Sakshi Narula

Assistant Professor

O.P. Jindal Global University, Sonipat

India

15 September, 2026

Subject: Application for Participation in Workshop on Development Economics and Networks for Early-Career Researchers

Dear Organizers,

I am writing to express my strong interest in participating in the Workshop on Development Economics and Networks to be held on December 5, 2026 at Cambridge, MA. I am currently a Assistant Professor at O.P. Jindal Global University, working on Governance, regulations and digital economics.

I am particularly drawn to this workshop because I want to learn about how the changing world order will impact the economies of the world. Moreover, I believe that every individual in this world has something to teach and would love to collaborate and learn from peer group with similar thoughts. My background in economics has prepared me to contribute meaningfully to the discussions, and I am eager to learn from the other participants and speakers.

Please find my complete contact information below. If shortlisted, I would be glad to provide any additional materials required. I have also listed a faculty member below who has kindly agreed to provide a recommendation on my behalf, should one be needed.

Applicant Contact Information

- Name: Sakshi Narula
- Email: Sakshi.narula@jgu.edu.in
- Phone: 91-7986047446
- Institution/Affiliation: O.P. Jindal Global University, Sonipat, India
- Mailing Address: # 1180 ground floor, C2 Block, Palam Vihar, Gurugram, Haryana, India- 122017

Faculty Reference (for recommendation, if shortlisted)

- Name: Dr. Richa Kapoor Mehra

- Title/Position: Associate Professor, Area Chair, Department of Humanities and Social Sciences
- Institution: O.P. Jindal Global University, Sonipat, India
- Email: richak.mehra@jgu.edu.in

Thank you very much for considering my application. I look forward to the possibility of contributing to and learning from Workshop.

Sincerely,

Sakshi Narula

SAKSHI NARULA

Assistant Professor — O.P. Jindal Global University

Email: sakshinarula27@gmail.com — Mobile: +91-7986047446

Current Location: Gurugram, India

Google Scholar: Link — ORCID: 0000-0001-8070-7134

PROFESSIONAL SUMMARY

Assistant Professor and economics researcher with Ph.D. from Indian Institute of Technology Delhi (CGPA 9.16/10) specializing in banking economics, financial economics, market discipline, and applied econometrics. Published author with 2 articles in top-tier A-rated international journals (Pacific Basin Finance Journal, International Review of Economics and Finance) with combined impact factor of 10.9 and CiteScore of 14.5. UGC NET qualified. Expertise in empirical research, econometric modelling, and policy analysis with focus on Indian banking sector and financial markets. Teaching experience of 4+ years, graduate and undergraduate courses in economics, statistics, and business management at OP Jindal Global University and IIT Delhi. Proficient in R, STATA, SPSS, MATLAB with advanced skills in panel data econometrics, causal inference, and quantitative research methods. International research dissemination with 15+ presentations across global conferences in Europe, Asia, Middle East, and Australia.

RESEARCH INTERESTS AND AREAS OF SPECIALIZATION

Primary Research Areas:

Banking Economics — Financial Economics — Market Discipline and Depositor Behaviour — Bank Risk Management — Applied Econometrics — Financial Regulation and Policy — Monetary Economics — Central Bank Digital Currency (CBDC)

Secondary Research Interests:

Corporate Finance — Cooperative Banking — Financial Inclusion — Mergers and Acquisitions in Banking — Financial Stability — Non-Banking Financial Companies (NBFCs) — Deposit Insurance — Corporate Social Responsibility — Indian Financial Markets

Research Methodologies:

Panel Data Econometrics — Difference-in-Differences — Event Study Methodology — Regression Discontinuity Design — Instrumental Variables — Fixed Effects and Random Effects Models — Quasi-Experimental Methods — Causal Inference — Time Series Analysis — Propensity Score Matching

Technical Proficiencies:

R Programming — STATA — SPSS — MATLAB — Econometric Modelling — Statistical Analysis — Data Visualization — LaTeX — Microsoft Office Suite — Quantitative Research Design — Empirical Analysis — Policy Evaluation

EDUCATION

Doctor of Philosophy (Ph.D.) in Economics **2019 – 2025**
Indian Institute of Technology (IIT) Delhi, Department of Management Studies *New Delhi, India*

CGPA: 9.16/10

Doctoral Thesis: "Market Discipline, Bank Risk and Depositor Behaviour"

Thesis Supervisor: Dr. Eri Ikeda (Assistant Professor, IIT Delhi) and Dr. Manish Kumar Singh

(Assistant Professor, IIT Roorkee)

Research Focus: Market discipline mechanisms in Indian banking sector, depositor behaviour analysis, bank risk-taking, cooperative banks, regulatory interventions, deposit insurance, empirical banking economics

Key Research Contributions:

- Analyzed depositor responses to bank risk signals using administrative data from Indian banks
- Examined market discipline effectiveness in cooperative banking sector during bank failures
- Investigated impact of mega bank mergers on depositor behavior and market discipline
- Studied role of interest rate variations in signaling bank risk to high-value depositors

PhD Viva Voce Examiners: Prof Chetan Ghate and Prof Vimal Subramanium

Master of Technology (M.Tech.) in VLSI and Embedded Systems **2013 – 2015**
Indraprastha Institute of Information Technology (IIIT) Delhi *New Delhi, India*

CGPA: 7.8/10 (First Division)

Master's Thesis: "On Chip Interconnects"

Thesis Supervisor: Dr. Sujay Deb

Scholarship: GATE Postgraduate Scholarship (Ministry of Education, Government of India)

Bachelor of Technology (B.Tech.) in Electronics and Communication Engineering 2008 – 2012
Maharishi Markandeshwar University *Mullana, Haryana, India*

CGPA: 9.17/10 (First Class with Distinction)

PROFESSIONAL QUALIFICATIONS AND CERTIFICATIONS

UGC NET (National Eligibility Test) Qualified with Junior Research Fellowship 2016-2019

University Grants Commission, Ministry of Education, Government of India

- Qualified for Assistant Professor positions in Indian universities and colleges
- Awarded Junior Research Fellowship (JRF) - granted to top 6% of qualified candidates
- Valid for eligibility as Assistant Professor in Economics at UGC-recognized institutions

GATE (Graduate Aptitude Test in Engineering) Qualified 2013

National-level competitive examination conducted by IITs and IISc

- All-India rank-based qualification for postgraduate admissions
- Awarded GATE Scholarship for M.Tech. program

RESEARCH PUBLICATIONS

Peer-Reviewed Journal Articles (2 publications in ABDC-A rated journals)

[1] Narula, S. (2025). "The impact of mega mergers on uninsured depositors: Evidence from Indian commercial banks." *International Review of Economics and Finance*, Volume 99, Article 103983, ISSN 1059-0560.

Journal Rankings: ABDC-A — ABS-2 — Impact Factor: 5.6 — CiteScore: 7.3 — Scopus Q1

DOI: https://doi.org/10.1016/j.iref.2025.103983

Research Contribution: This sole-authored paper examines how mega bank mergers in India affect uninsured depositor behavior and market discipline. Using quasi-experimental methods and panel data from Indian commercial banks during 2017-2020 merger wave, the study finds that uninsured depositors

exhibit heightened sensitivity to bank risk post-merger, indicating strengthened market discipline. The research contributes to understanding of depositor behavior during banking consolidation and has important policy implications for deposit insurance reform and merger regulation.

Key Findings: Mega mergers increase depositor awareness of bank risk; uninsured depositors reallocate deposits based on bank fundamentals; market discipline strengthens post-consolidation; regulatory interventions needed to protect small depositors.

[2] Narula, S. and Singh, M.K. (2024). "Do creditors punish weak banks? Evidence from Urban Cooperative Banks failure in India." *Pacific Basin Finance Journal*, Volume 88, Article 102517, ISSN 0927-538X.

Journal Rankings: ABDC-A — ABS-2 — Impact Factor: 7.3 — CiteScore: 8.3 — Scopus Q1

DOI: https://doi.org/10.1016/j.pacfin.2024.102517

Research Contribution: This co-authored paper investigates market discipline in India's urban cooperative banking sector by analyzing depositor responses to bank weakness and failures. Using administrative data from Reserve Bank of India and difference-in-differences methodology, the study provides evidence that depositors do exercise market discipline by withdrawing deposits from financially weak cooperative banks. The research fills a critical gap in understanding market discipline in cooperative banking and informal financial sectors.

Key Findings: Depositors respond to bank risk signals by reducing deposit holdings; market discipline exists even in cooperative banking sector; regulatory disclosures enhance depositor awareness; deposit insurance weakens but does not eliminate market discipline.

Working Papers Under Review (1 paper)

[3] Narula, S. "Do better governance, stricter regulations and higher depository insurance improve market discipline?"

Status: Under review at international peer-reviewed journal (ABDC-A rated)

Abstract: This paper examines whether improvements in corporate governance, stringent regulatory frameworks, and enhanced deposit insurance coverage strengthen or weaken market discipline in banking. Using panel data from Indian scheduled commercial banks and cooperative banks, the study employs fixed effects models and two-stage least squares estimation to identify causal effects. Preliminary findings suggest that governance improvements strengthen market discipline, while higher deposit insurance coverage may reduce depositor monitoring incentives.

Work in Progress (2 papers in advanced stages)

[4] Narula, S. and Kozinska, M. "Does the introduction of Central Bank Digital Currency influence deposits?"

Co-author: Dr. Magdalena Kozinska (International collaboration)

Status: Manuscript in preparation; preliminary results presented at 3 international conferences

Research Focus: Investigates potential impact of CBDC implementation on traditional bank deposits and financial intermediation using theoretical modeling and cross-country empirical analysis. Examines implications for monetary policy transmission and financial stability.

[5] Narula, S. "CBDC - A Booster to market discipline"

Status: Data collection and preliminary analysis completed; presented at IIM Ahmedabad

Research Focus: Analyzes whether introduction of Central Bank Digital Currencies can enhance market discipline mechanisms by providing depositors with alternative safe assets and increasing competitive pressure on commercial banks.

GRANTS, FELLOWSHIPS, SCHOLARSHIPS AND HONORS

RETA (Research and Entrepreneurship Travel Award) 2024

Indian Institute of Technology Delhi, Internal Research Division (IRD)

Award Amount: INR 2,00,000

Recognition: Awarded to top 1% of University Research Scholars for exceptional research performance

Purpose: International conference participation and research collaboration

RSTA (Research Scholar Travel Award) 2022, 2024

Indian Institute of Technology Delhi, Dean of Academic Affairs

Award Amount: INR 1,00,000 (awarded twice)

Purpose: Competitive travel grants for presenting research papers at international conferences

UGC NET Junior Research Fellowship (JRF) 2016-2019

University Grants Commission, Ministry of Education, Government of India

Fellowship Amount: INR 31,000 per month + contingency grant

Recognition: National-level fellowship awarded to top 6% of UGC NET qualified candidates

Duration: 3 years (extended based on research progress)

GATE Postgraduate Scholarship 2013-2015

Ministry of Education, Government of India

Scholarship Amount: INR 12,400 per month

Recognition: Merit-based scholarship for Master's degree studies at premier institutions

Duration: 2 years (full program duration)

Appreciation Certificate in Research Story Writing 2024

Indian Institute of Technology Delhi, Research Communication Initiative

Recognition: Excellence in communicating complex research to broader audiences and stakeholders

Silver Merit Certificate, Cyber Olympiad 2002

Science Olympiad Foundation, India

Recognition: National-level recognition in computer science and programming competition

Total Research Funding Received: Approximately INR 15+ lakhs through fellowships and travel grants

TEACHING EXPERIENCE

Assistant Professor **January 2026 – Present**
O.P Jindal Global University, Department of Humanities and Social Sciences *Sonipat, India*

Courses Taught - Graduate Level (MBA and BBA students):

1. **Macroeconomics** (BBA students) Spring 2026
2. **International Business** (BBA students) Spring 2026
3. **The firm and the consumer** (MBA students) Spring 2026
4. **Business Ethics and CSR** (MBA students) Fall 2026

Responsibilities:

- Delivered lectures on macroeconomic models and policy analysis
- Evaluated assignments, case studies, and research presentations
- Provided academic mentoring to BBA students on international economics topics
- Held weekly office hours for doubt clearing and exam preparation

Guest Faculty (Full-time Teaching Position) **May 2015 – June 2016**
Malaviya National Institute of Technology (MNIT) Jaipur *Jaipur, Rajasthan, India*

Department: Electronics and Communication Engineering

Position: Contractual Faculty Member (Full teaching load)

Courses Taught - Undergraduate Level:

1. **Antenna Design and Theory** (B.Tech. Electronics and Communication, 6th semester)
2. **Radar Systems** (M.Tech. Electronics and Communication, 2nd semester)
3. **VLSI Design and Test** (M.Tech. VLSI Design, 3rd semester)

Responsibilities:

- Delivered lectures on electromagnetic theory and antenna principles
- Conducted laboratory sessions on antenna design and measurements
- Designed course assignments, quizzes, and examination papers
- Supervised student projects on antenna design and simulation

CONFERENCE PRESENTATIONS, SEMINARS AND INVITED TALKS

International Conference Presentations (15 presentations at 11 different conferences)

Year 2024 (5 presentations):

[**1**] Narula, S. (2024). "The impact of mega-mergers on depositors: Evidence from Indian commercial banks." Paper presented at **World Finance and Banking Symposium**, Abu Dhabi, United Arab Emirates, December 2024.

Conference Type: International symposium on banking and finance

[**2**] Narula, S. (2024). "The impact of mega-mergers on depositors: Evidence from Indian commercial banks." Paper presented at **India Management Research Conference (IMRC)**, Indian Institute of Management Ahmedabad, Gujarat, India, November 2024.

Conference Type: Premier management research conference in India

[**3**] Narula, S. (2024). "Do banks signal high value depositors of bank risk by varying interest rates? Evidence from Indian banks." Invited seminar presentation at **Indian Statistical Institute (ISI)**, New Delhi, India, September 2024.

Seminar Type: Research seminar at premier statistical and economic research institution

[**4**] Narula, S. (2024). "Do banks signal high value depositors of bank risk by varying interest rates? Evidence from Indian banks." Paper presented at **Financial Markets and Corporate Governance Conference (FMCG)**, Monash University, Kuala Lumpur, Malaysia, July 2024.

Conference Type: Annual international conference on finance and corporate governance

[**5**] Narula, S. and Kozinska, M. (2024). "CBDC and Deposit dependent banks." Paper presented at **DEPR Conference**, Jaipur, Rajasthan, India, March 2024.

Conference Type: Development Economics and Policy Research conference

Year 2023 (6 presentations):

[**6**] Narula, S. and Kozinska, M. (2023). "CBDC and Deposit dependent banks." Paper presented at **International Financial Management and Banking (IFMB) Conference**, Nottingham University Business School, Nottingham, United Kingdom, December 2023.

Conference Type: Leading international conference on financial management and banking

[**7**] Narula, S. and Kozinska, M. (2023). "CBDC and Deposit dependent banks." Paper presented at **EMANES Conference**, Barcelona, Spain, October 2023.

Conference Type: Euro-Mediterranean conference on economics and finance

[**8**] Narula, S. (2023). "CBDC - A booster to market discipline." Invited research seminar at **Indian Institute of Management (IIM) Ahmedabad**, Gujarat, India, August 2023.

Seminar Type: Invited presentation at premier business school in India

[**9**] Narula, S. and Singh, M.K. (2023). "Keeping an eye on co-operative banking in India: Effectiveness of market discipline." Paper presented at **Delhi Winter School in Economics**, Delhi School of Economics, University of Delhi, New Delhi, India, December 2023.

Conference Type: Annual winter school organized by premier economics department

[**10**] Narula, S. and Singh, M.K. (2023). "Keeping an eye on co-operative banking in India: Effectiveness of market discipline." Paper presented at **Financial Markets and Corporate Governance Conference (FMCG)**, Deakin University, Melbourne, Australia, June 2023.

Conference Type: International conference on financial markets and governance

Year 2022 (4 presentations):

[**11**] Narula, S. and Singh, M.K. (2022). "Keeping an eye on co-operative banking in India: Effectiveness of market discipline." Paper presented at **World Finance Conference**, University of Turin, Turin, Italy, July 2022.

Conference Type: Leading global conference on financial economics and banking

RESEARCH PROJECTS AND CONSULTANCY

Principal Investigator: Corporate Social Responsibility Fund Utilization Study 2019

Funding Organization: Katha (Non-Governmental Organization), New Delhi, India

Project Duration: 6 months

Deliverables: Comprehensive research report with policy recommendations submitted to organization leadership

Research Assistant: On-Chip Interconnects Optimization 2014-2015

Principal Investigator: Dr. Sujay Deb, Associate Professor, IIIT Delhi

Funding: Institute research grant

Project Duration: 18 months (M.Tech. dissertation project)

PROFESSIONAL SERVICE AND ACADEMIC ENGAGEMENT

Peer Review and Editorial Activities

Journal Reviewer: *Journal of Advances in Management Research* (Emerald Publishing)

Peer Review Experience: Multiple manuscripts reviewed in banking economics and financial mar-

kets

Conference and Seminar Participation

Participant: NISM-TIES Research Seminar December 2020

Theme: "Current Issues and Policy Options in Financial Markets"

Organizers: National Institute of Securities Markets (NISM) and Tata Institute of Social Sciences (TISS)

Participant: G20 University Connect Summit June 2023

Theme: "International Financial Stability and Creating a More Sustainable and Inclusive World through Financial Technology (FinTech)"

Organizer: Ministry of Education, Government of India (under India's G20 Presidency)

Statement of Motivation

I am an Assistant Professor at O.P. Jindal Global University, Sonipat, India, working in the broad area of economics with a focus on financial inclusion, governance, and digital economics. My current research examines how financial regulations, governance quality, and financialization interact to shape market discipline across countries, using cross-country empirical frameworks to understand the conditions under which financial systems become more inclusive and stable.

A central motivation for my work is understanding how institutional and regulatory quality mediates the relationship between financial development and broader development outcomes. As digital financial services expand rapidly across emerging economies, questions of access, governance, and systemic risk have become increasingly interconnected. I am particularly interested in how network-based approaches can enrich this analysis: financial systems, regulatory relationships, and information flows across institutions and countries.

I am applying to the Workshop on Development Economics and Networks for Early-Career Researchers because I believe network analysis has significant potential in my current research agenda. My work would benefit from deeper engagement with methods for modelling connectivity, whether in the diffusion of financial regulations across jurisdictions, the propagation of governance norms, or the structural determinants of financialization patterns. I am eager to learn from the workshop's sessions on network methodologies and to see how researchers in adjacent areas have applied these tools to questions of institutions, markets, and inclusion.

Beyond methodological training, I see this workshop as a valuable opportunity to engage with a community of early-career researchers working at the intersection of development economics and networks. I hope to receive feedback on my ongoing cross-country work, explore potential collaborations, and build connections with peers and mentors whose research can inform and strengthen my own. I am confident that the insights and skills gained from this workshop will directly enhance the rigor and scope of my current and future research on financial inclusion, governance, and digital economic transformation.

Do financial regulations, governance quality and financialization influence market discipline? An Empirical Investigation of some Emerging and Advanced Economies

Sakshi Narula[a]

[a]*O.P. Jindal Global University, Sonipat*

Abstract

The study examines the impact of financial regulations, governance quality and financialization market discipline in a cross-country set-up. The differential influence of bank regulation, supervision, institutions, government stability, and the rule of law on the market discipline using panel fixed-effect models and triple interaction is assessed. The findings suggest that entry and activity restrictions increase deposit growth, while state ownership, higher supervision, and 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

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.

In this study, a cross-country analysis of the impact of governance quality, banking regulations and financialization on market discipline is conducted. The differential impact us-

Email address: sakshi.narula@jgu.edu.in (Sakshi Narula)

ing a comparative analysis framework between two distinct sets of countries is assessed. 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 behaviour by exploiting the heterogeneity in regulatory decision-making across these contrasting economies.

The strength of disciplining mechanism is unlikely to be constant across countries. A growing literature argues that the effectiveness of market discipline is conditional on the quality of the institutional and regulatory environment in which banks operate: stronger governance is reflected in greater government effectiveness, rule of law, and control of corruption. It has been shown to reduce bank risk-taking and improve financial stability, although the effects vary across the different dimensions of institutional quality and are not always uniform (Uddin et al., 2020; Bermpei et al., 2018; Fakhrunnas et al., 2025). This suggests that regulatory and governance quality do not merely constrain bank behaviour directly, but may also shape how depositors interpret and price the risk signals that banks provide.

At the same time, a largely separate literature has documented the rapid deepening and transformation of financial systems worldwide, a phenomenon commonly referred to as financialization (Epstein, 2005; Qi, 2019; Nobanee et al., 2023). Financialization captures not merely the growth of the financial sector in absolute terms, but a qualitative shift in the role that credit markets, capital markets, and institutional financial actors play in the broader economy. This process has proceeded unevenly across countries, and its implications appear to differ meaningfully between advanced and emerging or developing economies, where financial deepening often interacts with weaker or evolving institutional frameworks in ways that are not yet fully understood (Bonizzi, 2013; Lapavitsas and Soydan, 2022).

Despite the plethora of research on each of these two strands separately, market discipline and institutional quality on one hand, and financialization on the other, little is known about how they interact jointly in shaping deposit pricing behaviour. This is a meaningful gap. If, as the institutional quality literature suggests, strong governance strengthens depositors' ability to monitor and price bank risk, then the degree to which this mechanism operates should plausibly depend on the depth and sophistication of the financial system itself. In economies with deep, well-developed financial markets, strong institutions may have more channels through which to translate into effective, market-based discipline. For example, richer information environments, more liquid instruments, and more competitive alternatives for depositors. Conversely, in economies with shallow financial systems, even strong formal institutions may have limitations, since the market infrastructure needed to act on institutional protections may not exist.

This paper addresses this gap by examining how bank risk, institutional/regulatory quality, and financialization jointly determine deposit interest rates. Specifically, it investigates: Does the moderating effect of institutional quality on the bank risk and deposit

rate relationship itself depend on the level of financial sector development? To answer this question, a triple-interaction panel regression model on an unbalanced panel of commercial banks across ten countries over the period 2010-2023, controlling for bank-level fundamentals and macroeconomic conditions is estimated.

More precisely, the study answers following questions: (i) Do political and government stability influence market discipline? (ii) Do banking regulations and better rule of law lower market discipline?; (iii) Do depositors in advanced economies discipline banks 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?; (vi) How does a finance regulations and governance quality change the market discipline that depositors impose to control bank risk-taking?

Our empirical strategy makes two main contributions relative to the existing literature. First, rather than relying on a single proxy for financial sector development, we construct a composite financialization index using Principal Component Analysis (PCA) across five indicators spanning banking depth, capital market development, and insurance market penetration. This index explains 74.1% of the common variance across the underlying indicators, providing a parsimonious yet theoretically grounded summary measure of financialization that is less arbitrary than single-indicator proxies commonly used in prior work. Second, using the six Worldwide Governance Indicators, we estimate the triple-interaction model separately for each governance dimension. This allows us to assess not only whether institutional quality matters, but which specific dimension of institutional quality: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, or control of corruption, drives the interaction with financialization, and whether our conclusions are robust across the broader concept of governance.

The main findings can be summarised as follows: (i) In advanced economies, we found evidence of depositors being sensitive to the governance quality; (ii) Stronger voice and transparency is significantly negatively associated with deposits,; (iii) Higher government ownership, more supervisory control negatively impact the market discipline; and (iv) Stronger ENTRY regulations is significantly positively associated with equity ratios. Overall findings support the view lesser state interference and more entry and exit compliances increases market discipline for advanced economies.

Our findings contribute to at least three strands of literature. First, we extend the market discipline literature (Martinez Peria and Schmukler, 2001; Flannery and Sorescu, 1996) by showing that the sensitivity of deposit rates to bank risk is not a fixed institutional parameter, but is jointly conditioned by governance quality and financial sector development. Second, we contribute to the institutional quality and bank risk-taking literature (Uddin et al., 2020; Bermpei et al., 2018; Fakhrunnas et al., 2025) by demonstrating that the disciplining role of governance cannot be fully understood in isolation from the financial development context in which it operates. Third, we contribute to the financialization literature (Qi, 2019; Lapavitsas and Soydan, 2022; Bonizzi, 2013) by providing,

to our knowledge, one of the first firm-level empirical tests of how financialization interacts with formal institutions to shape a core banking market outcome, deposit pricing, rather than firm investment or corporate behavioUr, which has been the more common focus of this literature.

The remainder of the paper is organized as follows. Section 2 reviews the related literature in greater depth and develops our testable hypotheses. Section 3 and Section 4 describes the data, the construction of the financialization index, and the empirical methodology. Section 5 presents the main results, including the triple-interaction estimates across the six governance dimensions and a series of robustness checks and Section 6 concludes.

2. Literature Review and Hypothesis Development

2.1. Bank Risk and Deposit Pricing: The Market Discipline Channel

The idea that depositors respond to bank risk by adjusting the price and quantity of funds they supply to banks is central to the market discipline literature. Under this view, financial safety nets rely on two complementary mechanisms to restrain excessive risk-taking: bank regulation and market discipline, whereby bank creditors withdraw funds or demand higher interest rates from riskier banks (Demirgüç-Kunt and Huizinga, 2004). Early evidence from Argentina, Chile, and Mexico shows that depositors punish banks for risky behaviour both by withdrawing deposits and by requiring higher interest rates (Martinez Peria and Schmukler, 2001). Subsequent studies confirm that bank risk is positively related to yields on deposits (Ellis and Flannery, 1992), interest rates paid on uninsured deposits (Flannery and Sorescu, 1996), and risk premiums on subordinated debt (Flannery and Sorescu, 1996).

This literature motivates the baseline, unconditional relationship at the core of our empirical model: banks perceived as riskier must compensate depositors with higher rates to attract and retain funding.

> **H1:** Bank risk is positively associated with the deposit interest rate offered by banks (i.e., riskier banks, as reflected in a lower Z-score, pay higher deposit rates).

2.2. The Moderating Role of Institutional Quality and Regulation

While market discipline theory predicts a positive bank risk and deposit rate relationship on average, the strength of this relationship is unlikely to be uniform across institutional settings. A substantial literature argues that the quality of a country's regulatory and governance environment shapes both banks' risk-taking incentives and depositors' ability to monitor and price that risk.

Uddin et al. (2020) examine the effect of institutional quality on post-global-financial-crisis bank risk-taking across 730 banks in 19 emerging countries, using six World Governance Indicators as proxies for institutional quality. They find that government effectiveness, control of corruption, and rule of law are each associated with lower bank risk (higher Z-scores), on contrary, voice and accountability is associated with higher risk-taking in emerging-market banks. Bermpei et al. (2018) similarly show that institutional quality conditions the effectiveness of bank regulation and supervision in emerging and developing economies, implying that the same regulatory tools can have different effects on bank stability depending on the surrounding institutional context. More recently, Fakhrunnas et al. (2025) find that aggregate institutional quality reduces bank default risk across a sample of dual banking systems, with heterogeneous effects across governance dimensions and bank types.

Taken together, this literature suggests that strong governance and regulatory institutions can both (i) directly constrain bank risk-taking, and (ii) alter how sensitively deposit markets price a given level of risk. Because well-governed environments are typically associated with more credible supervision, better information disclosure, and stronger legal enforcement, we expect regulatory quality to amplify the market discipline mechanism: in stronger institutional environments, depositors should be better able to observe, interpret, and price bank risk, making the bank risk and deposit rate relationship stronger.

> **H2:** The positive relationship between bank risk and deposit rates is stronger (more positive) in countries with higher institutional/regulatory quality.

2.3. Financialization and Bank Behaviour

A parallel and largely separate strand of literature examines financialization, broadly defined as the growing scale, scope, and influence of financial markets (Epstein, 2005). Qi (2019) and Nobanee et al. (2023) provide comprehensive reviews documenting the rapid expansion of this literature since the 2008 global financial crisis, covering its definition, drivers, and relationships with financial crises, economic growth, and financial regulation. Within this literature, financialization is understood not merely as financial sector growth but as a qualitative shift in how credit, capital markets, and institutional investors intermediate resources throughout the economy (Lapavitsas and Soydan, 2022).

The financialization literature is particularly relevant to developing and emerging economies, where financial deepening has proceeded unevenly and has been shown to interact with domestic institutional weaknesses in ways that differ from advanced economies (Bonizzi, 2013; Lapavitsas and Soydan, 2022). As banking systems in these economies become more financializion, reflected in deeper credit markets, larger banking sectors relative to GDP, and expanding insurance and capital markets, the competitive and informational environment in which banks price deposits changes. On one hand, greater financialization can increase competition for deposit funding and widen the menu of substitute

financial instruments available to savers, which should make deposit pricing more responsive to bank-specific risk. On the other hand, deeper financial markets may also increase opportunities for regulatory arbitrage and risk-shifting, particularly where governance is weak, potentially dampening the disciplining effect of depositors.

> **H3:** The level of financialization is associated with the deposit interest rate, controlling for bank risk and institutional quality.
>
> **H4:** The sensitivity of deposit rates to bank risk varies with the level of financialization.
>
> **H5:** The relationship between institutional quality and deposit rates varies with the level of financialization in the country.

2.4. The Joint Role of Governance and Financialization: Triple Interaction

In highly financialization of economies with deep capital markets and diversified financial instruments, strong institutions may have greater scope to translate into effective market discipline, because depositors have more information, more monitoring capacity, and more competitive alternatives. Conversely, in economies with shallow financial systems, even strong formal institutions may struggle to generate effective price discipline, since depositors lack the market infrastructure (e.g., liquid secondary markets, credit rating coverage, alternative savings instruments) needed to act on institutional protections.

This reasoning motivates our central hypothesis, captured by the triple interaction term $BankRisk \times Governance \times Financialization$ in Equation (5):

> **H6 (main hypothesis):** The moderating effect of institutional/regulatory quality on the bank risk and deposit rate relationship is itself conditional on the level of financial sector development (financialization). Specifically, we expect institutional quality to exert a stronger disciplining effect on deposit pricing in more financialized economies, implying a statistically significant triple interaction coefficient ($\beta_6 \neq 0$ in Equation (5)).

We remain ex ante, on the sign of β_6, as the literature offers competing predictions.

2.5. Summary of Hypotheses

Table 1 summarizes the hypotheses tested in this study, mapped to the corresponding coefficients in Equation (5).

Table 1 Summary of Hypotheses

Hypothesis	Statement	Coefficient
H1	Bank risk is positively associated with deposit rates	β_1
H2	Institutional quality strengthens the risk and deposit rate relationship	β_2
H3	Financialization is associated with deposit rates	β_3
H4	Financialization moderates the risk and deposit rate relationship	β_4
H5	Financialization moderates the governance and deposit rate relationship	β_5
H6	Financialization moderates the governance-conditioned risk and deposit rate relationship (*main hypothesis*)	β_6

3. Data description

3.1. Data and Sample

This study employs an unbalanced panel dataset of commercial banks across ten countries over the period 2010 to 2023 further subgroup from 2010 to 2017. The sample includes 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). Bank-level financial data are obtained from Orbis Bank Focus/Bankscope, macroeconomic indicators from the World Bank's World Development Indicators, and governance indicators from the World Bank's Worldwide Governance Indicators (WGI) database. The final sample consists of 402 financial institutions with 2212 bank-year observations from both advanced and emerging groups after excluding observations with missing values on key variables.

Table 2 outlines the dependent and independent variables employed in the model, along with their definitions and the expected relationships as indicated in the literature. Table 3 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.

4. Methodology

4.1. Construction of the Financialization Index

Following the literature on financialization, we construct a composite financialization index using Principal Component Analysis (PCA) to capture the multidimensional nature

Table 2 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.

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)
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 Governance Indicator	(-)	Kaufman et al. (2001), Demirgüç-Kunt and Levine (2001), Cubillas et al. (2012)
Measure of Financialization Index				
Findex	It is an indicator of the financialization a country's institutional environment. This is calculated for five indicators: Private credit by deposit money, bank assets to GDP, Stock market capitalization to GDP, life and non-life insurance premium volume to GDP	Bankfocus	(-)	
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		

Table 3 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
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

of financial sector development. PCA is preferred over simple averaging because it allows the data to determine the relative weight of each indicator based on their common underlying variance, avoiding the arbitrary weighting schemes associated with simple index construction.

The index is built from five country-level indicators reflecting different dimensions of financial deepening:

1. Bank assets to GDP (banking sector size)
2. Private credit by deposit money banks to GDP (credit intermediation)
3. Stock market capitalization to GDP (capital market development)
4. Life insurance premium volume to GDP (long-term savings intermediation)
5. Non-life insurance premium volume to GDP (insurance market depth)

Each indicator is standardized to have zero mean and unit variance prior to extraction, in order to prevent variables measured on larger scales from dominating the first principal component:

$$\widetilde{X}_{jct} = \frac{X_{jct} - \bar{X}_j}{\sigma_j} \tag{1}$$

where X_{jct} is indicator j for country c in year t, and $\bar{X}_j$ and σ_j are the sample mean and standard deviation of indicator j.

The financialization index is then constructed as the first principal component (PC1) of the five standardized indicators:

$$FI_{ct} = 0.457\,\widetilde{BA}_{ct} + 0.478\,\widetilde{PC}_{ct} + 0.320\,\widetilde{SMC}_{ct} + 0.481\,\widetilde{NLI}_{ct} + 0.478\,\widetilde{LI}_{ct} \tag{2}$$

where BA, PC, SMC, NLI, and LI denote bank assets/GDP, private credit/GDP, stock market capitalization/GDP, non-life insurance/GDP, and life insurance/GDP, respectively. The first principal component explains 74.1% of the total variance across the five indicators, indicating that it captures a strong common dimension of financialization. All five loadings carry the same sign, confirming that the indicators move together and support the interpretation of PC1 as a coherent financialization construct. The resulting index is rescaled to range from 0 to 100, with higher values indicating greater financialization:

$$FI^*_{ct} = \frac{FI_{ct} - \min(FI)}{\max(FI) - \min(FI)} \times 100 \tag{3}$$

4.2. Bank Risk Measure

Bank risk is proxied by the Z-score, a widely used inverse indicator of insolvency risk in the banking literature (Laeven and Levine, 2009), defined as:

$$Zscore_{i,c,t} = \frac{ROA_{i,c,t} + \left(\frac{Equity}{Assets}\right)_{i,c,t}}{\sigma(ROA)_{i,c,t}} \tag{4}$$

where ROA is return on assets, $Equity/Assets$ is the capital-to-asset ratio, and $\sigma(ROA)$ is the standard deviation of ROA, typically computed over a rolling window. A higher Z-score indicates greater bank stability (lower risk of insolvency), while a lower Z-score indicates higher bank risk.

4.3. Governance Indicators

To capture the institutional and regulatory environment in which banks operate, we employ six governance indicators from the World Bank's Worldwide Governance Indicators (WGI) database: (i) Voice and Accountability, (ii) Political Stability and Absence of Violence, (iii) Government Effectiveness, (iv) Regulatory Quality, (v) Rule of Law, and (vi) Control of Corruption. Each indicator ranges approximately from -2.5 (weak governance) to 2.5 (strong governance).

Because the six governance indicators are highly correlated with one another (pairwise correlations ranging from 0.69 to 0.86 in our sample), we do not include them jointly in a single specification, as doing so induces severe multicollinearity and renders coefficient estimates unstable. We estimate six separate specifications, entering one governance dimension at a time, and assess the robustness of our results across all six governance measures.

4.4. Empirical Model

To examine how the relationship between bank risk and deposit interest rates is jointly moderated by the institutional environment and the degree of financial sector development, we estimate the following triple-interaction panel regression model:

$$\begin{aligned} DepositRate_{i,c,t} = \alpha_i + \gamma_t &+ \beta_1\, BankRisk_{i,c,t} + \beta_2\, BankRisk_{i,c,t} \times Governance_{c,t} \\ &+ \beta_3\, Financialization_{c,t} + \beta_4\, BankRisk_{i,c,t} \times Financialization_{c,t} \\ &+ \beta_5\, Governance_{c,t} \times Financialization_{c,t} \\ &+ \underbrace{\beta_6\, BankRisk_{i,c,t} \times Governance_{c,t} \times Financialization_{c,t}}_{\text{triple interaction: variable of interest}} \\ &+ \beta_7\, X_{i,c,t} + \beta_8\, Z_{c,t} + \beta_9\, Crisis_t + \varepsilon_{i,c,t} \end{aligned} \tag{5}$$

where $DepositRate_{i,c,t}$ is the deposit interest rate offered by bank i in country c at time t; $BankRisk_{i,c,t}$ is the (inverse) Z-score; $Governance_{c,t}$ represents, in turn, each of the six institutional quality indicators described in Section 3.4; and $Financialization_{c,t}$ is the composite index constructed in Section 3.2. α_i and γ_t denote bank and year fixed effects, respectively, which jointly absorb time-invariant bank heterogeneity, including unobserved, time-invariant country characteristics, since banks do not switch countries during the sample period as well as common shocks affecting all banks in a given year.

The coefficient of primary interest, β_6, captures how the marginal effect of bank risk on deposit rates varies jointly with the quality of institutions and the level of financial sector development. A statistically significant β_6 indicates that the risk and deposit rate relationship is not uniform across institutional and financial development contexts, but is conditional on their interplay.

$X_{i,c,t}$ is a vector of bank-level (CAMEL-type) controls, including the Tier 1 capital ratio (capital adequacy), the loan loss to non-interest income ratio (asset quality), return on equity (earnings), and non-interest income to total assets (management efficiency/diversification). $Z_{c,t}$ is a vector of country-level macroeconomic controls, comprising GDP growth and the GDP deflator (inflation). $Crisis_t$ is a dummy variable equal to one for the years 2008–2009, corresponding to the Global Financial Crisis, and zero otherwise, included to control for the abnormal deposit-pricing behaviour observed during this period. $\varepsilon_{i,c,t}$ is the idiosyncratic error term.

4.5. Estimation Method

Equation (5) is estimated using the within (fixed effects) estimator for panel data, which removes all time-invariant bank-specific heterogeneity by demeaning the data at the bank level. Bank and year fixed effects are included throughout. Standard errors are clustered at the country level, to account for potential correlation of the error term within countries and heteroskedasticity across banks.

Given the strong correlation across the six governance dimensions, we estimate six separate versions of Equation (5), replacing $Governance_{c,t}$ with each institutional indicator in turn. This approach allows us to assess whether our results are driven by a specific dimension of institutional quality or are robust across the broader concept of governance.

4.6. Robustness Checks

To assess the robustness of our findings, we conduct the following additional analyses:

1. **Alternative financialization measures**: We re-estimate the model using a subset of financialization indicators with broader country coverage, to verify that our results are not driven by the limited sample of countries with complete data on all five original indicators.
2. **Sub-sample analysis**: We re-estimate the model excluding crisis years (2008–2009) to verify that the results are not driven by the extreme conditions of the global financial crisis.
3. **Alternative risk measures**: We replace the Z-score with alternative bank risk proxies like loanloss/NII (the non-performing loan ratio), to confirm the robustness of our findings.
4. **Placebo/falsification tests**

5. Results

5.1. Financial regulations and deposit growth

Table 4 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.

5.2. Governance quality and deposit growth

Table 5 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.

5.3. The triple interaction

Table6 examines the relationship between governance quality and bank risk's decisions using panel regression methods. Results indicate that stronger voice and transparency is significantly negatively associated with deposits, suggesting that banks with better voice and transparency have lower deposits for advanced economies($\beta = -1.82816, p = 0.0022 * **$). Also, higher rule of law amplifies the risk-financialization relationship for advanced economies ($\beta = 1.11938, p = 0.0000 * **$).

Table7 examines the relationship between bank risk, regulation, and financialization using panel regression methods. Results indicate that stronger ENTRY regulations is significantly positively associated with equity ratios, suggesting that banks with better regulations on entry and exit maintain higher equity cushions and rely less on debt financing ($\beta = 0.11526, p = 0.0381 * *$) for advanced economies only. Similarly we find state as the most important factor among others. Higher State ownership reduces the deposits ($\beta = -0.09509, p = 0.0043 * **$). Variables capturing the interaction between equity levels and restrictions were dropped due to perfect collinearity, indicating potential measurement overlap. Overall findings support the view lesser state interference and more entry and exit compliances increases market discipline for advanced economies.

Table 4 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%.

5.4. Robustness checks

To address the potential endogeneity and reverse causality concerns between deposits, governance quality, financial regulations and bank characteristics, we 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

Table 5: 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%.

Table 6 Triple Interaction Models: Bank Risk, Governance, and Financialization

	Dependent variable: Deposits									
	Voice		Pol.Stab		Gov.Eff		Reg.Qual		Rule Law	
	(A)	(E)	(A)	(E)	(A)	(E)	(A)	(E)	(A)	(E)
Zscore	−114.46***	−1.69	−7.17	1.79	−69.72	−0.70	−12.00	−1.37	74.37***	−3.15
	(41.76)	(3.27)	(12.48)	(2.75)	(51.22)	(2.35)	(20.64)	(2.23)	(19.93)	(2.71)
voice	−1,952.77***	−48.38								
	(481.46)	(70.13)								
PolStab			−199.96	19.74						
			(486.48)	(55.51)						
GovStab					−588.76*	43.99				
					(356.08)	(32.91)				
Reg							−91.96	4.79		
							(159.67)	(58.01)		
rulelaw									688.40***	276.28***
									(193.07)	(80.80)
fin	−42.86***	−2.22*	−5.73	0.15	−15.85	−2.32***	−4.33	−1.99**	20.24***	−1.47
	(12.74)	(1.20)	(5.18)	(1.68)	(12.72)	(0.89)	(5.73)	(0.90)	(5.68)	(1.43)
Zscore*voice	93.17***	3.07								
	(29.35)	(3.83)								
Zscore*PolStab			3.30	0.37						
			(21.42)	(3.56)						
Zscore*GovStab					43.00	−2.63				
					(31.10)	(2.46)				
Zscore*Reg							0.99	1.04		
							(10.98)	(3.33)		
Zscore*rulelaw									−51.44***	−9.25**
									(12.24)	(4.53)
Zscore*fin	2.19***	0.05	0.16	0.06	1.42	−0.0004	0.08	0.05	−1.62***	0.03
	(0.77)	(0.17)	(0.20)	(0.08)	(1.12)	(0.06)	(0.44)	(0.07)	(0.40)	(0.08)
voice*fin	37.23***	1.12								
	(10.42)	(2.20)								
PolStab*fin			5.37	0.17						
			(7.90)	(3.08)						
GovStab*fin					10.61	−1.99				
					(7.62)	(3.46)				
Reg*fin							1.80	1.07		
							(2.97)	(3.05)		
rulelaw*fin									−11.05***	1.98
									(3.21)	(2.44)
Triple interaction terms										
Zscore*voice*fin	−1.83***	−0.09								
	(0.60)	(0.25)								
Zscore*PolStab*fin			−0.09	0.07						
			(0.36)	(0.20)						
Zscore*GovStab*fin					−0.87	0.10				
					(0.68)	(0.25)				
Zscore*Reg*fin							0.09	−0.04		
							(0.24)	(0.20)		
Zscore*rulelaw*fin									1.12***	−0.22
									(0.26)	(0.19)
T1capitalratio	0.09	−0.05	0.10	−0.06	0.10	−0.05	0.12	−0.06	0.08	−0.08
	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)
log(totalassets)	35.43***	18.50***	35.86***	17.17***	36.47***	19.23***	36.71***	16.93***	35.26***	15.25***
	(5.69)	(3.90)	(5.73)	(3.89)	(5.76)	(3.95)	(5.70)	(3.99)	(5.67)	(3.96)
bankroe	1.85	−1.61***	0.43	−1.10**	0.32	−1.82***	1.06	−1.25***	0.90	−1.29***
	(1.30)	(0.39)	(0.77)	(0.53)	(0.79)	(0.42)	(0.82)	(0.40)	(0.95)	(0.34)
NII_Totalassets	−0.41**	−0.04	−0.38*	−0.08	−0.40*	−0.04	−0.46**	−0.05	−0.55***	−0.09
	(0.21)	(0.15)	(0.21)	(0.15)	(0.21)	(0.15)	(0.21)	(0.15)	(0.21)	(0.15)
Loanloss_NII	0.01	0.001	0.01	0.001	0.01	0.001	0.01	0.001	0.01	0.001
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Bankconcentration	2.21	0.52***	1.33	−0.22	−0.75	0.40**	−0.93	0.47***	−0.87	0.21
	(2.78)	(0.20)	(2.36)	(0.37)	(1.99)	(0.18)	(1.89)	(0.18)	(2.19)	(0.19)
GDPdeflator	5.93***	−0.69	3.45*	−0.73	1.51	−0.74*	−0.10	−0.85**	7.17***	−2.29***
	(1.93)	(0.53)	(1.86)	(0.50)	(2.15)	(0.42)	(1.78)	(0.36)	(2.15)	(0.51)
GDPgrowth	8.72***	1.35	5.13**	0.07	7.33***	1.05	8.81***	0.46	14.16***	0.02
	(2.93)	(1.01)	(2.07)	(0.93)	(2.74)	(0.78)	(2.04)	(0.93)	(2.36)	(0.74)
Observations	1,167	906	1,167	906	1,167	906	1,167	906	1,167	906
R^2	0.12	0.14	0.11	0.16	0.09	0.15	0.11	0.15	0.12	0.17
Bank FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: *p<0.1; **p<0.05; ***p<0.01

Table 7 Triple Interaction Models: Bank Risk, Regulation, and Financialization

	Dependent variable: Deposits									
	ENTRY		RESTRICT		FORENTRY		OFFICIAL		STATE	
	(A)	(E)	(A)	(E)	(A)	(E)	(A)	(E)	(A)	(E)
equity	4.47	0.60	2.20	0.58	1.94	0.60	2.05	0.55	2.42	0.68
	(2.88)	(0.57)	(2.21)	(0.55)	(2.16)	(0.55)	(2.17)	(0.83)	(2.18)	(0.64)
ENTRY	50.66*	3.54								
	(28.38)	(8.00)								
RESTRICT			37.98*	−33.46						
			(21.31)	(26.55)						
OFFICIAL							−35.39**	−0.64		
							(16.01)	(7.22)		
STATE									−58.62***	−4.99
									(17.85)	(6.70)
fin	2.62*	−1.77***	3.38**	−1.55***	2.38*	−1.64***	3.21**	−1.70**	2.76*	−1.70***
	(1.57)	(0.58)	(1.54)	(0.56)	(1.44)	(0.54)	(1.57)	(0.73)	(1.50)	(0.60)
equity*ENTRY	−4.68*	−0.03								
	(2.61)	(0.50)								
equity*RESTRICT			−2.70	4.04						
			(2.13)	(3.64)						
equity*OFFICIAL							2.22	0.05		
							(1.65)	(0.50)		
equity*STATE									4.29***	−0.21
									(1.64)	(0.33)
equity*fin	−0.09	0.003	−0.04	0.003	−0.03	0.002	−0.03	0.01	−0.04	−0.01
	(0.06)	(0.02)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)	(0.05)	(0.04)	(0.03)
ENTRY*fin	−1.26**	0.02								
	(0.59)	(0.37)								
RESTRICT*fin			−0.57*							
			(0.31)							
OFFICIAL*fin							0.75**	0.02		
							(0.29)	(0.37)		
STATE*fin									1.26***	−0.39*
									(0.31)	(0.22)
Triple interaction terms										
equity*ENTRY*fin	0.12**	0.001								
	(0.06)	(0.04)								
equity*RESTRICT*fin			0.03							
			(0.04)							
equity*OFFICIAL*fin							−0.05	−0.005		
							(0.03)	(0.04)		
equity*STATE*fin									−0.10***	0.03
									(0.03)	(0.02)
T1capitalratio	0.09	−0.16	0.04	−0.16	0.06	−0.16	0.05	−0.16	0.07	−0.16
	(0.09)	(0.11)	(0.09)	(0.10)	(0.09)	(0.10)	(0.09)	(0.11)	(0.09)	(0.10)
log(totalassets)	38.79***	21.17***	35.77***	21.33***	36.75***	21.06***	36.43***	21.10***	37.35***	19.73***
	(5.99)	(4.15)	(5.91)	(4.10)	(5.90)	(4.09)	(5.95)	(4.14)	(5.94)	(4.17)
bankroe	0.05	−1.65***	0.03	−1.59***	−0.01	−1.66***	−0.05	−1.67***	0.30	−1.64***
	(0.33)	(0.28)	(0.34)	(0.30)	(0.33)	(0.28)	(0.33)	(0.28)	(0.34)	(0.28)
NII_Totalassets	−0.27	−0.03	−0.27	−0.02	−0.30	−0.02	−0.29	−0.03	−0.29	−0.06
	(0.21)	(0.15)	(0.21)	(0.14)	(0.21)	(0.14)	(0.21)	(0.15)	(0.21)	(0.15)
Loanloss_NII	0.01	0.004	0.01	0.004	0.01	0.004	0.01	0.004	0.01	0.003
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Bankconcentration	0.58	0.44***	−0.67	0.39***	0.05	0.40***	−0.30	0.42***	0.15	0.49***
	(1.39)	(0.16)	(1.27)	(0.15)	(1.23)	(0.15)	(1.30)	(0.16)	(1.25)	(0.15)
GDPdeflator	3.54*	−0.88***	2.66*	−0.88***	2.71*	−0.91***	3.66**	−0.91***	4.00**	−0.68**
	(1.87)	(0.33)	(1.55)	(0.32)	(1.55)	(0.31)	(1.63)	(0.32)	(1.62)	(0.33)
GDPgrowth	8.32***	0.57	8.49***	0.77	8.34***	0.75	8.49***	0.73	6.07***	0.50
	(1.97)	(0.77)	(1.93)	(0.68)	(1.93)	(0.68)	(1.97)	(0.75)	(2.12)	(0.77)
Observations	1,167	906	1,167	906	1,167	906	1,167	906	1,167	906
R^2	0.10	0.15	0.10	0.15	0.09	0.15	0.10	0.15	0.11	0.15
Bank FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: *p<0.1; **p<0.05; ***p<0.01

space limitations, the main results remain consistent.

6. Conclusion

In this paper, I estimate the impact of financial regulations, governance quality and financialization on deposit growth in a cross-country setup. There is evidence that depositors are sensitive to the quality of governance in advanced economies. Deposits are significantly negatively correlated with stronger voice and transparency. Market discipline is negatively impacted by higher government ownership and more supervisory control; and Equity ratios are significantly positively correlated with stronger ENTRY regulations. Overall results provide credence to the idea that more entrance and exit compliance and less governmental intervention improve market discipline in developed economies.

Appendix

A. Construction of Financialization Index I construct a financialization index using Principal Component Analysis (PCA) with five indicators: bank assets to GDP, private credit to GDP, stock market capitalization to GDP, life insurance premium volume to GDP, and non-life insurance premium volume to GDP. The first principal component explains 74.14% of the total variance, indicating a strong common dimension of financialization across these indicators.

Table 8 Principal Component Analysis: Component Loadings and Relative Importance

Financialization Indicator	**Loading on PC1**	**Relative Importance**
Non-life Insurance Premium/GDP	-0.481	Strongest driver
Private Credit/GDP	-0.478	Very strong
Life Insurance Premium/GDP	-0.478	Very strong
Bank Assets/GDP	-0.457	Strong
Stock Market Capitalization/GDP	-0.320	Moderate
Variance Explained by PC1		**74.14%**

Notes: This table reports the component loadings of five financialization indicators on the first principal component (PC1) from Principal Component Analysis. Higher absolute loadings indicate stronger contribution to the index. All loadings are negative. The first principal component explains 74.14% of the total variance across all indicators, suggesting a strong common dimension of financialization.

B. Analysis

All five indicators load positively on the first principal component with relatively balanced contributions (loadings ranging from 0.32 to 0.48). Non-life insurance (0.481), private credit (0.478), and life insurance (0.478) are the strongest contributors, while stock market capitalization (0.320) has a somewhat weaker but still substantial contribution. This suggests that financialization in sample is driven primarily by credit expansion and insurance penetration, with capital market development playing a supporting role.

The index is computed as:

$$FI_{it} = 0.481 \times \widetilde{NLI}_{it} + 0.478 \times \widetilde{PC}_{it} + 0.478 \times \widetilde{LI}_{it} + 0.457 \times \widetilde{BA}_{it} + 0.320 \times \widetilde{SMC}_{it} \quad (6)$$

where FI_{it} denotes the financialization index for country i in year t, and the five components represent standardized values of:

Figure 1 Note: Higher value indicates lower financialization

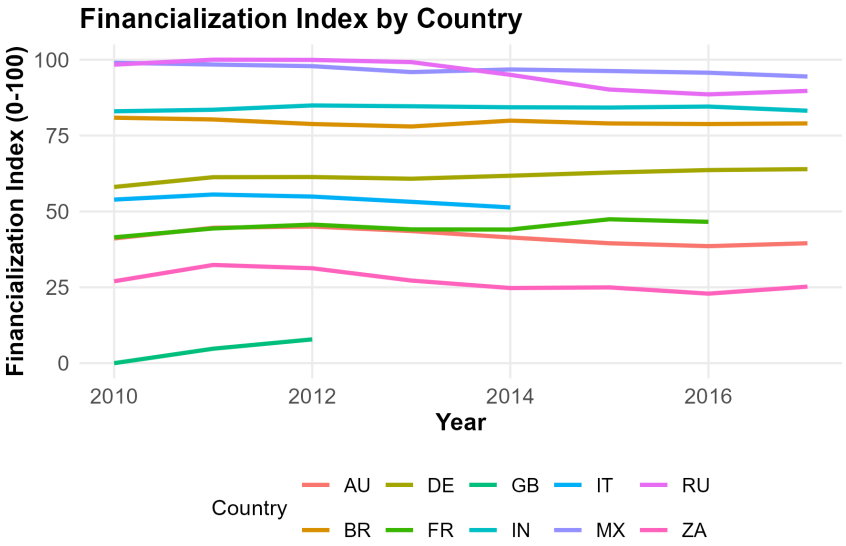


Figure 2

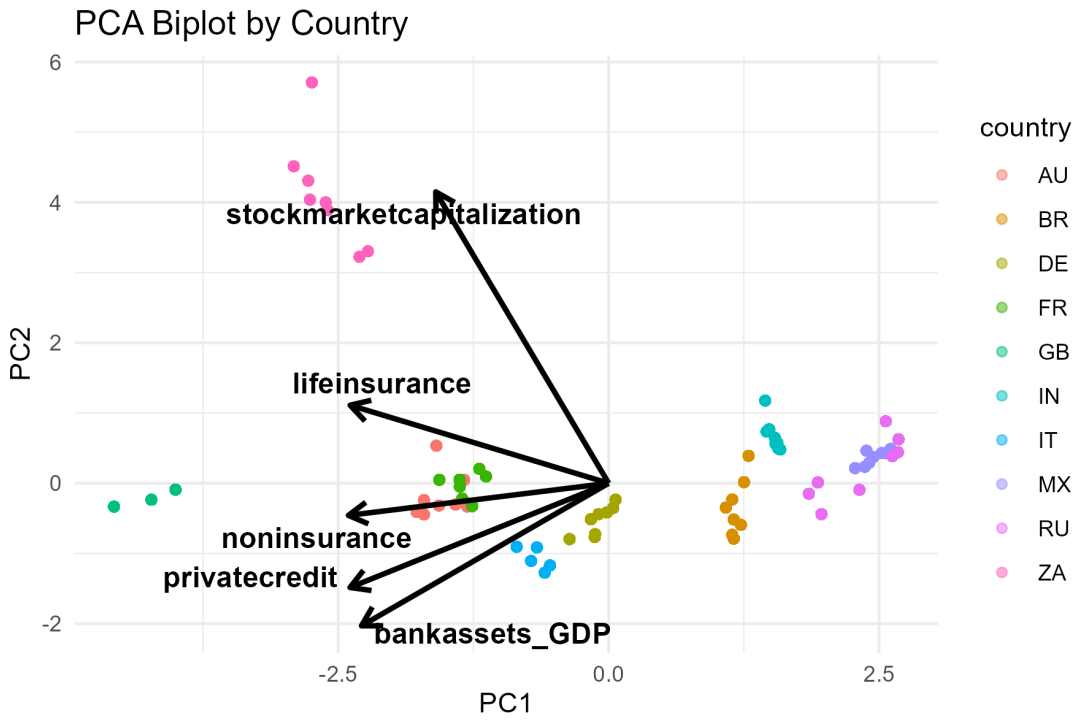


Figure 3

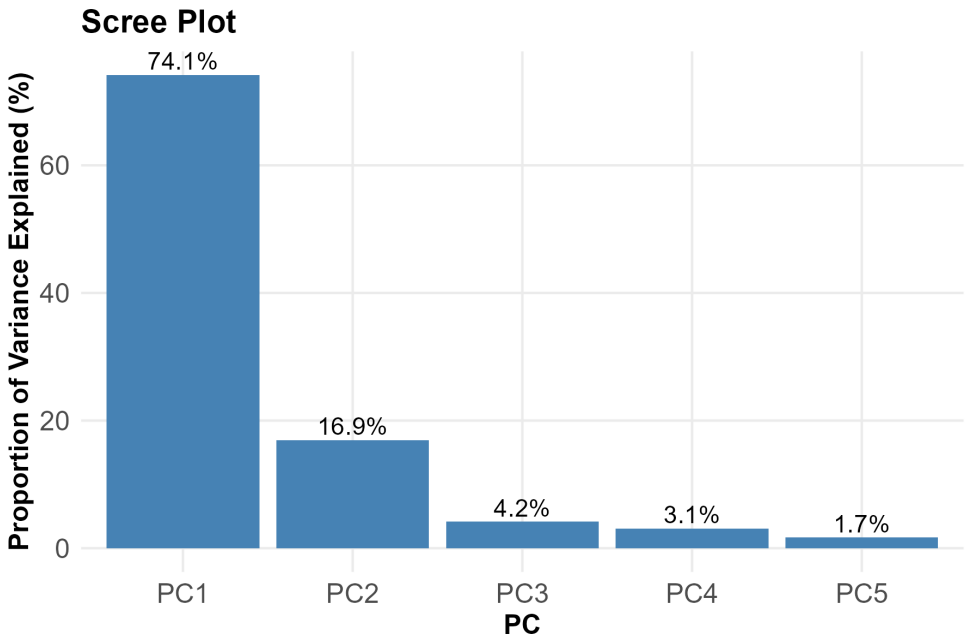
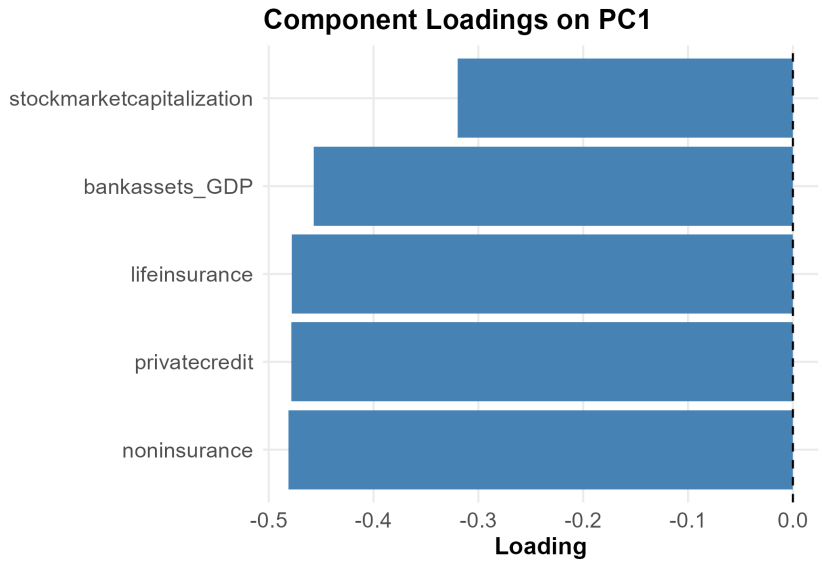


Figure 4



- $\widetilde{NLI}_{it}$: Non-life insurance premium volume to GDP
- $\widetilde{PC}_{it}$: Private credit by deposit money banks to GDP
- $\widetilde{LI}_{it}$: Life insurance premium volume to GDP
- $\widetilde{BA}_{it}$: Bank assets to GDP
- $\widetilde{SMC}_{it}$: Stock market capitalization to GDP

$$FI_{it} = \sum_{j=1}^{5} w_j \times \frac{X_{ijt} - \bar{X}_j}{\sigma_j} \tag{7}$$

where w_j are the PC1 loadings and X_{ijt} are the standardized indicators.

References

Barth, J. R., Caprio Jr, G., Levine, R., 2016. Bank supervision: Data for assessing the effectiveness of supervision. Journal of Financial Intermediation 25, 1–41.

Beck, T., Demirgüç-Kunt, A., Levine, R., 2006. Bank concentration, competition, and crises first results. Journal of Banking and Finance 30 (5), 1581–1603.

Bermpei, T., Kalyvas, A., Nguyen, T. C., 2018. Does institutional quality condition the effect of bank regulations and supervision on bank stability? evidence from emerging and developing economies. International Review of Financial Analysis 59, 255–275.

Bonizzi, B., 2013. Financialization in developing and emerging countries: A survey. International Journal of Political Economy 42 (4), 83–107.

Cubillas, E., Fonseca, A., Gonzalez, F., 2012. Banking crisis and market discipline: International evidence. Journal of Banking & Finance 36, 2285–2298.

Demirgüç-Kunt, A., Detragiache, E., 1998. The determinants of banking crises in developing and developed countries. International Monetary Fund Staff Papers 45 (1), 81–109.

Demirgüç-Kunt, A., Huizinga, H., 2004. Market discipline and deposit insurance. Journal of Monetary Economics 51 (2), 375–399.

Demirgüç-Kunt, A., Levine, R., 2001. Financial structure and economic growth: A cross-country comparison of banks, markets, and development. Journal of Financial Economics 58 (1-2), 214–242.

Ellis, D. M., Flannery, M. J., 1992. Does the debt market assess large banks' risk? time series evidence from money center CDs. Journal of Monetary Economics 30 (3), 481–502.

Epstein, G. A. (Ed.), 2005. Financialization and the World Economy. Edward Elgar Publishing, Cheltenham, UK.

Fakhrunnas, F., Anto, M. B. H., El Hasanah, L. L. N., Fithria, A., 2025. The nexus of institutional quality and default risk in a dual banking system: Cross-country evidence. Banks and Bank Systems 20 (3), 191–202.

Flannery, M. J., Sorescu, S. M., 1996. Evidence of bank market discipline in subordinated debenture yields: 1983–1991. Journal of Finance 51 (4), 1347–1377.

Ghosh, S., Das, A., 2006. Depositor discipline in the banking sector in india: An empirical investigation. The Journal of Quantitative Economics, 49–73.

Gropp, R., Vesala, J. M., 2001. Deposit insurance and moral hazard: Does the counterfactual matter?, eCB Working Paper No. 47.

Hadad, M. D., Agusman, A., Monroe, G. S., Gasbarro, D., Zumwalt, J. K., 2011. Market discipline, financial crisis and regulatory changes: Evidence from Indonesian banks. Journal of Banking & Finance 35 (6), 1552–1562.

Kaufman, D., Kraay, A., Zoido-Lobaton, P., 2001. Governance matters ii: Update indicators for 2000/01. World Bank.

Kunt, A., Huizinga, H., 2004. Market discipline and deposit insurance. Journal of Monetary Economics 51, 375–399.

Laeven, L., Levine, R., 2009. Bank governance, regulation and risk taking. Journal of Financial Economics 93 (2), 259–275.

Laeven, L., Valencia, F., 2012. Systemic banking crises database: an update. International Monetary Fund.

Lapavitsas, C., Soydan, A., 2022. Financialisation in developing countries: approaches, concepts, and metrics. International Review of Applied Economics 36 (3), 424–447.

Martinez Peria, M. S., Schmukler, S. L., 2001. Do depositors punish banks for bad behavior? market discipline, deposit insurance, and banking crises. Journal of Finance 56 (3), 1029–1051.

Nobanee, H., Shanti, H., Shikder, A., Almarzooqi, M., Vaz, A., Masood, S., 2023. Financialization: A bibliometric review, research streams, influential works, and future research paths. Cogent Social Sciences 9 (2).

Peria, M., Schmukler, S., 2001. Do depositors punish banks for bad behavior: Market discipline, deposit insurance, and banking crises. The Journal of Finance 56 (3), 1029–1051.

Qi, H., 2019. A new literature review on financialization. Journal of Accounting, Business and Finance Research 7 (2), 40–50.

Uddin, A., Chowdhury, M. A. F., Sajib, S. D., Masih, M., 2020. Revisiting the impact of institutional quality on post-GFC bank risk-taking: Evidence from emerging countries. Emerging Markets Review 42, 100659.

Wang, P., Chen, M., Wu, J., Yan, Y., 2024. Bank connectedness and excessive risk-taking: Some cross-country evidence. Finance Research Letters 60, 104921.