regulations to be negative for advanced countries.

4.3. Robustness checks

To address the potential endogeneity and reverse causality concerns between deposits, governance quality, financial regulations and bank characteristics, I employ first difference panel fixed effects. First, differencing helps mitigate endogeneity concerns by taking the first difference of each variable in the model Wang et al. (2024). By differencing the data, time-invariant factors that are common across all entities (such as unobserved heterogeneity) are eliminated, leaving only the within-entity variations. We also control for country and bank fixed effect to address this issue. Additionally, alternative measures of bank risk, tried changing the sample period and the sample banks, and used alternative econometric methods are used. Although not explicitly reported in this paper due to space limitations, the main results remain consistent.

5. Conclusion

In this paper, I estimate the impact of financial regulations and governance quality on deposit growth in a cross-country setup. The findings suggest that depositors are sensitive to financial regulations. Entry and activity restrictions increase deposits, while state ownership, higher supervisory control and high insurance limits negatively impact deposits. I found the effect to be pronounced in both emerging and advanced countries. However, the differential impact of governance quality is found with no significant association of governance indicators and deposits in emerging countries. This raises concerns that I intend to investigate in the future.

Table 3 Effect of financial regulations

This table reports regression results using panel fixed effect. The dependent variable is log(Deposits). As explanatory variables, we include the lag of the dependent variable. Z-score and Equity Ratio are used as alternative bank risk measures. Z-score and log(Total Assets) are the natural logarithm of Z-score and logarithm of Total Assets respectively. Overhead is overall personnel expenses including other Non-Interest Expenses over Total Assets. Bank concentration is the fraction of assets of three largest banks with respect to the share of assets of all commercial banks. privatecreditFI is the private credit by financial institutions in sample over GDP. REG measures regulations that includes the following Cubillas et al. (2012): FORENTRY for limitations on foreign bank entry and ownership; RESTRICT for legal restrictions on bank activities; OFFICIAL for the official supervisory power; STATE for percentage of government-owned banks, and INSURANCE for the depository insurance coverage limit. t-stats are shown in parentheses.

	Dependent variable=log(Deposits)									
REG=	(FORENTRY)	(RESTRICT)	(STATE)	(OFFICIAL)	(INSURANCE)	(FORENTRY)	(RESTRICT)	(STATE)	(OFFICIAL)	(INSURANCE)
lag(log(Deposits), 1)	0.12***	0.12***	0.12***	0.12***	0.18***	0.09***	0.08***	0.08***	0.08***	0.14***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Z-score	0.01***	0.01***	−0.001	0.01	0.01					
	(0.002)	(0.002)	(0.005)	(0.01)	(0.01)					
Equity Ratio						−0.03***	−0.02***	−0.02***	0.02**	−0.01***
						(0.002)	(0.002)	(0.002)	(0.01)	(0.003)
INSURANCE					0.0004					0.0004***
					(0.001)					(0.0001)
Interaction terms of bank risk variable and regulations										
Z-score*REG	−0.03	0.0004	0.01**	0.001	−0.0000					
	(0.02)	(0.02)	(0.01)	(0.01)	(0.0001)					
equity-ratio*REG						0.01**	0.04*	−0.01**	−0.05***	−0.0001***
						(0.003)	(0.02)	(0.003)	(0.01)	(0.0000)
Banking fundamentals										
NIM	0.01*	0.005	0.01*	0.005	0.01*	0.01**	0.01**	0.01*	0.01*	0.01**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Capital Ratio	−0.004***	−0.004***	−0.005***	−0.004***	−0.01***	−0.003***	−0.003***	−0.003***	−0.003***	−0.004***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0003)
log(Total Assets)	0.86***	0.85***	0.85***	0.85***	0.85***	0.77***	0.77***	0.77***	0.78***	0.78***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Bank concentration	0.002*	0.001	0.003**	0.001	0.0005	0.001	0.002*	0.001	0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
privatecreditFI	0.0001	0.0002	−0.001	0.0001	−0.001	−0.001	−0.001	−0.001	−0.0001	−0.001*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
overhead	0.003	0.002	0.002	0.002	−0.01**	0.001	0.001	0.001	0.002	−0.01*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Macroeconomic control										
GDP deflator	−0.0003	−0.001	−0.001	−0.001	0.002	−0.003	−0.003	−0.003	−0.002	−0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
GDP growth	0.01***	0.01***	0.01***	0.01***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
N	2,204	2,204	2,204	2,204	1,872	2,204	2,204	2,204	2,204	1,872
R^2	0.70	0.70	0.70	0.70	0.72	0.73	0.73	0.73	0.74	0.74
Adjusted R^2	0.60	0.60	0.60	0.60	0.61	0.64	0.64	0.64	0.65	0.65
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank effect	No	No	No	No	No	No	No	No	No	No
Year effect	No	No	No	No	Yes	No	No	No	No	Yes

Notes: ***, **, and * shows the statistical significant at 1, 5 and 10%.

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Table 4: Effect of governance quality

	Dependent variable=log(Deposits)											
	Voice		Political stability		Government stability		Regulation		Rule of law		Corruption	
	(Adv)	(Emg)	(Adv)	(Emg)	(Adv)	(Emg)	(Adv)	(Emg)	(Adv)	(Emg)	(Adv)	(Emg)
lag(log(Deposits), 1)	0.04***	−0.03	0.04***	−0.02	0.04***	−0.02	0.04***	−0.03	0.04***	−0.03	0.04***	−0.03
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
Z score	−0.01	0.003	0.01***	−0.01	−0.003	−0.004	0.01**	−0.002	−0.003	−0.0001	−0.0002	−0.01
	(0.01)	(0.02)	(0.004)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.004)	(0.02)
Interaction Term												
Z-score*Governance	0.01	−0.02	−0.02**	−0.02	0.01	0.01	−0.01*	−0.01	(0.004)	(0.03)	(0.003)	(0.02)
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.02)	(0.004)	(0.03)	(0.003)	(0.02)
Governance	−0.15	0.35	0.47***	0.34	−0.19	−0.29	0.26**	0.08	−0.22**	−0.05	−0.16*	−0.17
	(0.20)	(0.51)	(0.15)	(0.24)	(0.15)	(0.49)	(0.12)	(0.32)	(0.10)	(0.57)	(0.09)	(0.33)
Banking Fundamentals												
NIM	0.02**	0.01	0.02*	0.01	0.02**	0.01	0.02**	0.01	0.02**	0.01	0.02**	0.01
	(0.01)	(0.004)	(0.01)	(0.004)	(0.01)	(0.004)	(0.01)	(0.004)	(0.01)	(0.004)	(0.01)	(0.004)
Capital Ratio	−0.004***	−0.01***	−0.004***	−0.01***	−0.004***	−0.01***	−0.004***	−0.01***	−0.004***	−0.01***	−0.004***	−0.01***
	(0.0002)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)
log(Total Assets)	0.73***	1.00***	0.71***	0.98***	0.73***	0.99***	0.72***	1.01***	0.73***	1.00***	0.73***	1.01***
	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)
Equity Ratio	−0.03***	0.004	−0.03***	0.003	−0.03***	0.004	−0.03***	0.005	−0.03***	0.005	−0.03***	0.01
	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)
Bank concentration	0.001	−0.002	0.002	−0.004	0.001	−0.001	0.0000	−0.002	0.002	−0.002	0.002	−0.001
	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
privatecreditFI	0.001	−0.001	0.001	−0.001	0.001	0.0002	0.001	−0.001	0.001	−0.002	0.001	−0.001
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
overhead	0.04**	−0.01**	0.03	−0.01**	0.04*	−0.005	0.05**	−0.01*	0.05**	−0.01*	0.04*	−0.01
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
Macroeconomic control												
GDPdeflator	0.004	0.003	0.01**	0.01*	0.003	0.004	0.003	0.005	0.003	0.01	0.01	0.004
	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)
GDP per capita	0.0001	0.001	0.0000	0.001	0.0001	0.002*	0.0002	0.002**	0.0002	0.002*	0.0001	0.001
	(0.0001)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.001)
N	1,076	595	1,076	595	1,076	595	1,076	595	1,076	595	1,076	595
R^2	0.79	0.60	0.79	0.61	0.79	0.60	0.79	0.60	0.79	0.60	0.79	0.60
Adjusted R^2	0.79	0.60	0.79	0.60	0.79	0.59	0.79	0.60	0.79	0.59	0.79	0.60
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank-Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: ***, **, and * shows the statistical significant at 1, 5 and 10%.

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