BANK PARIKRAMA

A Journal of Banking & Finance

DOI: https://doi.org/10.64204/BP1019-7044

Volume 50, No. 1, June 2025

DOI: https://doi.org/10.64204/BP1019-7044/Vol50(1)

- Mohammad Kabir Hassan — Ethics in Banking: Roots and Repercussions: Unraveling the Ethical Crisis in Bangladesh's Banking Sector
- Shaikh Masrick Hasan, Priya Saha — Analyzing Stock Returns of Non-Life Insurance Firms: The Role of Investor Attention
- Mohammad Barkat Ullah Chowdhury, Mohammad Tazul Islam, Md. Shihab Uddin Khan — Application and Applicability of Theory Z in Banks: Evidence from an Emerging Economy
- Mohd. Anisul Islam, Noyon Islam — Bid-Ask Spread in Financial Market: Insights from Search Engine Query Data
- Md. Shahid Ullah — Country Governance and Corporate Social Responsibility Reporting: Empirical Evidence from Developing Countries
- Tabassum Chowdhury, S. M. Sohrab Uddin — Does Income Diversification Moderate Intellectual Capital–Performance Nexus? – An Empirical Analysis from Bangladesh
- Sakib Bin Amin, Mainul Islam Chowdhury, Javed Hossain — Evaluating the Effectiveness of Fiscal and Monetary Policy in the Bangladeshi Economy: A HANK-DSGE Analysis
- Syed Nazrul Islam — The Evil Act of Posing as an Angel: Can Financial Development Mitigate the Negative Effects of Corruption on Inward Foreign Direct Investment?
- Robin Chandra Paul — The Impact of Central Bank Independence on Inflation: An Empirical Evidence from Developing Countries

Note for Contributors and General Readers

www.journal.bibm.org.bd

Semi-annual Journal of Bangladesh Institute of Bank Management (BIBM)

BANK PARIKRAMA

A Journal of Banking & Finance

DOI: https://doi.org/10.64204/BP1019-7044

Volume 50, No. 1, June 2025

DOI: https://doi.org/10.64204/BP1019-7044/Vol50(1)

BANGLADESH INSTITUTE OF BANK MANAGEMENT (BIBM)

ISSN 1019-7044

Editorial Advisory Committee

Mustafa K. Mujeri, Ph.D.
Executive Director, Institute of Inclusive Finance & Development (InM) and Former Director General Bangladesh Institute of Development Studies (BIDS)

Mohammad Sohrab Uddin, Ph.D.
Former Deputy Governor, Bangladesh Bank and Fellow Member, BIBM

Barkat-e-Khuda, Ph.D.
Former Dr. Muzaffer Ahmad Chair Professor, BIBM and Former Chairman & Professor of Economics University of Dhaka

Motiur Rahman, Ph.D.
Associate Dean for Assessment and Accreditation/ Professor, McNeese State University United States of America

M. A. Baqui Khalily, Ph.D.
Former Professor, University of Dhaka and former Executive Director, Institute of Inclusive Finance & Development (InM)

Zahid Hussain, Ph.D.
Former Lead Economist World Bank's Dhaka Office

Mohammad Kabir Hossan
Professor of Finance, Department of Economics and Finance
University of New Orleans, United States of America

Editorial Committee

Chairman

S. M. Abdul Hakim
Director General, Bangladesh Institute of Bank Management (BIBM)

Members

Shah Md. Ahsan Habib, Ph.D.
Professor (Selection Grade), BIBM

Prashanta Kumar Banerjee, Ph.D.
Professor (Selection Grade), BIBM

Mohammad Mohiuddin Siddique
Professor (Selection Grade), BIBM

Md. Nehal Ahmed
Professor (Selection Grade) and Director (Dhaka School of Bank Management), BIBM

Executive Editor

Md. Shihab Uddin Khan
Professor and
Director (Research, Development & Consultancy), BIBM

Editorial Associates

Mohammad Tazul Islam, Ph.D.
Professor & Director (Certification), BIBM

Md. Shahid Ullah, Ph.D.
Associate Professor, BIBM

Md. Mosharref Hossain, Ph.D.
Associate Professor, BIBM

Md. Mahabbat Hossain, Ph.D.
Associate Professor, BIBM

Member Secretary

Papon Tabassum
Assistant Senior Officer, BIBM

Contents

	Title of the Article and Name of the Author(s)	Page No.
1	**Ethics in Banking: Roots and Repercussions: Unraveling the Ethical Crisis in Bangladesh's Banking Sector** - Mohammad Kabir Hassan	5-119
2	**Analyzing Stock Returns of Non-Life Insurance Firms: The Role of Investor Attention** - Shaikh Masrick Hasan - Priya Saha	120-150
3	**Application and Applicability of Theory Z in Banks: Evidence from an Emerging Economy** - Mohammad Barkat Ullah Chowdhury - Mohammad Tazul Islam - Md. Shihab Uddin Khan	151-180
4	**Bid-Ask Spread in Financial Market: Insights from Search Engine Query Data** - Mohd. Anisul Islam - Noyon Islam	181-203
5	**Country Governance and Corporate Social Responsibility Reporting: Empirical Evidence from Developing Countries** - Md. Shahid Ullah	204-231
6	**Does Income Diversification Moderate Intellectual Capital–Performance Nexus? - An Empirical Analysis from Bangladesh** - Tabassum Chowdhury - S. M. Sohrab Uddin	232-255
7	**Evaluating the Effectiveness of Fiscal and Monetary Policy in the Bangladeshi Economy: A HANK-DSGE Analysis** - Sakib Bin Amin - Mainul Islam Chowdhury - Javed Hossain	256-286
8	**The Evil Act of Posing as an Angel: Can Financial Development Mitigate the Negative Effects of Corruption on Inward Foreign Direct Investment?** - Syed Nazrul Islam	287-331
9	**The Impact of Central Bank Independence on Inflation: Evidence from Developing Countries** - Robin Chandra Paul	332-357
Note for Contributors and General Readers		358

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 5-119)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20251

Ethics in Banking: Roots and Repercussions: Unraveling the Ethical Crisis in Bangladesh's Banking Sector

- Mohammad Kabir Hassan*

I am deeply grateful to my research associates, Dr. Md. Nuruddin Kaosar, Md. Naiem Hossain and Md. Rezoanul Haque, whose diligence and professionalism sustained this project from start to finish. My sincere thanks go to colleagues at BIBM, especially Dr. Mohammad Akhtaruzzaman, former Director General, for his encouragement and support, and to Professor Md. Shihab Uddin Khan for mobilizing and overseeing the distribution of the questionnaire, and to Papon Tabassum for looking after the logistics of my BIBM lecture. I also acknowledge the many banking-sector officials and practitioners who generously shared their time and insights; this lecture—and the research underpinning it—would not have been possible without your cooperation. Finally, I would like to thank Dr. Makeen Huda for his careful editorial assistance. The author acknowledges the use of artificial intelligence (AI) tools, including OpenAI's GPT-5 language model, to assist in drafting, language refinement, and structural organization of this manuscript. All ideas, interpretations, theoretical contributions, and conclusions are those of the author. The AI tools were employed solely to enhance clarity, coherence, and presentation.

Abstract

This study reinterprets Bangladesh's banking crisis as primarily an ethical and governance breakdown rather than a technical failure of financial intermediation. Using a mixed-methods design—qualitative case studies, expert interviews, and a multi-stakeholder survey of 205 respondents (25.5% response rate)—we show that systemic instability is rooted in three mutually reinforcing drivers: (i) political capture of

*Mohammad Kabir Hassan, Ph.D. is Department of Economics and Finance, University of New Orleans, United States of America, Email: kabirhassan63@gmail.com. The lecture was presented in the 22th Nurul Matin Memorial Lecture on Ethics in Banking, organized by Bangladesh Institute of Bank Management (BIBM), held on May 22, 2025. The views expressed in this lecture are the author's own.

regulatory institutions via complicit actors; (ii) deliberate neutralization of core governance functions; and (iii) strategic disregard for prudential norms. Anchored in dialectical theory, we model institutional responses to crisis as recurring thesis–antithesis–synthesis cycles, situating the 2025 Bank Resolution Ordinance (B.R.O.) within this regulatory dialectic. The empirical base spans major scandals from 2009–2024 across conventional and Islamic banks, tracing how political patronage networks enabled formalized fraud, impunity, and cross-sector procedural irregularities. We find the most consequential interference occurred in Islamic banks—despite their Shariah-based ethical claims—through a nexus of political and regulatory influence. Policy implications are clear: viable recovery requires reengineering governance cultures, instituting credible safeguards for regulatory independence, and operationalizing meaningful accountability mechanisms. These results inform debates on banking accountability and state capacity in developing economies where political interference and institutional fragility undermine financial stability and trust (see, e.g., Janbaz et al., 2024).

Keywords: Banking crisis; Banking ethics; Regulatory capture; Political patronage; Governance failure; Islamic banking; Dialectical analysis; Bangladesh.

JEL Classification: G01 (Financial Crises); G21 (Banks; Depository Institutions); G28 (Government Policy and Regulation); D73 (Bureaucracy; Corruption); K42 (Illegal Behavior and Enforcement); O16 (Financial Markets; Institutions and Development).

1. Introduction

1.1. Background and Context

Recent discussions about instability in banking sectors of developing economies often emphasize technocratic understandings based on capital adequacy ratios, non-performing loan practices, risk assessment techniques, and regulatory compliance arrangements. Although useful, this technocratic orientation contains a fallacy in terms of its fundamentally incomplete way of understanding systemic banking failures in contexts where institutional governance arrangements are structurally politicized and informal relations and networks undermine formal regulatory arrangements. The crisis engulfing Bangladesh’s banking sector, including unprecedented levels of loan default activity, endemic regulatory failure, and lack of public trust, indicates that we need to take a more nuanced view of the political economy context of institutional collapse.

This research presents a critical analytic frame that offers a counter to the technocratic narratives of Bangladesh's banking crisis. It shows that systemic failure is not about technical failures in supervision and risk management

processes or even in increasingly strict capital requirements, but about ethical failures and democratic breakdowns that are causing systemic instability. The analysis puts into question the view that the banking sector can fix itself by solving the political and ethical crises of legitimacy through technical fixes to supervision, risk management, and capital requirements. This theoretical reframing of the banking crisis in Bangladesh has important implications beyond the specific conditions of Bangladesh, thus facilitating more effective analysis of the nature of financial sector governance in developing economies in general. This study employs dialectical theory to explore regulatory development and institutional change, providing conceptual tools to examine how crisis moments create opportunities for new progressive regulation and the risk of reverting to institutional capture.

Bangladesh's banking industry is crucial in driving economic growth and facilitating savings, investments, and credit allocation. It consists of 90% of Bangladesh's total financial sector assets. It saw a record improvement in deposit growth during the last quarter of 2024. As of June 2024, total deposits were 9.60%, up from 8.85% in March 2024. As of 2024, 62 banking institutions, including 43 domestic private commercial banks, operate in the country, with assets equivalent to 67% of GDP [1]. Bangladesh has experienced substantial economic growth, driven by the ready-made garment (RMG) industry, increased agricultural production, remittances, and the development of small and medium-sized enterprises (SMEs). The two industries that contribute the most to the economy are remittances and ready-made garments (RMG). The banking sector, comprising both state-run banks and private commercial banks, provides vital financial support to these industries.

Moreover, the banking sector in Bangladesh is working tirelessly to support the government in achieving the Sustainable Development Goals (SDGs), such as eradicating poverty, providing safe and nutritious food, and ensuring a healthy lifestyle. Since Bangladesh's independence in 1971, its banking industry has undergone significant transformation and is closely tied to the industrial growth of the developing economy. However, organizational inefficiencies, poor governance, and political involvement have added to the sector's systemic

weaknesses over time. Furthermore, the level of corruption may have increased as the wealth and capital accumulation levels increased over the last few decades. This study highlights the connections between banking corruption and the political legacy of the previous administration.

Bangladesh's banking industry combines state-owned commercial banks (SOCBs), private commercial banks, and foreign banks. Economic freedom in the 1980s and 1990s led to the re-privatization of several state-owned banks, ushering in competition and driving reform. However, corruption, inefficiency, and poor risk management have frequently hampered their success. Despite the expansion of private and Islamic banks, state-owned banks continue to account for the majority of assets and liabilities. Initially, these reformations heightened the sector's efficiency. After 2009, however, difficulties arose when the government began issuing licenses for new banks, prompted more by political interests than the country's economic or ethical considerations. Although many observers, including the executive director of the Institute for Inclusive Finance and Development (InM), Mustafa K. Mujeri, have warned the government that Bangladesh's economy does not require any new banks, the political administration has disregarded their concerns [2]. He also notes that due to this expansion, bank management, the central bank, and the government faced a conflict of interest, resulting in rampant misconduct and corruption. Banking expansion could have presented far-reaching opportunities for Bangladesh if structural reforms and professional approaches had been encouraged. In contrast, political motives have facilitated the illegal appropriation of public funds, with substantial amounts being laundered in other countries.

Furthermore, the industry has been marred by recent scandals, including those at BASIC Bank, Farmers Bank (now Padma Bank), Sonali Bank (Hall-Mark Scam), Pubali Bank, Janata Bank, Islami Bank Bangladesh Ltd., ICB Islamic Bank, IFIC Bank, and First Security Islami Bank. Such scandals are often attributed to ethical flaws, ranging from political interference and corruption to poor governance. For example, according to the white paper (2024) [3], political interference in loan sanctioning from various banks was a common practice in Bangladesh during the last government's tenure, resulting in the banking sector

crisis. The report, moreover, reveals that as of June 2024, the total corrupted assets or the total loan amount was equivalent to the total budget of 14 Dhaka Metro systems or 24 Padma Bridges. As a result, these concerns intensify financial fragility and weaken public trust. Significant cases of misused loans and broken governance highlight the importance of overcoming ethical flaws [3].

On the other hand, non-performing loans (NPLs) persisted in a serious technical challenge, escalating to their extreme levels in the previous decade. State-owned commercial banks contributed the most to the gross NPL ratio's rise from 11.11% in Q3FY24 to 12.56% in Q4FY24. The key reasons behind the skyrocketing NPLs of these state-owned commercial banks are political interference in loan decisions and favoritism that hinders accountability. A significant conflict may arise, as many believe that technical issues were the primary cause of the banking sector crisis during the last decade, while others think that ethical flaws were the key underlying cause, thereby underscoring the need for a comprehensive investigation. From another perspective, while technical and regulatory resolutions may afford temporary relief, the systemic basis of these issues necessitates a thorough investigation.

1.2. Ethics in Banking

The banking industry is grounded in ethics, which consist of moral principles and standards of conduct regulating the activities of financial institutions and their stakeholders. Many aspects of the comprehensive thesis "Ethics in Banking: A Compilation of Twenty Nurul Matin Memorial Lectures" stand out as essential to understanding the current crisis in Bangladesh, and accordingly, we will identify several principal dimensions of banking ethics that are highlighted in the analysis. One dimension dealing with banking ethics is fiduciary duty. Because banks accept public deposits, they have a moral obligation to safeguard the funds of depositors and make prudent resource allocations. The term 'fiduciary' not only includes the customary legal obligations on behalf of a bank, but a more profound statutory commitment to the public interest. This moral obligation is breached when a bank's actions contravene the fiduciary standard (e.g., predatory lending practices, political involvement, or engaging in fraudulent

practices/transactions), thereby eroding public confidence in banking and causing instability in the banking sector.

Honesty and impartiality are other fundamental dimensions of ethics in banking. Bank managers and executives are expected to act impartially and without ulterior motives when conducting business, thereby eliminating conflicts of interest. However, ethical impartiality has been systematically undermined in Bangladesh due to the political involvement of connected individuals and institutions; the preferential treatment of a select few borrowers generates substantial conflict.

Trustworthiness is a fundamental component that creates the relationship between banks, depositors, and borrowers. Trustworthiness is built by banks consistently exhibiting integrity, transparency, and accountability in all their conduct. However, trustworthiness erodes when banks engage in unethical conduct (e.g., deceptive conduct, lack of accountability, and even manipulating financial statements), which invariably introduces instability to the banking ecosystem. The significance of ethical leadership in developing and sustaining the organizational culture of banking institutions cannot be understated. Moral leadership contributes to organizational performance by providing ethical clarity, cultivating accountability, and fostering relationships that reward ethical behavior rather than incentivizing unethical behavior. The banking industry in Bangladesh suffers from a lack of ethical leadership, resulting in repetitive scandalous activities that lead to institutional failure.

Within the ethical leadership framework, Islamic banking introduces a distinct component characterized by adherence to Islamic principles of finance, which derive from the *Qur'an* and *Sunnah*. Such financial principles require that financial transactions be socially and economically just, adhering to ethical principles of justice, trust, and the avoidance of harm. The prohibition of *riba* (interest) is a key principle of Islamic financial ethics, necessitating a view of money and financial activity as a medium of exchange, rather than merely as a means of profit that contradicts productive economic activity.

Another key principle of an Islamic financial ethical framework is that *gharar* (contractual ambiguity) must be avoided in all financial disciplines. Clarity of contracts is paramount; avoiding *gharar* protects parties from fraud and taking undue advantage. A prohibition on *maysir* (gambling) is established to remind that wealth must be obtained in return for productive and ethical effort without ill-gotten speculation. Principles of fairness and justice form the framework of customer relationships, which must be upheld in all financial activities involving contracts. For example, while every contract must be clear, profit-sharing arrangements must include the disclosure of costs, terms of the contract, and outstanding costs.

As banks have a moral obligation to customers and society, client contacts must be fair and just to avoid exploitation. For example, the cost and utility structure of financial goods must be explained, profit-sharing ratios must be disclosed, and contracts must avoid hidden fees. To abide by Shariah and morality standards, client finances must be handled with honesty—fiduciary duties are both professional and religious. Islamic banks' ethical obligations extend to financing small companies, rural populations, and women entrepreneurs. Islamic banks practice ethical redistribution via benevolent loans (*Qard Hasan*) and Zakat-based finances to circulate wealth and promote social equity.

The internal governance of Islamic banks should also be ethical. Every Islamic bank must have a Shariah Supervisory Board (SSB) of certified scholars who analyze contracts, transactions, and business procedures to guarantee conformity with Islamic ethics and law. Religious legitimacy and public faith in the institution’s activities are derived from these boards. They advise banks on legal compliance, Islamic moral finance, and institutional ethics. Islamic bank board members, executives, and staff are responsible to shareholders and Allah, adding a moral and spiritual dimension to business accountability.

Product design is also an ethical concern. Islamic banks utilize profit-sharing (Mudarabah), joint venture (Musharakah), cost-plus sales (Murabaha), and rental (Ijarah) to generate profits from actual productive economic activity, rather than speculation. This encourages fairness, consent, and risk-sharing. In a Mudarabah arrangement, the bank provides capital, while the entrepreneur offers effort and

expertise. Profits are split according to a pre-agreed ratio, while the capital provider bears losses unless negligence occurs. This framework is fair and cooperative.

Islamic finance has faced criticism and problems despite its ethical underpinning. Certain financial products, known as legal deception (*hiyal*), replicate conventional interest-based securities under Islamic names, which has drawn criticism for their emphasis on form over content. Many Islamic banks put profit above ethics and social responsibility. Although Islamic banks are supposed to provide Qard Hasan and microfinance, these products make up only a small fraction of their portfolios. Some Shariah Supervisory Boards lack independence, casting doubt on ethical compliance practices.

Modern advancements have expanded the scope of Islamic financial ethics. Integrating ESG concepts with Shariah-based ethical finance has been a breakthrough. This convergence is allowing Islamic banks to engage in sustainable development, employment equity, corporate social responsibility, climate financing, and green investments (Hassan et al., 2025 [68]; Hassan et al., 2018 [68]). Restoring and reforming waqf and Islamic social financing are promising (Ismail et al., 2023) [73]. However, Islamic fintech and digital banking are also creating new ethical challenges, such as digital privacy, algorithmic transparency, and fair access, that must be addressed within a Shariah-compliant framework. As the Islamic banking industry expands internationally, restoring and strengthening these ethical foundations will help align financial objectives with the higher purposes (Maqasid al-Shariah) of human welfare, social justice, and spiritual responsibility.

1.3 Contextualizing the Crisis: Political Economy of Banking Governance

Bangladesh's banking sector crisis cannot be understood independently of the broader political economy dynamics that have characterized the country's institutional development since independence. This research situates current banking sector problems within the context of longer-term patterns of political interference in economic institutions, regulatory capture by vested interests, and the systematic subordination of technical expertise to political considerations.

The period under primary investigation (2009-2024) corresponds to the tenure of the Awami League government under Sheikh Hasina, during which political interference in banking reached unprecedented levels. However, the study's analytical framework recognizes that these problems reflect deeper structural issues in Bangladesh's political economy rather than merely the policies of a particular government. The systematic nature of institutional capture suggests that addressing banking sector problems requires confronting underlying political economy constraints rather than assuming that leadership change alone will generate institutional transformation.

This research demonstrates how political patronage networks systematically undermine banking sector governance through multiple mechanisms, including the manipulation of loan approval processes, interference in regulatory supervision, the appointment of politically connected individuals to key positions, and the granting of impunity to well-connected defaulters. These patterns affected both state-owned and private banks, as well as conventional and Islamic institutions, suggesting that the problem transcended particular institutional categories. Understanding these political economy dynamics is essential for evaluating the potential effectiveness of current reform initiatives. The study's analysis suggests that technical regulatory reforms, while necessary, are insufficient without a corresponding transformation of underlying political practices that enabled institutional capture. This finding has significant implications for reform strategies and international development assistance approaches.

1.4. Problem Statement

Indeed, Bangladesh faces a dire need to reshape its banking industry, which is deeply entrenched within various individuals, institutions, and industries. Habits of unethical practices and inadequate monitoring are deeply ingrained within the developing nation and its expanding micro-economy. Major scandals, such as deceptive loan approvals, misappropriation of public funds, and collusion between bank officials and politically influential borrowers, underscore the severity of ethical failures. Although technical incompetence, as exhibited in rising non-performing loans (NPLs) and insufficient credit risk management,

does contribute to the crises, they are better seen as a critical indicator of substantial ethical flaws, which jeopardize the banks' trustworthiness and degrade the accountability underpinning the financial ecosystem.

One event can serve as a microcosm to illustrate the scope of the problem. According to Prothom Alo's report [4], during the Bangladesh Awami League-led government's regime in 2016, a cyber theft of $ 81 million in reserves occurred. A report on the incident was mysteriously filed late (39 days after the theft), considering its magnitude and significance. The CID (Criminal Investigation Department) investigation, which continued for 9 years after the complaint was filed, identified 14 people implicated in the reserve theft. Among them, Atiur Rahman, a former central bank governor, was a key accused person [4]. Thereafter, to unravel the mystery and accelerate the investigation, the Anti-Corruption Commission (ACC) initiated its own investigation. It has compiled evidence to suggest that the previous administration of Sheikh Hasina initiated a contrived case to obscure the occurrence and then assigned the CID to conduct the investigation. The case [5] finds that the former governor, Atiur Rahman, and 23 other Bangladesh Bank officials approved a 24 million BDT loan traceable to Abul Barkat, Chairman of garment manufacturer Anontex Group, from Janata Bank. Anontex Group's loan amount exceeded 25% of the bank's base capital, breaking a key regulation. As of June 2024, the Anontex Group had a 7.37 billion BDT default loan, plus accumulated interest, from Janata Bank. This scenario illustrates the pattern of capital mishandling and the lack of administrative repercussions during such events.

In addition to failing in its primary duty of regulating the banking industry, the Bangladesh Bank also had other responsibilities that it did not fulfill. For example, the net foreign asset (NFA) stock in the banking system is correlated with the availability of foreign currency due to policy actions, such as drawing down the nostro account and selling dollars, which can lead to a foreign exchange shortage. On the other hand, to mitigate import bills, most state-owned banks took dollar support from Bangladesh Bank for the Bangladesh Petroleum Corporation, Bangladesh Chemical Industries Corporation, and Bangladesh Agricultural Development Corporation. At the same time, rising interest rates worldwide made

doing business more expensive, and external creditors lost faith as bank crises worsened. Moreover, the instability of inflation was further exacerbated by the fiscal and political control over monetary policy, revealing that the Bangladesh Bank was not independent.

Despite the Bangladesh Bank being in a controlling role, it appeared to be influenced by political parties during the tenure of the previous government, resulting in significant ethical flaws, including at the head of the banking sector. Thus, the current issues facing the banking sector should be resolved by identifying these key flaws and bringing strict ethical principles to the fore. This study, therefore, offers a comprehensive investigation with two research questions: (1) What are the key reasons behind the ethical flaws in the banking industry in Bangladesh? and (2) Can the banking sector's financial crises be explained by ethical failures rather than technical inefficiencies?

1.5 Islamic Banking: Challenging Assumptions About Ethical Finance

A particularly significant dimension of this study concerns the performance of Islamic banking institutions during Bangladesh's crisis period. Islamic finance has often been presented as inherently more ethical than conventional banking due to Shariah compliance requirements that prohibit exploitative practices and emphasize risk-sharing over debt-based financing. However, the experience of several major Islamic banks during the period under investigation challenges these assumptions. It provides critical insights into the relationship between formal ethical frameworks and actual institutional behavior. The research documents how political interference affected Islamic banks as systematically as conventional institutions, despite their formal commitment to Shariah principles. Cases such as the political capture of Islami Bank Bangladesh Limited by the S. Alam Group, fraudulent lending by First Security Islami Bank, and manipulation of Islamic finance instruments for conventional profit maximization demonstrate that formal ethical frameworks provide limited protection against institutional capture when broader governance environments are compromised.

These findings have important theoretical implications for understanding the relationship between religious or ethical principles and institutional performance.

The study suggests that ethical frameworks, whether Islamic or secular, can only be effective when embedded within broader governance structures that support their implementation and when political environments enable rather than undermine their operation. The analysis of Islamic banking performance also provides insights into stakeholder perceptions and market confidence. Despite documented failures of specific Islamic institutions, survey evidence reveals continued stakeholder confidence in Islamic banking principles, suggesting that markets distinguish between institutional failures and framework inadequacies. This finding has important implications for understanding how institutional legitimacy operates and how it might be restored.

1.6 Theoretical Framework: Dialectical Approach to Regulatory Change

This study employs an analytical approach that utilizes dialectical theories of institutional change to understand banking crises, including tensions between formal regulatory structures and actual political practices. In adopting this theorization, we recognize that regulatory arrangements are always positioned within a broader political economy, which can either facilitate or inhibit them, and are cognizant of the fact that failure of a regulatory arrangement is not something we can understand in isolation or only technically; we must be more interested in analyses of relationships.

Dialectical theory offers a recognizable analytical value in understanding how institutional crises can potentially open avenues for qualitative change. This perspective conceptualizes relationships as thesis-antithesis-synthesis, creating a heuristic for analyzing how the liberalization of regulations (thesis) manifests into conditions for a systemic crisis (antithesis) and allows for a new regulatory synthesis that incorporates elements learned from previous crisis experiences. The recent passing of the Bank Resolution Ordinance 2025 in Bangladesh can serve as a possible synthesis of the dialectical contradictions created by the systemic failure of the banking sector during the preceding political administration. In contrast to linear models that view institutional development as an incremental and progressive process of maximizing institutions through reform, this approach acknowledges that institutional change does not follow predictable trajectories. Institutional change often arises from moments of crisis

and rupture that create opportunities for more fundamental reform. Understanding the dialectical movements as conceptualized here is critical to understanding both the causes of Bangladesh's banking crisis and the market's institutionally transformative potential in the regulatory space currently at the forefront of the reform process. The theoretical contribution offered by this study demonstrates how dialectical analysis can reveal the political-economic aspects of banking sector governance that may be overlooked in formal institutional accounts, which are often reductive and technical in nature. This methodology reviews and compares systematic forms of political interference, weakened regulatory effectiveness in volatile conditions, and underpinned systemic institutional crises.

1.7 Implications and Broader Significance

The implications of this study extend beyond examining Bangladesh's banking sector and cover monetary sector governance in developing economies. It also highlights explanations for political interference in organizational effectiveness, the political economy behind regulatory capture, and how crises may provide opportunities for processes of institutional change. The study is significant to various fields of scholarship, including political economy and regulatory governance, the study of regulatory processes, institutional and regulatory change, Islamic finance and comparative studies, and approaches for understanding complex institutional contexts. The study also challenges normative forms of thinking about development finance and regulatory policy in banking, as it reveals the limitations of technocratic or institutional interventions in the contemporary governance of the banking sector.

In policy terms, the study produces a set of evidence-informed policy recommendations for addressing governance issues in various banking sectors, which can be adapted to other situations in different developing economies. By highlighting the political economy contingencies, the study implies that reforms based solely on technical regulatory measures as a means of effecting institutional change neglect the deeper structural issues that contribute to the governance problems seen in banking. Internationally, the research is significant as global discussions continue to express concerns for banking sector governance in

developing economies. The study demonstrates that regime assistance modalities must engage with the political economy context rather than assuming that technical assistance alone is a viable response to issues in banking sector governance. The analytical framework established in this study provides a means for examining the political economy processes of banking governance, while offering mandates for banking reform options that would facilitate significant change.

The structure of this study is designed to provide a comprehensive analysis of the banking crisis in Bangladesh, allowing the analytic framework to demonstrate its value in understanding the relations and dynamics of banking governance. Chapter 2 will review the literature on banking sector governance issues, concepts of institutional failure, and regulatory theory. Chapter 3 will provide context for the banking and finance sectors in Bangladesh, covering their historical emergence and transformation as well as the structural characteristics of the banking sector. Chapters 4 and 5 will focus on the theoretical part of the framework. Chapter 4 will examine monetary theory and principles, as well as the ideas of Islamic finance. Chapter 5 will include a dialectic analysis of regulatory change and provide a discussion regarding the Bank Resolution Ordinance of Bangladesh 2025, which was very recently passed into law. Chapters 6 and 7 will present the empirical analysis of this study. Chapter 6 will examine the explanations for the prominent scandals currently surrounding the banking sector, and Chapter 7 will elaborate on our research methodology. Chapters 8 and 9 will present specific findings, with Chapter 8 providing the qualitative analysis and case studies, and Chapter 9 presenting the quantitative results from our stakeholder survey. Chapter 10 will give an analytic discussion and policy recommendations. Chapter 11 will reflect on the implications of the banking crisis. And finally, chapter 12 will conclude with implications for theory, practice, and future research direction. This structure enables the systematic development of the study's focus and provides sufficient empirical data to support substantive claims. The two alternative forms of theoretical analysis and significant empirical study provide an example of how an analytic framework can be developed to understand complex institutions.

2. Literature Review

2.1. Ethics in Finance and Banking

Ethical practices form the bedrock of a secure financial system, acting as a safeguard against systemic collapse. In a lecture series honoring the late Nurul Matin, a distinguished figure in the banking sector, Justice Shahabuddin Ahmed [31] emphasized that the purpose of banking extends beyond profit generation to include service to the community. He asserted that "the rules of business must not collide with the principle of public welfare, justice, and fairness." Addressing the consequences of unethical banking, Justice Muhammad Habibur Rahman [30] warned that such malpractice erodes public trust and fuels economic instability. He traced the roots of financial ethics to antiquity, referencing the ancient Greek disdain for dishonest merchants and the Calvinist emphasis on ethical commerce. The 2008 Global Financial Crisis (GFC) exemplifies the repercussions of ethical lapses, including excessive risk-taking, a lack of integrity, and greed, within the banking sector, which led to widespread economic disruption. Hassan and Gider (2025) [72], and Kayed et al. (2011) [75] revealed that the primary reason behind the GFC 2008 was excessive debt.

In Bangladesh, ethical failings in the banking industry manifest in various forms, including political patronage, collusion with bank officials, corruption, nepotism, weak governance, and a general lack of integrity. According to Dr. Wahiduddin Mahmud [33], these persistent ethical failures erode public confidence, which is a crucial pillar of financial stability and institutional sustainability. Underscoring the centrality of trust in banking, Professor Rehman Sobhan [34] described fiduciary relationships as the crux of ethical responsibility. He maintained that “trust must always be underwritten by ethics,” cautioning that without a strong ethical foundation, regulatory frameworks alone cannot ensure financial stability. Similarly, Dr. Akbar Ali Khan highlighted that “trust is the foundation of banking, and its erosion affects not only individual institutions but the entire financial system.”

Despite regulatory efforts by the Bangladesh Bank, recurring unethical practices, such as fraudulent loans, insider dealings, and inadequate oversight,

continue to destabilize the sector. These observations reinforce the urgent need for ethical banking practices to maintain public trust and preserve the integrity of the financial system.

2.2. Bangladeshi Banking Regulations and Governance

The Banking Companies Act and directives from the Central Bank regulate the banking industry in Bangladesh. However, ethical failures often diminish these regulations, and thus, regulators frequently encounter political pressure. To illustrate the longstanding vulnerabilities of the banking system in Bangladesh, Professor Sobhan [34] examined its colonial origins and post-independence nationalization. Although nationalization was intended to democratize the banking system, it often resulted in inefficiency and politicization, which heightened governance concerns. He furthermore claimed that "economic justice should guide banking services," promoting fair access to financial resources to reduce disparities. Dr. M. Kabir Hassan stated in a Daily Star report that “Today, we are doing Shariah-compliant banking rather than Shariah-based banking. We need proper guidelines, policies, and relevant laws from the government to make Islamic banking a success.”

2.3. Ethical Failures in Emerging Markets

Comparative analyses reveal that the ethical disruptions in Bangladesh’s banking sector are not isolated but reflect broader patterns observed in other emerging economies. Justice Muhammad Habibur Rahman [30] highlighted the decisive role of socio-political forces in shaping unethical behavior within such economies. Drawing parallels with financial crises in Pakistan and India, he noted that corruption in these countries has escalated due to regulatory inefficiencies and political favoritism. The 2008 Global Financial Crisis (GFC) stands as a stark example of how ethical lapses in the banking sector can trigger global economic turmoil. Driven by greed and insufficient regulatory oversight, the crisis illustrated the catastrophic consequences of unchecked unethical behavior, as noted by Dr. Duvvuri Subbarao.

These evaluations support the notion that Bangladesh’s recent banking crisis is not anomalous but a predictable outcome of persistent ethical violations. Justice

Shahabuddin Ahmed pointed out that influential political figures often shield or empower major loan defaulters, making it difficult for banks to enforce regulations effectively. This political interference often outweighs institutional authority, weakening the regulatory framework. Moreover, unethical collaborations between high-ranking bank executives and loan defaulters, particularly those tied to politically motivated lending, are increasingly evident. Justice Ahmed cited such politically influenced loan defaults as a critical example of how unethical conduct erodes institutional credibility. Lastly, Professor Rehman Sobhan further underscored this issue, stating that "the patronage system has destroyed Bangladesh's credit system." He advocated stringent regulations to counteract these abuses and restore integrity in the financial sector.

2.4. Theoretical Foundations

Humanistic Ethics is significant as a guiding theory, as Justice Habibur Rahman [30] cited Erich Fromm's argument that "ethical conduct is rooted in man's inherent qualities," pointing out the importance of value-driven leadership in the banking sector. In addition, other scholars have emphasized the consequences of ethical contexts, including Islamic finance ethics, corporate social responsibility (CSR), and stakeholder theory, to address these issues. Specifically, Sharia rules that also forbid exploitative finance can function as a prospective ethical banking paradigm.

3. Overview of the Banking and Financial Systems

3.1. Common Industry Structure in Bangladesh

The banking system in Bangladesh comprises a complex ecosystem of state-owned commercial banks (SCBs), private commercial banks (PCBs), foreign banks, and development financial institutions. In the first decades after independence from Pakistan in 1971, the banking industry was mainly composed of state-owned banks, after the government of Bangladesh nationalized the majority of financial institutions as part of a broader socialist objective. Subsequently, with the economic liberalization and privatization policies of the 1980s and 1990s, PCBs were introduced alongside SCBs, leading to increased competition and innovation in the sector. The banking landscape of Bangladesh

reflects a shift away from a centrally planned economy to a more liberalized banking and economic model. Although SCBs continue to dominate in terms of total assets and deposits, their dominance in banking has diminished as the role of PCBs continues to rise in efficiency and customer potential. The emergence of PCBs has resulted in a mixed banking system where development from the public sector coexists with improved efficiency and innovation from the private sector.

Notably, the Islamic banking institutions that have emerged and grown as an alternative option for banking, utilizing Shariah-compliant financial intangible assets instead of conventional interest-free structures, are a significant development in the banking and financial ecosystem. The rise of Islamic financial institutions is reflective of the predominantly Muslim population in Bangladesh, particularly as customers have become more confident in Islamic finance as a system that promotes stability and security within the financial system.

Islamic financial institutions operate under three organizational structural possibilities that vary in their degree of integration with the conventional banking system in Bangladesh. The integrated window model enables traditional banks to integrate Islamic financial services into their banking structure through separate departments. The conventional bank remains structured and marketed as a single entity, with both marketing and governance remaining unified. However, Islamic and conventional banks each have separate accounting and risk management systems for their Islamic operations. Under the dedicated branch model, conventional banks establish branches that exclusively offer Shariah-compliant products, enabling them to provide financial services with specialized expertise while maintaining corporate governance across the bank. The subsidiary model creates totally separate but wholly owned companies that operate as Islamic banks, with more operational independence granted because each has its own board of directors, governance structure, and capital structure. In the fully-fledged Islamic bank model, completely autonomous institutions are created for Islamic financial transactions, where each institution operates under its own prescribed regulations but is totally independent in its governance, risk management, and service delivery.

While the theoretical application of an ethical approach using Islamic banking may have begun in Bangladesh, real challenges have been faced in practice. Islamic banks in Bangladesh are no better than conventional banks due to the political interference that has affected both types of banks. In fact, political and other interference has disconnected banks from the ethical foundation of their own policies. When banks ignore the rules of a policy or other forms of supervision, it diminishes the people's ability to apply ethics to their balance sheet. It is as much the governance environment as it is the framework of principles that determines the failings of individuals, organizations, and institutions.

3.2 Fractional Reserve Banking and Its Implications

The connection between fractional reserve banking and Islamic finance has sparked much academic discussion, particularly on its adherence to Shariah law. With fractional reserve systems, banks hold only a small percentage of deposits as reserves while lending out the vast majority of those deposits. This means banks are effectively able to create new money through the lending process itself. This raises fundamental questions about the degree to which this complies with the principles of Islamic finance, which prohibit riba (interest) and require asset-backed transactions. The fractional reserve banking system raises specific points of friction with Islamic financial principles. In the most basic sense, charging interest on loans is directly contradictory to the prohibition of riba, which Islamic scholars view as a form of exploitation whereby financial institutions profit from creating money without satisfying the necessarily productive demand of the economy. In short, Islamic financing institutions may have a basic objection to bank lending globally, even if the consumer does not pay interest on a loan or if they adhere to the principles of Islamic finance. While Islamic financing institutions may be independent actors, banks create new money by lending out depositors' savings and charging interest on that newly created money. Most Islamic scholars would interpret this process as laying the foundation for the emergence of debt without real underlying assets, thus violating the fundamental tenets of Islamic finance and the basic unit of finance in Islamic law, which is

that economic and commercial transactions have to be supported by economic value and not just speculative money creation.

The concept of *gharar* (excessive uncertainty, ambiguity) raises further questions about the fractional reserve banking system. Some scholars have contended that one of the ways FRB contributes to systematic uncertainty and speculation is that when banks lend out more than their reserves provide, they are more likely to create prospective risks that threaten the funds held for depositors if the loans are not repaid. Therefore, the endless speculative debt structures might either violate Islamic principles and Islamic finance, or create an inherent problem where debts are created that are unsustainable as contracts may have speculative qualities, later requiring new speculation to satisfy an underlying obligation. Islamic finance utilizes the principle of sharing the risks and the rewards through finance instruments such as *mudarabah* (profit-sharing partnerships) and *musharakah* (joint venture), where the risks and rewards are distributed evenly between the participants to the transaction. For this reason, Islamic scholars argue that the fractional reserve banking system is an infringement on the Islamic model of finance, as it allows banks to reap profits from lending money that does not exist, while leaving depositors with no meaningful compensation for the risk associated with their deposits.

Nevertheless, the fractional reserve banking system has several positive characteristics that are often overlooked. First, the fractional reserve system provides credit for economic growth by giving money to individuals and businesses to invest in which it leads to new jobs that become part of the economy. Second, the fractional reserve banking system provides a permanent and consistent source of liquidity for banking institutions, especially during distressed times, when liquidity can help restore economic stability by providing additional credit to bank borrowers and facilitating actual lending.

The fractional reserve banking system enables banks to be more efficient with their customers' deposits by adding value to the resources, creating income opportunities, and maximizing the productive use of customer deposits in lending, rather than leaving them idle. The simultaneous circulation of borrowed funds through spending and investing that generates a multiplier effect can lead

to economic development and support important infrastructure and research-construction projects that depend on private individuals, corporations, foundations, and state and local governments to make huge capital investments.

Conversely, fractional reserve banking creates enormous risks; therefore, it is equally vital that timely safeguards are in place. Fractional reserve banking carries intrinsic risk. This includes exposure to a bank run, where thousands of depositors simultaneously attempt to withdraw their funds, resulting in a liquidity crisis regardless of the institution's integrity. Banks must be cautious with deposit insurance, as this layer of product liability can induce a moral hazard that encourages unsound borrowing based on state-backed guarantees, leading to excessive lending practices and creating the potential for asset bubbles that result in price inflation driven by speculation. The growth of debt over extended periods, permitted by fractional reserve banking, can lead to unstable credit cycles, resulting in systemic financial instability when borrowers default. Furthermore, the boom-bust cycle caused by the instability of monetary and credit cycles in FRB systems can also contribute to broader economic instability.

3.3. Milton Friedman’s Narrow Banking

The late Nobel laureate and prominent member of the Chicago School of Economics, Milton Friedman, advocated for an idea now often referred to as "narrow banking." His ideas, particularly in *A Program for Monetary Stability* (Friedman, 1992) [48], established the basis for the limited banking model, even if he did not always use that exact phrase. As a proposed change to the banking system, "narrow banking" would categorize banks into two distinct groups: those that accept deposits and those that engage in riskier lending and investment operations. The public-sector banks participating in this model would have to invest all the money deposited by people in liquid, secure assets, such as government bonds. Commercial loans and investments in high-risk projects would be off-limits to them. The objective is to make sure the payment system is secure and safe, and to eliminate the possibility of bank runs. The core of Friedman’s expansive plan for monetary and financial reform was his interpretation of narrow banking. His main worry was the inherent instability of the system of fractional reserve banking, in which banks lend out most of their

deposits rather than keeping a portion in reserve. He said that this structure constituted a vicious cycle of booms and busts by making banks intrinsically susceptible to panics. To address this issue, Friedman proposed that demand deposits be subject to a 100% reserve requirement. All client deposits would have to be kept in reserve, ready to be withdrawn whenever needed, and banks could not utilize that money for lending or investment.

Banking as we know it would change drastically under this model. Instead of lending money, financial institutions that take deposits would more closely resemble custodians. The economy would still include lending, but it would be facilitated through independent financial intermediaries that solicit capital from individuals willing to take risks in exchange for potential rewards. According to Friedman, there would be several benefits to implementing 100% reserve banking. First, depositors would have total peace of mind knowing their money was backed entirely, which would eliminate the possibility of bank runs. Secondly, he believed that the money supply was crucial to achieving price stability, which would provide the central bank with greater control over it. Third, it would lessen the impact of moral hazard on the banking industry by reducing the need for deposit insurance and other forms of government guarantee.

Some think that if Friedman's idea of restricted banking were to become law, it would limit people's access to credit and dampen economic activity. They worry it would lead to a risk-taking move to the shadow banking industry, which might open the door to new security holes. Still, academics and politicians seeking solutions to improve financial stability have returned to Friedman's theories in the aftermath of the 2008 financial crisis. To sum up, Milton Friedman's idea for a more limited banking system was an ambitious and well-thought-out plan to strengthen the financial sector. He aimed to enhance the banking system's security and grant the central bank greater control over the money supply, so he distinguished between deposit accounts and lending and mandated that all deposit-taking institutions maintain 100% reserves.

3.4. Faith-Based Investment

Faith-based investing represents a union of faith and financial planning, incorporating moral and spiritual values into an investor's plan, rather than solely focusing on monetary gain. This method encourages investors to understand how to conceptualize and utilize wealth as a form of moral agency, generating financial returns that reflect their religious and ethical beliefs. Different religious traditions each have their own check and balances when it comes to faith-based investments. Christianity teaches stewardship as a spiritual responsibility, and the biblical Parable of the Talents upholds moral obligations to use resources wisely for the collective common good, not for the financial gain of an individual or one community. Islamic finance has guidelines rooted in Shariah principles, which place an emphasis on justice (adl), public interest (maslaha), and accountability to divine authority (tawhid) that lead to the understanding that accumulated wealth must have a social and moral purpose, and forbid interest (riba), gambling or maysir, and investing in immoral businesses.

Jewish ethical investment practices emphasize their concept of tikkun olam, or repairing the world, in which wealth carries socially shared obligations rather than personally shared privileges. Dharmic traditions, including Hinduism, Buddhism, Jainism and Sikhism, conceive of economic activity through moral dimensions such as dharma (cosmic responsibility), ahimsa (non-violence), and karma (moral causation) to make investments that keep living things in harmony and do not cause harm.

3.5. Social Capital

Social capital—encompassing norms, networks, and connections that facilitate collaborative action and mutual benefit—is a key determinant of economic growth and social cohesion. It is intangible and rooted in social interactions, which frequently reduce transaction costs, improve information flow, and encourage cooperation. Social capital is divided into four categories: integration (intra-community links), linkage (inter-community connections), synergy (state-society collaboration), and integrity (institutional competency and rule of law). It promotes trust, cooperation, governance, and resource efficiency.

It may also lead to exclusion, cronyism, and resistance to innovation when not aligned with society's ideals. Thus, social capital must be optimized, not maximized.

Islamic principles establish a robust basis for the development of social capital. The term ummah refers to a global community of believers united by their shared faith, transcending tribal, ethnic, and economic divisions. The Qur'an and Hadith emphasize the principles of adl (justice) and ihsan (benevolence), which are vital for social cohesion and communal welfare. Classical Muslim thinkers offer initial insights into social capital. Ibn Khaldun's theory of asabiyah emphasizes the significance of social cohesion in the rise and decline of civilizations, whereas Ibn Taymiyya stresses the importance of justice and mutual responsibility for the survival of a community. Furthermore, mechanisms such as zakah (mandatory almsgiving) and waqf (endowment) facilitate social assistance, promoting wealth redistribution and the provision of public goods. Therefore, the following three central institutions have historically played a pivotal role in nurturing social capital in Islamic societies:

1. ***Civil Society (Ulama):*** In the past, the intellectual elite served as a separate civil organization that protected legal norms and limited the authority of the state. Legal and moral conditions favorable to trust and commercial activity were fostered by their authority, which waqf funds often supported.

2. ***Mosques (Masājid):*** In addition to being places of worship, mosques have long been sites for learning, community building, and social services, all of which contribute to the buildup of social capital.

3. ***Family:*** In Islam, the family is tasked with the responsibility of moral education, spiritual growth, and the transfer of values from one generation to the next because of its central role in society. It promotes ethical parenting and intergenerational connection, which in turn fosters relational and cognitive social capital.

The constraints of state-centric development strategies have led to an increased focus on community-driven initiatives. Social capital is essential for

facilitating efforts in service delivery, local governance, and poverty alleviation. Social capital is not directly generated through policy; instead, public policy can establish conditions that facilitate its development and sustainability. According to an Islamic perspective, public policy must correspond with the maqāṣid al-Sharīʿah, which encompasses the preservation and promotion of faith, life, intellect, progeny, and wealth. Thus, the public policy imperatives for social capital can be addressed by ensuring fairness in processes and the distribution of wealth, thereby building confidence and credibility in institutions. To strengthen families and communities, we must invest in human capital by increasing women's and girls' access to quality education and social services. Islamic finance also considers human capital development, as it offers social finance, where establishing social justice, rather than making a profit, is the primary goal (Hassan et al., 2021) [70]. Broader engagement in economic and societal affairs is made possible by economic independence, which entails accelerating fair growth and financial inclusion.

3.6. Historical Evolution

In 1846, through the foundation of Dhaka Bank during the British colonial era, the seed of today's banking industry was planted in Bangladesh. Following liberation in 1971, notable changes occurred in the banking system, such as the nationalization of several banks to alleviate socio-economic deficiencies. Professor Sobhan narrates that while this aimed to "democratize access to banking services and resources," it also resulted in political meddling and inefficiencies. According to Justice Habibur Rahman [30], in 1972, the nationalized banks in newly independent Bangladesh began to expand rapidly into the countryside to fulfill their mandate to serve neglected communities. However, this development often lacked strategic planning, resulting in an inefficient banking system. Between 1972 and 1980, the number of bank branches increased from 1,116 to 3,748, with rural branches accounting for 63% of the total. This expansion was driven more by political motives than sound financial strategies. As of March 2024, Bangladesh has 11,289 bank branches from 62 total banks.

3.7. The Foundations of Modern Banking, Financial Fragility, and Crisis Policy

The 2022 Nobel Prize in Economics went to Ben S. Bernanke, Douglas W. Diamond, and Philip H. Dybvig for their work on "Banks and Financial Crisis." Their pioneering work helps us recognize how financial systems might undermine an economy at times, besides supporting it most of the time.

Before these three Nobel laureates' works, mainstream macroeconomics saw banks as mostly neutral intermediaries, simply connecting savers and borrowers. People thought that the Great Depression and other financial crises that came later were caused by poor money management or real shocks. But Bernanke, Diamond, and Dybvig collectively showed that the way banks are structured and work permits economic expansion as well as causes intrinsic fragility.

Their theories work together to explain:

1. The reasons banks exist,
2. The reasons banks are vulnerable to runs and crises,
3. How banking failures may trigger macroeconomic downturn, and
4. The reasons political interventions like deposit insurance, lender-of-last-resort actions, and liquidity support are not just desirable but are some required actions to stabilize the economy and the system.

Their combined findings and insights provide the strategic basis for modern macroprudential regulation, financial stability policy, and central banking.

3.7.1. Douglas W. Diamond and Philip H. Dybvig:

3.7.1.1. The Core Model: Banking as Liquidity Insurance

In the 1983 Journal of Political Economy paper "Bank Runs, Deposit Insurance, and Liquidity," Diamond and Dybvig built a model to explore why banks exist and why and how they are structurally prone to collapse due to panic-driven withdrawals.

They observed that there are people who are “patient,” willing to wait to withdraw their deposits, and there are people who are “impatient,” withdrawing their money early. This causes uncertain liquidity needs in the economy. At the same time, the most productive investments, like factories, mortgages, and business loans, are long-term and illiquid. Douglas Diamond and Philip Dybvig published the first formal model to explain why banks exist and why they are likely to have runs that fulfill themselves in their 1983 work "Bank Runs, Deposit Insurance, and Liquidity" in the Journal of Political Economy. They started with a basic economic fact: people don't always know how much money they need. Some people will want to take their money out right away (the "impatient"), while others are okay with waiting (the "patient"). At the same time, the best investments, factories, mortgages, and business loans, are long-term and hard to sell.

This uncertainty of human nature to withdraw money with different time preferences poses a fundamental conflict: individuals need access to liquid assets at uncertain times, whereas society benefits from long-term investments. To resolve this, banks perform maturity transformation; they take short-term deposits and extend long-term loans. Banks are able to make educated predictions on withdrawals as they pool a significant number of depositors, allowing them to offer liquidity insurance. This, in turn, allows anyone to withdraw funds from the banks whenever they want to, while allowing them to finance illiquid investments in the background. Without the existence of banks, people would simply hold wealth in liquid assets, which would be of no productive use. This would cause any economic growth to falter and fall.

3.7.1.2. Fragility: The Possibility of Self-Fulfilling Runs

Diamond and Dybvig proved that the same structure that lets banks make liquid money also makes them fundamentally vulnerable. Banks are required to hold a small percentage of the total deposits as reserves, and they usually don’t keep more than the required amount, as the rest are extended as illiquid loans to earn them interest and profit. As a result, if too many people withdraw money out of the bank at once, banks fail. Now, even though the banks’ assets and deposits are fundamentally safe, if depositors fear that others may run, this might trigger

their panic, causing them to run as well. Thus the fear of others running leads to self-fulfilling panic-driven running.

This phenomenon leads to either a good equilibrium or a bad equilibrium. In a good equilibrium, depositors trust the bank, withdrawals happen only when true needs arise, and the bank runs normally. Bad equilibrium is when panic sets off, all depositors rush to withdraw their savings, and to manage liquid money to pay the depositors, the bank has to sell its assets at a loss before shutting down. This "multiple-equilibria" logic captured the essence of historical banking panics, from the U.S. crises of 1893 and 1933 to the global turmoil of 2008 and even modern digital-bank runs.

3.7.1.3. Policy Solution: The State's Role in Deposit Insurance

Diamond and Dybvig's most influential policy conclusion was that deposit insurance can eliminate the bad equilibrium. If the government credibly guarantees deposits, depositors have no reason to run. This credible promise by the govt. removes the need for constant intervention and still prevents panic before it happens. This realization converted the rationale for deposit insurance to an economically optimum institution from a political tool. It also gave lenders-of-last-resort policies a theoretical basis: if private coordination can't stop runs, a state backup can keep people's trust and help banks maintain the usual socially beneficial roles they play.

3.7.1.4. Extensions: Delegated Monitoring and Diversification

Diamond's solo work, *"Financial Intermediation and Delegated Monitoring"* (1984, *Review of Economic Studies*), complemented the joint model. He showed that banks also exist because they reduce the costs of monitoring borrowers. Individual savers lack the expertise to assess credit risk; banks perform this monitoring on their behalf. Because banks lend to many borrowers, they can diversify idiosyncratic risk and credibly promise depositors near-riskless repayment.

Thus, Diamond and Dybvig jointly established the dual nature of banking:

- Banks provide liquidity insurance (Dybvig's focus), and

- Banks act as delegated monitors and risk managers (Diamond's focus).

Both functions explain why banks are essential and why their collapse disrupts more than just financial markets.

3.7.2. Ben S. Bernanke

3.7.2.1. The Great Depression Reinterpreted

In *"Non-Monetary Effects of the Financial Crisis in the Propagation of the Great Depression"* (1983, *American Economic Review*), Ben S. Bernanke took the micro-foundations of Diamond and Dybvig into the macroeconomic realm. While Friedman and Schwartz (1963) had attributed the Great Depression to monetary contraction, Bernanke argued that financial collapse had independent, non-monetary effects. Bank failures did not merely reduce the money supply; they destroyed the credit intermediation network, the information, trust, and relationships that link borrowers and lenders. Bernanke introduced the concept of the "cost of credit intermediation" (CCI).

When banks fail:

1. Borrowers lose access to their established lenders.
2. Information asymmetry rises; new lenders know less about borrowers.
3. The effective cost of credit rises, even if interest rates fall.

This credit disruption makes recessions worse by cutting back on investment, jobs, and output much more than traditional monetary models thought they would. So, financial crises are not only signs of economic problems; they create a multiplier effect to cause more economic downturn.

3.7.2.2. The Credit Channel and Financial Accelerator

Bernanke extended this insight into a general theory of the credit channel of monetary policy (with Mark Gertler, 1989; Bernanke, Gertler, and Gilchrist, 1999). He showed that firms' investment decisions depend not only on interest rates but also on their balance sheet strength. When asset prices fall or collateral weakens, the external finance premium, the difference between the cost of

external and internal funds, widens. This creates a financial accelerator: A negative shock reduces borrowers' net worth, which in turn raises credit costs; this then reduces investment, further lowering asset prices, and the end result deepens the downturn. When the opposite, the expansion, happens, rising net worth lowers credit costs and expedites macroeconomic booms. This mechanism links financial conditions to real macroeconomic outcomes, embedding banking and finance at the core of business-cycle dynamics.

3.7.2.3. From Theory to Practice: The 2007–2009 Financial Crisis

Coincidentally, Bernanke was the Chairman of the U.S. Federal Reserve from 2006 to 2014. This provided him the opportunity to put his theories to the ultimate test. The bad loans to people with weak credit history caused a chain reaction to trigger the largest financial meltdown since the 1930s. Bernanke prepared the Fed's crisis response based on his own research work and insights. He proposed:

- Prevent panic: the govt. and Fed should provide enough liquid money and guarantees to support the institutions and system to prevent Diamond–Dybvig-style self-fulfilling runs.
- Preserve credit intermediation: The Govt. and Fed should ensure emergency lending facilities, as this would give confidence to the economy and maintain the flow of credit to firms and households even when commercial institutions fear to extend loans.
- Stabilize expectations: lowering interest rates during crisis time for aggressive monetary easing, injecting money by quantitative easing (QE), and making credible promises of future plans via forward guidance to counter deflationary expectations.

Evidently, Bernanke's proposals were the reflection of his own research work and academic logic: in times of macroeconomic and financial collapses, central banks should play the most active role to boost confidence and provide support and credit.

3.7.3. The Intellectual Integration: Micro Foundations to Macro Stability

The three 2022 Economics Nobel Laureates explored different aspects of the same macro issue. But when put together, they all tackle the simultaneous role of the financial system as an enabler and an amplifier of economic performance. And the beauty of their work is together they work as a panacea to address many grave financial downturns.

Table 1: The Intellectual Integration: Micro Foundations to Macro Stability

Level	Scholar	Core Question	Contribution	Policy Implication
Micro (individual bank)	Diamond & Dybvig	Why do banks exist and why are they fragile?	Banking as liquidity insurance + multiple equilibria (runs)	Deposit insurance, lender-of-last-resort
Meso (financial intermediation)	Diamond	How do banks add value in credit markets?	Delegated monitoring & diversification	Regulation of information and monitoring incentives
Macro (financial system)	Bernanke	What happens when the financial system collapses?	Credit-channel amplification & financial accelerator	Macroprudential policy, QE, crisis response

Sources: Author's compilation from the Scholars's several studies.

Together, their work constructs a seamless intellectual chain from microstructure to macroeconomics, explaining both the cause and the consequence of financial crises.

3.7.4. Policy Synthesis: From Theory to Modern Regulation

3.7.4.1. Deposit Insurance and Liquidity Support

The Diamond-Dybvig model explains why there should be deposit protection and central-bank liquidity facilities. The deposit insurance and liquidity support inject confidence and trust to coordinate expectations, thus preventing panic and turning a potentially fragile, unstable equilibrium into a stable one.

3.7.4.2. Regulation of Prudence and Macroprudence

Diamond's delegated monitoring reasoning supports the need for capital sufficiency, supervision, and diversification rules. Banks must internalize the risks of maturity transformation and maintain buffers to absorb shocks.

3.7.4.3. Lender of Last Resort and Credit Stabilization

From Bernanke's credit-channel analysis comes the principle that the state, via the central bank, must act decisively to maintain credit flows during crises. Preventing the collapse of intermediation is not a bailout of bankers; it is a defense of the real economy. Together, these principles underpin the post-2008 architecture of financial stability: Basel III, stress testing, liquidity coverage ratios, and systemic-risk surveillance.

3.7.5. Relevance for Islamic and Developmental Finance

The Nobel trio's views are directly relevant to researchers and policymakers in Islamic banking and finance. Liquidity Creation and Risk Sharing: Islamic banks also create liquidity by using asset-based and profit-sharing contracts. For Shariah-compliant savings and investment accounts, it's very important to know about run risk and liquidity mismatch, as knowing them would help prepare for preventing them. Deposit Protection and Confidence: The Diamond–Dybvig theory supports that Islamic deposit insurance plans (like Malaysia's PIDM and Indonesia's LPS) can be made to stop runs without going against Shariah rules.

Credit Channels for SMEs and Social Finance: Bernanke's financial accelerator framework explains why credit disruptions in Islamic microfinance can exacerbate poverty and why waqf or zakat-backed credit guarantees can stabilize real-sector outcomes. Macroprudential Policy in Dual Banking Systems: The integration of liquidity risk (Diamond–Dybvig), monitoring difficulties (Diamond), and credit amplification (Bernanke) offers a cohesive theoretical framework for the regulation of both Islamic and conventional sectors in emerging markets.

3.7.6. The Lasting Legacy: Financial Stability as a Public Good

3.7.6.1. A Change in the Way We Think About Economics

Before these three pioneers did their groundbreaking work, most economists thought that the natural distribution of credit was always efficient. Also, any financial instability was caused by exogenous shocks or policy errors. But the combined work of the Nobel laureates proved the instability as endogenous and stemming from the same structures that enable growth.

This was a surprising, eye-opening redefinition of finance as a public good, where it requires trustworthy institutional frameworks. This revelation was one of the biggest changes in economic thought since Keynes.

3.7.6.2. Methodological Synthesis

Diamond and Dybvig employed sophisticated, stylized theoretical models to achieve clarity through abstraction. Diamond (1984) enhanced microeconomic precision using contract theory. Bernanke used real-world macroeconomics to put finance in context by using empirical and historical analysis. Their combined approach, which included theory, empirical evidence, and policy, set the norm for how economics should help society.

3.7.6.3. Lessons for Future Economists

The message from the three Nobel laureates is simple yet deep:

- Money is important.
- Trust and confidence are just as real as capital and cash flow or liquid money.
- Policies must be proactive, not reactive, to keep the system stable.

3.7.7. Comparative Summary: Interlocking Contributions

Table 2: Comparative Summary: Interlocking Contributions

Dimension	Peter A. Diamond	Philip H. Dybvig	Ben S. Bernanke
Core Question	Why do banks exist?	Why are banks fragile?	What happens when banks fail?
Theoretical Innovation	Delegated monitoring and diversification	Liquidity insurance and multiple equilibria	Credit channel and financial accelerator
Key Publication	*Financial Intermediation and Delegated Monitoring* (1984)	*Bank Runs, Deposit Insurance, and Liquidity* (1983)	*Non-Monetary Effects of the Financial Crisis* (1983)
Level of Analysis	Micro (bank–borrower)	Micro (bank–depositor)	Macro (finance–real economy)
Main Policy Lesson	Regulate and monitor intermediaries	Insure deposits, maintain confidence	Maintain credit flows and financial stability
Empirical Manifestation	Monitoring costs, diversification	Bank runs, liquidity crises	Great Depression, 2008 crisis
Unified Impact	Foundations of modern banking theory	Theory of systemic fragility	Macroeconomics of crisis and recovery

Sources: Author's compilation from the Scholars's several studies.

3.7.8. Historical Resonance: From 1930s to 2008 and Beyond

The Great Depression (1929–1933) and the Global Financial Crisis (2007–2009) serve as twin laboratories validating these ideas.

Table 3: Historical Resonance: From 1930s to 2008 and Beyond

Aspect	Great Depression (1930s)	Global Financial Crisis (2008)	Underlying Mechanism
Trigger	Bank failures, deflation	Housing bubble collapse, liquidity freeze	Credit intermediation breakdown
Dominant Shock	Loss of depositor confidence	Loss of wholesale funding	Diamond–Dybvig fragility
Propagation	Collapse of bank lending	Credit crunch and deleveraging	Bernanke's financial accelerator
Policy Response	No deposit insurance until 1933	Deposit guarantees, QE, bailouts	The Nobel framework applied
Outcome	Decade-long depression	Recession followed by recovery	Crisis contained via informed intervention

Sources: Author's compilation from the Scholars's several studies.

The parallel is striking: the 2008 crisis was managed successfully because policymakers, informed by decades of research since Diamond and Bernanke's seminal works, knew *what not to do*.

3.7.9. The Unified Vision of the 2022 Nobel Laureates

Ben Bernanke, Douglas Diamond, and Philip Dybvig together constructed the intellectual and policy foundation of modern financial stability economics. Their combined message is both analytical and moral:

- **Banks are not neutral intermediaries.** They are social institutions that transform liquidity, pool information, and insure against uncertainty — but whose very structure makes them fragile.
- **Financial crises are not random shocks.** They are endogenous breakdowns of trust and intermediation that can devastate real economies.
- **Policy must protect trust as much as capital.** Deposit insurance, lender-of-last-resort facilities, and macroprudential oversight are not distortions of free markets; they are the institutions that make markets sustainable.
- **Empirical vigilance is essential.** As Bernanke's research and policy career showed, understanding history prevents its repetition.

In essence, Diamond and Dybvig provided the *microeconomic architecture* of banking, why it exists, and how it breaks, while Bernanke provided the *macroeconomic bridge* connecting finance to the real economy and to policy design.Their collective work transformed banking theory into a science of confidence, macroeconomics into a study of financial amplification, and crisis management into an evidence-based discipline of resilience. The world's financial systems, whether conventional or Islamic, advanced or emerging, continue to rely, often unknowingly, on the logic first articulated by these three scholars.Their legacy endures wherever banks create liquidity, governments insure deposits, or central banks act decisively to prevent fear from becoming collapse.

3.8. Challenges and Vulnerabilities

The banking industry in Bangladesh is facing numerous challenges, including an upward trend in non-performing loans (NPLs), poor governance, and political influence. Justice Ahmed mentions the Bank of Commerce and Investment (BCI) as an example of a bank facing systemic downfall where the regulatory agencies are unable to inhibit or ameliorate unethical behavior. The key reason behind these banking flaws is political patronage. At a 1999 seminar, Justice Ahmed reported that 77% of loan defaulters had political connections, indicating the significant degree to which governance systems had been compromised. Therefore, the existing regulatory efficacy is degraded, fueling corruption and inefficiency due to the political patronage structure, which was particularly drastic in the previous political government tenures.

In Bangladesh, there is unequal access to banking services, where public deposits primarily benefit wealthy borrowers. This unethical practice exacerbates economic bias, as banks prioritize low-risk borrowers over others seeking financial support for their legitimate economic activities. Unfortunately, the banking sector has a history of flaws, including poor risk management, political meddling, and corruption. Institutional credibility has been damaged by unethical conduct driven by political favors, as seen in cases such as BASIC Bank. According to Dr. Rehman Sobhan, these incidents are signs of a larger governance breakdown that is made worse by a lack of transparency and accountability.

According to Diamond and Dybvig's (1983) [46] approach, it is essential to resolve the underlying tensions between the requirements of investors and savers. Savers seek liquidity, whereas borrowers need long-term financing. Banks address this issue by providing demand deposits and allocating funds to long-term projects, a procedure referred to as maturity transformation. This structure renders banks vulnerable to runs, especially when rumors emerge regarding their stability. The possibility of self-fulfilling bank runs represents a significant vulnerability. Even false rumors have the power to cause massive withdrawals by depositors, which forces banks to sell off assets at a loss. Diamond and Dybvig (1983) [46] advocate for government-backed deposit insurance as a remedy. This

insurance reassures depositors, thereby mitigating the panic that can result in bank runs. Deposit insurance can stabilize the banking system without necessitating frequent intervention.

Bernanke's (1983) [45] examination of the Great Depression highlights the pivotal influence of failing banks in exacerbating the crisis. Bernanke [45] demonstrates that, contrary to previous assumptions attributing the crisis solely to monetary policy, the collapse of banking networks disrupted essential interactions between banks and borrowers. This disruption notably hindered the distribution of savings to investments, thereby extending the depression. The recovery commenced following decisive governmental measures aimed at stabilizing the banking sector. The failure of banks results in the loss of knowledge capital inherent in lender-borrower relationships. Reestablishing these relationships requires time, thereby exacerbating long-term economic harm. Bernanke's [45] findings emphasize the importance of preventive measures, oversight, and the swift implementation of crisis management strategies to prevent temporary shocks from evolving into prolonged downturns.

The collaborative efforts of Diamond and Dybvig (1983) [46] and Bernanke (1983) [45] have had an enormous impact on monetary policy. Contemporary regulatory frameworks for crisis prevention and management are based on their findings. Their work acknowledges the ongoing challenges in regulation while also providing crucial recommendations. There are still significant threats from problems like regulatory arbitrage, too-big-to-fail institutions, and moral hazards. Therefore, the significance of banks in monitoring borrowers is highlighted in Diamond's (1984) [47] research. Banks can mitigate the social costs of borrower defaults and moral hazard by acting as delegated monitors, as individual investors are ill-equipped to do so. However, the question of who oversees the banks themselves then arises. According to Diamond [47], banks are incentivized to prevent bankruptcy by their own structure, which means they have an incentive to conduct thorough surveillance.

3.9. Corporate Governance in Islamic Banking

Corporate governance in the context of Islamic banking occurs in a unique setting that incorporates both conventional governance pathways and legal and ethical requirements derived from Shariah. Together, these two pathways form a complex governance framework that extends beyond traditional banking oversight, encompassing religious compliance, ethical oversight, and spiritual accountability. While Islamic and conventional banking share universal governance principles, including financial transparency, accountability, and stakeholder equity, the additional layer of religious oversight and Shariah compliance introduces complexity that requires specialized expertise and institutional arrangements.

The governance structure of Islamic banking institutions reflects this challenging duality, incorporating a combination of conventional corporate governance mechanisms alongside Islamic (and Shariah) legal oversight. This duality necessitates a more complex and sophisticated approach to institutional governance that integrates spiritual and ethical dimensions with material implications. Therefore, the governance framework must comply with the principles of successful business operations while adhering to Islamic principles. The governance of Islamic banking relies on several interdependent stakeholders and entities, each contributing to the institutional accountability and compliance with conventional regulations and Islamic laws. Shariah boards are one of the most distinguishing features of Islamic banking governance, acting as a form of specialized religious oversight to ensure compliance with Islamic rules and principles for all institutional activities. Shariah boards serve as both consultants and auditors for religious compliance, issuing fatwas (religious legal opinions) that influence and guide institutional decision-makers, while also providing ongoing monitoring to ensure compliance with Shariah and Islamic laws and principles. Shariah boards have significant influence throughout Islamic banking, both operationally and structurally, encompassing the development of products, investment decisions, customer relationship management, and institutional strategic development. Shariah boards require a thorough understanding of Islamic regulations and modern banking practices to provide advice that does not

compromise religious authenticity while enabling institutions to operate effectively in the financial systems of modern times. The success of Shariah boards is reliant on their independence from commercial pressures and the provision of complete access to information about the workings of institutions. The corporate and management structures of Islamic banking are developed within frameworks that mirror the governance of conventional banking institutions, but they involve additional layers of oversight regarding Shariah compliance. Boards of directors, management committees, and executive teams perform an oversight role analogous to that of conventional banking institutions, such as establishing business strategy, managing risk, and overseeing operations. Still, these traditional governance bodies must also coordinate with Shariah boards and, in many jurisdictions, national Shariah authorities that provide additional supervision and guidance. Coordination between the various bank governing bodies requires sophisticated communication and decision-making processes to gain assurance that religious compliance considerations permeate all aspects of institutional governance. Management teams must not only possess conventional banking knowledge but also sufficient Islamic knowledge to implement Shariah-compliant policies and procedures. Perhaps more than conventional banking, dual reporting relationships of Islamic banking governance add to the complexity of governance and require careful management to avoid conflicts between commercial purpose and religious requirements. The relationship between shareholders and depositors in Islamic Banking is different from that in commercial banking, primarily due to the profit-and-loss sharing arrangements that exist with many Islamic banking products and services. In arrangements like Mudarabah partnerships, depositors take the risks that shareholders have traditionally assumed, creating stakeholder relationships that necessitate greater transparency and fairness in how institutions conduct their business. The fact that depositors are now risk sharers gives them legitimate interest in institutions' governance that goes beyond protecting deposits to include their participation in the performance and direction of the institutions.

The stakeholder relationships require governance practices that enable depositors to access information about how the institution is performing, including the risks associated with their deposits and any significant strategic

decisions that may impact their deposits. Institutions must create communication and consultation processes that allow for depositors to officially participate in the governance process, while at the same time retaining operational efficiency and accountability of the institutions' management. The equity implications of Islamic finance require that governance practices treat all stakeholders fairly while taking into account the different roles and risks each contributor undertakes.

The quality and competencies of people and supporting organizations are another critical element in maintaining the integrity and reliability of governance within Islamic banking institutions. The specialized field of Islamic finance requires its employees to have competencies in not only traditional banking techniques but also the Islamic legal principles that apply to the transactions of Islamic banking. Therefore, implementing governance practices in Islamic finance poses a human resources challenge that impacts the institution's successful governance. Educational institutions, governments, professional development organizations, and regulators play critical roles in developing and managing the human capital necessary to ensure that effective governance systems are implemented in Islamic banking. Training and development programs should focus on both technical banking competencies and Islamic financing principles. Everyone needs to understand that they have a duty to ensure Shariah compliance, foster ethical behavior, and practice what is right in Islamic banking. Because effective governance systems ultimately depend on the competencies, skills, and motivation of the individuals responsible for implementing the institutions' policies and procedures in Islamic banking, ongoing professional development and education are essential for effective governance systems.

Governors of Islamic banking institutions must also enforce governance processes that are shaped by external standards of regulators and other supporting organizations. The governance of regulators and supporting organizations will provide assurances that the governance process of any individual institution is consistent with the standards of the broader industry and confirm that it contributes to the development of Islamic finance as a legitimate alternative to

conventional banking. Partnerships between institutions and supporting organizations can enhance the overall governance process in Islamic finance by collaborating to promote development and innovation within the industry. The governance framework in Islamic banking will balance various priorities, including financial performance, regulatory compliance, Shariah compliance, and the satisfaction of stakeholders' interests. The ability to balance these concerns will require a sophisticated governance structure that integrates interests, addresses competing priorities and requirements, and maintains the institutional mandate and influence. Doing this effectively requires clarity and effective communication of responsibilities and accountability, as well as information systems to coordinate and facilitate collaboration with multiple governance bodies. Additionally, there must be a commitment to sustaining profitable commercial excellence and adhering to Islamic principles of management at every level within the institution.

3.10. Role of Regulatory Bodies

It is undeniably true that political forces have frequently hindered the Bangladesh Bank's regulatory control, especially over the preceding decades, thereby undermining its capacity to implement regulations. Inadequate supervision is another significant failing of the Bangladesh Bank caused by a lack of freedom and resources. While Bangladesh Bank acts as the principal regulatory authority, its capacity to impose accountability is frequently hampered by political limitations. Dr. Akbar Ali Khan emphasized the need for greater autonomy and robust enforcement measures to prevent unethical behavior. Justice Habibur Rahman [30] noted the need to allow regulatory organizations to function independently, adding that "regulators must be free from external interference to ensure the integrity of the financial system." Despite its limits, the Bangladesh Bank has taken steps to address systemic concerns, such as drafting corporate governance and risk management rules. However, enforcement is uneven, resulting in considerable gaps in compliance.

The liquidity crisis is currently a significant issue affecting nearly all state-owned banks and some Islamic banks. Liquidity transformation entails a fundamental risk: the potential failure to satisfy all withdrawal requests during

periods of economic distress. The availability of restoration on demand, coupled with illiquid loan assets, subjected banks to insolvency risks. Structural fragility required the development of regulatory and institutional safeguards. Central banking emerged as a mechanism to serve as a lender of last resort. Nonetheless, this safety net created moral hazard; banks, shielded from liquidity crises, experienced diminished incentives for self-regulation. Regulatory mechanisms, including reserve requirements and capital adequacy standards, were implemented as a remedy. Deposit insurance developed as a substitute, transferring oversight responsibility from market discipline to governmental regulation.

3.11. The Role and Functions of Financial Intermediaries

In the financial system, Financial Intermediaries facilitate the flow of funds from entities with excess capital (depositors) to those with capital deficits (borrowers) who need funds to expand their business. Financial intermediaries, in contrast to non-financial corporations, typically hold numerous financial claim contracts that reflect their clients' indebtedness as assets. Financial leverage is also very common in institutions. Furthermore, financial intermediaries play a significant role in addressing informational inefficiencies arising from information asymmetry between the transacting entities and in managing financial risks. Therefore, it is instructive to know the two core functions of the financial intermediaries (brokerage and asset transformation).

The brokerage function facilitates transactions by bringing together parties with complementary financial needs, leveraging the intermediary's expertise in processing and interpreting non-observable (subtle) informational signals. Thanks to this function, the collected information can be reused for other cases or further research, namely, cross-sectional reusability and intertemporal reusability. Brokerage services become increasingly valuable as information signals become more complex and nuanced, underscoring the importance of expert knowledge and a reputable organization. The brokerage functionality of financial intermediaries directly addresses several issues related to informational asymmetries. For example, when borrowers are more informed about their risk profiles than lenders are, this may lead to mispricing of risk and the phenomenon

known as adverse selection. In the absence of risk categorization criteria, high-risk borrowers may control the market, as shown by Akerlof's (1970) "lemons" model. Intermediaries in the financial sector mitigate this inefficiency by using credit analysis to classify borrowers and determine appropriate levels of risk. Additionally, the non-rivalrous nature of information enables centralized appraisal by intermediaries, which significantly reduces transaction costs. Cost savings from intermediaries with a competitive edge in data assessment increase in proportion to the market size. The moral hazard problem arises when one party takes advantage of a situation after the contract has been signed, and the other party may not be able to foresee it. Borrowers may take too much risk with their projects, or insured people may fail to spend enough on prevention. Reviews at regular intervals, as well as contract provisions and governance rights, are some measures that financial intermediaries can take to manage and monitor operations, thereby reducing moral hazard (e.g., in venture capital).

Additionally, Qualitative Asset Transformation (QAT) involves intermediaries assuming risk in the transformation of financial assets. This consists in modifying the characteristics of financial claims, such as liquidity, maturity, and risk, to align more closely with client preferences and requirements, thus improving the efficiency of credit allocation. The primary functions of financial intermediaries involve transforming illiquid, long-term, or large-denomination assets into liquid, short-term, or small liabilities. Furthermore, this aligns with the characteristics of financial claims and satisfies client preferences. This approach fundamentally addresses the balance sheet mismatches and related risks for the intermediary. QAT implements various strategies to mitigate exposure, including passive acceptance of risk, diversification to minimize risk via portfolio effects, and risk transfer mechanisms such as derivatives (swaps, options, futures) to shift risk to other market participants.

When all significant functions are executed effectively, financial intermediaries achieve their optimal size. The financial services industry exhibits characteristics of a natural monopoly, particularly in the areas of brokerage and asset management. Larger institutions gain advantages from reliable information and economies of scale, particularly in risk diversification and credit screening.

The concavity of depositors' payoff functions indicates that diversification benefits increase with size, rendering large financial institutions optimal in various contexts.

3.12. Impact on Society and Economy

Illegal conduct in Bangladesh's banking industry has far-reaching effects. Economic growth is slowed due to high NPL rates, thus limiting banks' capacity to offer credit to profitable sectors. According to Justice Ahmed, public confidence in financial institutions has declined, and he cautions that "if trust in banks collapses, the entire financial system risks destabilization." Likewise, the sector's deficiencies disproportionately impact small and medium-sized businesses (SMEs) and rural borrowers, aggravating economic inequality. To restore public trust, Professor Sobhan emphasizes the need for a more accessible banking sector to promote economic and social equality. Ultimately, the banking sector must be transparent and reliable to gain the public's trust and capital.

4. Mechanics of Money Creation and Interest-free Islamic Banking

4.1 The Current Practice of Money Creation

Current monetary systems operate using processes that are very different from the popular view of banking as financial intermediation. The common belief that banks lend deposited money is an unmistakable misunderstanding of the functioning of modern monetary systems. Commercial banks create money when they issue loans, rather than transferring deposit money from savers to borrowers as stated, including by the Bank of England and Germany's Bundesbank. Money creation happens as an accounting entry when the bank creates a loan as an asset and a liability as a deposit in the borrower's account. Banks do not need deposits or (required) savings before they issue the loan, because they create money through the act of issuing the loan. A recent study by economists including Richard Werner, showed banks act as money creators, not as financial intermediaries, which has significant implications for fairness, wealth distribution, and inflation.

As acknowledged by McLeay, Radia, and Thomas, more than 95% of money created is created by private banks through loans. This provides the possibility to rethink the basics of economic models that assume banks are intermediating between savers and borrowers, and that there is a One-to-One counter type relationship between money supply growth and interest rates, when in practice, bank lending and borrower demand are driving the growth in the money supply. Central banks can hardly ever directly control the expansion or concentration of broad money, as was clear towards the end of quantitative easing, when the monetary authorities vacillated and lacked the means to control the money creation environment completely. Recognizing these accounting realities clarifies how banks can provide credit and create money without accounting for matching deposits. While challengeable, this upends (confounds) the traditional stories about banking presented in economics textbooks. The critical point here is that this provides nuanced reasons for reconsidering our monetary theory. Additionally, this recognition may be indicative of malicious designs (not accidental obfuscation) regarding how monetary systems operate. In particular, this revelation has consequences for the public's understanding of financial institutions and also the policy implications for the government with respect to the economy.

From an Islamic perspective, this process of money creation has serious ethical implications in terms of riba (usury) and justice. Banks are creating money via accounting entries and charging interest on that money with little productive activity or sacrifice on their part. They have the ultimate benefit of origination through accounting entries, while borrowers, to repay debt, are using real income made by productive work to repay debts; this establishes a transfer of wealth from borrowers to financial institutions. When borrowers default, financial institutions take physical assets as collateral; however, the principal loan was essentially merely money created through an accounting entry, with no real sacrifice or productive activity on the part of the bank. The prohibition against riba (usury) in Islamic finance is fundamentally about the justice of the economic relationship. The Qur'anic ban against interest (Surah Al-Baqarah 2:279) advises believers to refrain from dealing in residual interest, as they will be fighting against Allah and His Messenger. The measure and quintessence of this (riba) is the idea of

equitable economic relationships. The present money creation system violates that idea, as banks make a profit on interest from money they create without making any contribution to productive activity, while borrowers use real economic output to repay artificial currency.

4.2 Towards Islamic Monetary Reform

Islamic monetary theory offers alternatives to conventional banking that address many ethical issues and concerns associated with debt-based money creation. Creating money through sovereign power is fundamental. Only legitimate governmental authority should make money, as money created without proper authority is what Islamic scholars such as Moulana Asmatullah consider *fasad fil-ard* (corrupting the earth). According to Islamic monetary theory, private credit creation through fractional reserve banking represents a violation of this fundamental principle because private institutions do not seek proper authority when they create money. Price stability is a natural result of economic systems that do not rely on interest-based mechanisms. In many cases, inflation is caused by interest-based financial systems; therefore, in an Islamic economy with a prohibition on riba, a reasonable policy aim is to have zero inflation. Al-Ghazali, an Islamic economic theorist, discusses the role of money in the economy mainly as a stable unit of exchange. Al-Ghazali suggests that any economic policies that decrease the value of money are inconsistent with Islamic concepts of money.

Individual characteristics of economic systems also play an important administrative role. The elimination of unproductive investment is another important feature of Islamic monetary systems. Interest-based systems enable rentiers to profit without assuming any associated risk, thereby encouraging owners of capital to generate revenue without regard for social concerns. In contrast, Islamic financial systems derive returns from profits generated by musharaka-financed investments, under which investors suffer when the underlying business suffers. Such an economy benefits from full-scale investment in productive activity rather than rentier classes profiting from interest-based regimes at the expense of real investment in an economy that produces goods or services.

Emphasis on human development and productive investment shows the importance of Islamic considerations regarding wealth creation and social development. The World Bank reports that for most societies, human capital is the predominant form of wealth. This validates the assertion that long-term wealth creation is primarily linked human capital development for individuals and communities rather than the mere accumulation of financial wealth. Social development is based mainly on the aspirations of people and communities regarding opportunities for collaboration and trust in educational and social institutions, rather than interest-based financial accumulation. The evolution of Islamic monetary policy will need a significant restructuring through community-based banking similar to successful programs like Mit Ghamr and the decentralized local banking structures of Germany. De-centralized banks can take advantage of proximity and trust while focusing on microfinance, small business, and the policies of Bai Salam and Istisna to create products for agricultural and manufacturing activities.

Communities that utilize awqaf (charitable endowments) can create opportunities for philanthropy to support social services and become avenues for providing public goods through voluntary collective channels, as opposed to this being the exclusive domain of the government. The Islamic emphasis on the potential of community to make information and opportunity routinely accessible reflects the innate human instinct to provide opportunities and mutual assistance to others.

Sadly, the primary difficulties associated with such initiatives reflect a steep political challenge, as financial interests are naturally opposed to reforms such as the Chicago Plan. However, such proposals should theoretically appeal to development practitioners who argue that monetary wealth should be generated through production, rather than through interest. Likewise, today, a transformative change to the monetary system is likely to meet resistance from established financial institutions that benefit from the current system of transactions, which provide revenue streams. However, the adoption of Islamic monetary policy should be simple, since the successful introduction of economic policies will require authorities to establish their own abilities to independently

create sovereign money, create interest-free financing through musharaka partnerships, ratify stable pricing policy with no inflation, and enact policies emphasizing community development connected to Islamic notions of community support and social cooperation.

5. Dialectic Theory of Banking Regulation and BB Resolution Ordinance

5.1 Theoretical Framework: The Dialectical Development of Banking Regulation

The development of banking regulation is an ongoing and dynamic process, shaped by the interplay of opposing forces, and this dialectical process provides a framework for understanding how regulatory regimes evolve, change, and ultimately spread through workplaces, organizations, and institutions during crises and major economic transformations. Bangladesh's recent adoption of Bank Resolution Ordinance 2025 is a good illustration of a dialectical development, as the regulation can be viewed as a synthesis of past regulatory failures and the impetus for regulatory reform. The dialectical theory of banking regulation occurs in three stages: the thesis, antithesis, and synthesis. The thesis represents periods of deregulation or regulation that support free-marketism as superior to government intervention. During these periods, minimal government intervention is seen as preferable to promote economic efficiency, and the market is presumed to self-regulate, delivering efficiency or value to the economy. Bangladesh's banks experienced these phases during several periods of financial liberalization, which advocated for outsourcing regulatory compliance to support entrepreneurship and capital formation.

The antithesis phase refers to any future identified moment of systemic crisis, banking scandal, or systemic market failure. Such crises highlight the limitations of unrestricted market mechanisms and prompt a coercive regulatory response. The banking crises of the last political regime in Bangladesh, characterized by huge default loans on behalf of laundering political party funds, persistent political interference, and systematic institutional capture, represent such a dialectical bargaining moment. The synthesis phase is the process of reconciling the tensions between market efficiency and systemic protection by co-creating regulatory frameworks that learn from past policy failures while leveraging

effective market mechanisms. The theoretical implications of this dialectical approach suggest that regulatory change is neither linear nor static. Recognizing that regulatory synthesis is always temporary and that it will face new contradictions and challenges from financial innovations, from volatile political circumstances, or as a response to unanticipated market developments, is particularly salient in the current political context of re-formulation, re-formation, and re-envisioning of financial regulation amidst global trade tension and political uncertainty.

5.2 The Bangladesh Bank Resolution Ordinance 2025: A Regulatory Synthesis

In many ways, the Bank Resolution Ordinance 2025, which was passed on May 9, 2025, and was born from the dialectical tensions of the banking sector, is a regulatory synthesis because it established many significant regulatory mechanisms and distanced itself from old regulatory practices and frameworks with its authority to intervene in troubled financial institutions. The authoritative nature of the ordinance establishes several critical systems for banking sector stability. The banking regulatory authority has always enabled the Bangladesh Bank to take ownership and control away from troubled banks and transfer them to state entities, compelling resolution of fraud and financial scandals involving executives and board members during the resolution proceedings. This degree of supervisory action is distinct because the ordinance has removed the previous "political" constraints on acting on behalf of an institution, as it includes politically appointed board members and politically connected clients of these institutions.

Perhaps the most creative aspect of the ordinance is the introduction of "bridge banks" to enable the Bangladesh Bank to preserve important banking sectors and functions during the resolution process, thereby avoiding a systemic problem while maintaining bank operations. The "bridge banks" are temporary; they can be operated for a maximum of 2 years, and they do not create ongoing state bank bailouts disguised as resolution processes. This mechanism aims to address one of the most important lessons learned from past banking crises, where the lack of structured resolution mechanisms led to prolonged institutional uncertainty and market disorder.

The establishment of a Banking Sector Crisis Management Council, comprising seven members including the Bangladesh Bank Governor, demonstrates a significant institutional response to providing coordination for crisis response across various regulatory agencies. This is an improvement (with respect to international best practices for governing financial stability) over the ad hoc crisis management mechanisms used in the past. The ordinance also includes a comprehensive accountability framework with provisions for the personal liability of bank officials involved in fraudulent or dishonest activity. These individual penalties can go as much as Tk 50 lakh and impose additional daily penalties of Tk 5,000 per day for continued non-participation. Where accountability measures in the past were weak, this ordinance is a response to the culture of impunity that has been evident in past scandals, particularly with respect to the compliance obligations of banks involving Bangladesh Bank or other regulatory authorities.

5.3 Comparative Considerations: The Indonesian Dual-Regulatory Framework

In thinking through the potential regulatory future of Bangladesh, it is helpful to see how its regulatory evolution relates to developments in existing dual-regulatory frameworks in comparative economies (for example, the Indonesian dual-regulatory framework). Indonesians separated Bank Indonesia (BI) and the Financial Services Authority (OJK) when they implemented a dual-regulatory arrangement in 2013, which has offered a functionally separate regulatory arrangement under which BI is responsible for monetary policy with a macroprudential focus, while OJK is responsible for all other forms of microprudential supervision of the various financial institutions. The Indonesian model has demonstrated significant regulatory effectiveness, with the OJK subsequently strengthening its own frameworks, implementing Basel III reforms in the wake of the most recent crisis, and employing new technologies to innovate supervision. While the potential for Bangladesh is promising based on this success, there are serious contextual factors to be considered first.

First, the Indonesian system of assigning regulatory responsibilities shows efficiencies that can serve as a guide for Bangladesh. BI operates on a macro-supervisory basis, enabling it to maintain deeper connections to banking,

systemic risk, and monetary stability, while also developing specialization in monetary policy, macro-prudential functions, and bank supervision, all with the goal of promoting monetary stability. The OJK, with its comprehensive framework encompassing all banks, insurance companies, and other financial institutions, provides coordination to examine broader risks across the financial sector. The functional separation means that there are fewer opportunities for conflicts of interest and regulatory capture. Each institution has the opportunity to create areas of specialization. However, in practice, operationalizing a system similar to this in Bangladesh appears daunting. Its political economy may lack the institutional capacity and political will to consider any sort of comprehensive structural reforms. Notably, the World Bank designated Bangladesh as having a "high" level of political and governance risks, highlighting the precariousness of the reform process and casting doubt on whether the drafted ordinances would survive parliamentary review and subsequent elections.

It seems more likely that Bangladesh would adopt a gradual and phased approach to regulatory reforms. This would involve the Bangladesh Bank leveraging the natural development of existing capabilities, and then gradually developing specialized supervisory units, with structural separation being discussed later, if and when the conditions were favorable. This sequencing and phased-in approach recognize the theoretical merit of the Indonesian model, while also acknowledging the stark limitations of Bangladesh’s institutional capacity in practice.

5.4 Addressing Structural Governance Weaknesses

The Resolution Ordinance 2025 aims to address several foundational structural weaknesses that have been identified in the development of the banking system in Bangladesh. Structural weaknesses include the non-independence of boards, inadequate internal controls in banks, lack of transparency in banks, regulatory weaknesses in bank rulemaking, prevalent political interference, and cultural acceptance of non-compliance. All these structural weaknesses are worthy agenda items to explore when discussing structural governance reforms.

The Bangladesh Bank has implemented several recent governance reforms, including a number of truly "low-hanging fruit" changes, such as changes to dividend payouts and the establishment of a dedicated supervisory department. These reforms are justified as critical first steps; however, addressing structural weaknesses will require much more robust and holistic approaches. The ownership requirement for directors presents a structural weakness. The current 2% ownership requirement for directors enables virtually all the systemic problems currently present: cronyism, family control, disqualification of capable and qualified individuals, governance bias, conflict of interest, and divergence from global ownership requirements. Discarding the 2% ownership requirement would provide governance based on merit, reduce wasteful spending, strengthen regulatory confidence, bolster public trust, and improve international practices.

The issue of structural separation of Islamic banking from conventional banks raises new concerns regarding structural weakness. The goal is to achieve an overall increase in Shariah compliance; however, this represents a forced structural separation, which presents the possibility of access to services, competition, and operational challenges. A reasonable compromise could be to strengthen Shariah oversight in governance, with separate boards that incorporate a Shariah element into their infrastructure.

6. Analysis of Banking Crises and Scandals

6.1. International

The key reasons behind the Asian Financial Crisis (1997–1998) were speculative "hot money," extensive borrowing for short-term purposes, and poor credit quality, which destabilized financial institutions and economies [29]. The economic downturn was exacerbated by the collapse of fixed exchange rates, premature capital liberalization, crony capitalism, and unethical currency speculation. Weak financial sectors, excessive investment in unproductive companies, and high interest rates also worsened the economic downturn. The 2008 failure of Lehman Brothers called attention to the dangers of using excessive leverage. Lehman lent significantly to then invest in housing-related assets, making it vulnerable when the housing market fell, which resulted in the

biggest bankruptcy in history, affecting assets totaling more than $600 billion. In the same year, Bernie Madoff's Ponzi scheme robbed investors of $64.8 billion by paying returns with newly made investments rather than actual earnings. This was one of the biggest financial scams ever discovered.

Under the leadership of CEO Angelo Mozilo, Countrywide Financial committed fraud by deceiving investors about high-risk subprime loans, resulting in billions of dollars in losses. Mozilo faced a $67.5 million penalty and a lifetime ban from public business leadership. Similarly, Raj Rajaratnam of The Galleon Group was found guilty of insider trading and received an 11-year prison sentence for earning $20 million illicitly. In 2010, it was revealed that Lehman Brothers had misrepresented its financial situation by using Repo 105 transactions and asset transfers to a dummy company called Hudson Castle, thereby disguising legitimate concerns. That same year, Afghanistan's Kabul Bank failed due to $861 million in fraudulent loans, costing the country 5% of its GDP and ranking among the worst financial failures in the world.

The largest financial scandal in 2012 was JPMorgan Chase, which disclosed a huge trading loss initially valued at $2 billion but ultimately increased to $5.8 billion. Known as the "London Whale" affair, it led to $970 million in penalties and admittance of guilt. Additionally, JPMorgan and Chase Bank decided to return $309 million to more than 2.1 million consumers for unlawful credit card billing methods. Due to Barclays' settlement of claims related to rate tampering involving billions of dollars in financial agreements, the LIBOR modification scandal had a significant international impact. UBS faced similar claims, and its crises included a rogue trader, Kweku Adoboli, who caused the bank $12 billion in losses and was convicted of fraud. HSBC received a record $1.9 billion penalty for facilitating money laundering associated with Mexican drug gangs and Iranian operatives. Meanwhile, Standard Chartered handed over $327 million for illicit dealings with sanctioned nations.

Smaller-scale scams have also made news. Russell Wasendorf Sr., CEO of an Iowa futures firm, embezzled $215 million by fabricating bank statements. Rajat Gupta, a former Goldman Sachs director, received a $5 million penalty and was sentenced to two years in prison for providing insider information to

hedge fund manager Raj Rajaratnam during the 2008 financial crisis. Insider trading has continually thwarted regulatory efforts. Prosecutors went after Steven Cohen of SAC Capital, accusing an earlier portfolio manager, Mathew Martoma, of utilizing inside knowledge purportedly related to Cohen. These incidents exposed widespread malfeasance in the financial sector, underscoring the need for stricter oversight and accountability.

6.2. Bangladesh

Recent scandals, such as high-profile loan defaults, have exposed coordination between bank executives and influential borrowers. These instances demonstrate how ethical breaches at various levels have compromised the financial system.

6.2.1. Major Crises and Scandals

Farmers Bank, founded on lofty aspirations, became an emblem of incompetence and corruption. According to reports, individuals with political connections allegedly altered loan approvals by bypassing conventional procedures. The bank's non-performing loans (NPLs) surged, triggering a liquidity crisis. Bangladesh Bank intervened, but its monitoring was criticized for being reactive rather than proactive.

A significant loan fraud of approximately BDT 45 billion was involved with the state-owned BASIC Bank. Its management granted loans without appropriate collateral or due diligence. According to investigations, influential borrowers colluded with bank executives. Measures to impose accountability were tardy, exposing systemic flaws in regulatory enforcement. Dr. Mohammed Farashuddin states that such incidents demonstrate an absence of governance and regulation, which fosters a culture of impunity. Janata Bank came under investigation due to issuing loans to AnonTex Group totaling more than BDT 50 billion. The group defaulted, resulting in severe financial losses. Critics cited inadequate risk management and excessive interference in the loan approval process. This case demonstrated the susceptibility of state-owned banks to political intervention.

Sonali Bank provided fictitious letters of credit for BDT 36 billion during the Hallmark scam. Bank executives collaborated with the Hallmark Group to drain cash without proper paperwork. This controversy highlighted top management's lack of accountability and weaknesses in internal controls. The Bank of Commerce and Investment (BCI), formed in 1985, failed in 1992, leaving depositors stranded. The bank operated without formal authority and was involved in fraudulent activity. The directors departed the country, underscoring regulatory weaknesses and the need for more robust control measures.

7. Research Methodology and Data

7.1 Research Design and Methodology

This research employs an integrated approach to the mixed methods design to demonstrate the complex elements of ethical failures in the banking sector in Bangladesh. The methodology combines qualitative analysis from the distinguished Nurul Matin Memorial Lecture series with quantitative survey research from key stakeholders in the banking ecosystem, providing deep insights into the theoretical frameworks of banking ethics and an empirical assessment of them from the stakeholders' perspective within the banking system. The qualitative component of the study presents an in-depth case study analysis of banking scandals involving both state-owned (BCI, BASIC, Farmers Bank, Janata, Sonali, IFIC, Islami Bank, First Security Islami Bank, ICB Islamic Bank, and Global Islami Bank) and private banks, representing significant components of the banking landscape in Bangladesh. The case studies presented in Chapter 3 are practical illustrations of what ethical failures look like, demonstrating broad similarities in attitudes and behaviors between state and private banks that may represent triads of political interference, regulatory capture, and institutional collapse, which exist beyond bank categories.

The quantitative element comprises comprehensive accounts from a 205-response survey of respondents from stakeholder groups, including Bangladesh Bank officials, bank staff, depositors, borrowers, and a diverse array of academics, journalists, and providers of the esteemed Nurul Matin Memorial Lectures. The multi-stakeholder approach not only offers a variety of

perspectives but also ensures findings that present a broader perspective of the banking ecosystem, similar to the approach found in the research methodology. The survey comprises 59 questions in eight thematic sections, including both quantitative and qualitative data about stakeholder perceptions of ethical versus technical failures in the banking sector.

The research incorporates a variety of information sources to achieve an inclusive coverage of banking crises. The secondary sources encompass the entire series of twenty-one Nurul Matin Memorial Lectures, delivered by recognized experts in banking and finance, who offer credible examinations of the ethical dilemmas facing Bangladesh's banking sector over more than two decades. The lectures encompass knowledge of the historical record of ongoing issues, as well as new concerns in the industry, and clarify the theoretical bases for recent challenges. Other secondary sources of data include archival accounts of significant banking scandals, banking regulatory reports, government investigations, and media reports on banking-related information. Online sources, while supplementing the more traditional documentation of banking developments, improve over time, extend our reach, and provide newer information on previous accountabilities and the activities of relevant stakeholders during the continuing crises. The multiple sources of information allow for triangulation of findings, which bring together both historical contextual issues and contemporary significant developments.

The fieldwork for this study involved obtaining stakeholder experiences through structured surveys and research. The survey targeted 600 individuals working in relevant occupations and was submitted to 600 individuals in total, with 205 responses returned (response rates were statistically valid). The respondents included members of the Bangladesh AAOIFI Fellows Forum, managing directors and members of boards of directors of various banks, banking employees at varying ranks, journalists for news organizations focusing on development relating to the financial sector, academic and research professionals specializing in banking and finance, and scholars who were speakers in the Nurul Matin Memorial Lecture Series. The survey instrument reflects the study's theoretical framework, as the questions are organized into job-related or topical

areas. The biographical data portion establishes the expertise of the respondents and their institutional affiliations. We attempt to represent respondents from all stakeholder categories. The general awareness and perception questions seek to measure the most basic understanding of ethics of banking issues and knowledge of the major scandals during the previous politically corrupt regime. The agreement statements, quantified using Likert scales, allow for nuanced opinions on contested matters involving both causal and consequential aspects of problems in the banking sector.

Each stakeholder group has its own section, acknowledging that different professional groups bring unique insights into the analysis of banking sector participants. Questions for bank employees and bank management are geared toward internal pressure and governance challenges. Questions directed to regulators assess their degree of regulatory enforcement, as well as any political constraints or obstacles they face in exercising their authority. Customer questions assess their overall level of banking service experience and the degree of trust they place in the institution. External academic and media perspectives also weigh in on systemic issues and potential avenues for viable systemic solutions.

7.2 Analytical Framework and Indicators Development

The research employs a systematic methodology to identify and measure ethical failures within Bangladesh's banking sector. This study builds off the analysis of the Nurul Matin Memorial Lecture series to identify several key indicators of moral failure. These indicators serve as the analytical cornerstones of this study. Political interference is the primary indicator of ethical failure. Political interference occurs through direct, intrusive influence by politically established organizations in determining loan approvals for clients, making loan rescheduling decisions, and implementing general regulatory and compliance standards. Political interference occurs when bank officials are pressured to approve loans for politically connected clients, exposing banks to high risk, even if the collateral is sound, to maintain their reputations within the political elite circles to which they belong. Political regimes seek to influence the regulator's

hierarchy and utilize its power to favor influential loan defaulters. Professionals compromise with politically connected owners.

The next important indicator is the lack of transparency. We include a lack of transparency here because the larger story of ethical transgressions often involves hidden differences in loan conditions and undisclosed conflicts of interest among senior bank officials, misuse of professional discretion (i.e., falsifying or manipulating financial reports to conceal banking institution problems), and other violations of the law. These transgressions also extend to the regulatory process, with the regulator applying criteria inconsistently when implementing enforcement actions against specified cases of unethical conduct. The lack of accountability leads to scenarios where unethical conduct flourishes in the absence of integrity-based accountability.

The next important indicator is the amount of non-performing loans (NPL), as this serves as a quantifiable indicator of ethical failure instead of legitimate business failure (which is a somewhat valid rationale for NPL). A high degree of NPL provides evidence that politically sanctioned lending decisions are creating conditions that lead to repeated business failures. Politically motivated behavior causes banks to fail to perform due diligence, neglect to impose requirements for repayment of accepted loan contracts, and lend to undeserving clients who have little chance of repayment.

Collusion and corruption are the two ethical transgressions that most directly result in unethical practices becoming endemic to the banking system. This entails coordination between bank executives and politically connected, influential borrowers to circumvent and disregard regulatory requirements, create loan documents that facilitate fraudulent borrowing, and collude with a range of professionally affiliated groups to establish an informal network whose goals run counter to effective bank governance. Collusion and corrupt practices have also had a significant negative impact on competition while providing systematic advantages to individuals and organizations with political access and connections.

The analytical framework in this study recognizes that many of the above indicators function interactively rather than having unadulterated independence from one another, thus creating synergistic cycles of institutional degradation. Political interference permits extenuating conditions and a lack of transparency, which bolsters collusion and corruption, ultimately leading to increased NPLs that threaten the integrity of the institutions that jointly influence bank stability. Acknowledging this interrelatedness is necessary to develop reform strategies that address the root causes of failed institutions, rather than merely treating their symptoms.

8. Case Study Findings

8.1. Illustrative Narratives

The following case studies provide vivid examples of the systemic issues affecting Bangladesh's banking sector.

1. **Bank of Commerce and Investment (BCI) Failure:** BCI, founded in 1985, offered high interest rates to attract deposits. However, in April 1992, it failed to uphold its promises, resulting in a loss of Tk 200 crore ($25 million USD). As a result, Bangladesh Bank halted BCI's banking activities. While BCI committed its misconduct in front of the very eyes of the Ministry of Finance and the Bangladesh Bank, regrettably, the Bangladesh Bank and the Ministry of Finance accused each other of enabling this disaster without playing a responsible role in preventing it (First Nurul Matin Memorial Lecture by Justice Shahabuddin Ahmed [31]).

2. **BASIC Bank Irregularities:** A government audit revealed significant irregularities at the state-owned BASIC Bank Ltd., uncovering violations totaling Tk 601 crore. According to the Commercial Audit Department's findings, many of the discrepancies involved branches disbursing loans to clients who had exceeded their credit limits, often relying on inflated valuations of mortgaged properties. In some cases, the bank's headquarters approved loans in direct violation of its own credit policy. Branches were found to have operated with considerable autonomy,

occasionally disregarding instructions from the head office. Notably, one branch authorized two loans totaling Tk 100 crore more than a month before the borrowers had even opened their accounts.

Published sources suggest that BASIC Bank fell victim to fraud amounting to Tk 3,493 crore (approximately USD 436.6 million). Despite the scale of the misconduct, BASIC Bank's board appeared to permit this embezzlement, in contrast to Sonali Bank's board, which later claimed ignorance regarding similar loan irregularities involving Hallmark Group. The audit highlights the growing issue of political interference in state-owned banks, which has resulted in the appointment of unqualified individuals to key positions. These appointees are often supported by complicit bank officials who enable unethical practices. A similar situation exists at Agrani Bank, which is struggling with non-performing loans totaling over Tk 2,885 crore (The Daily Star, July 14, 2013).

Considering BASIC Bank's failure to meet key regulatory requirements intended to strengthen its financial health, Bangladesh Bank took the unprecedented step of assigning a special oversight role to monitor the institution. On November 18, 2015, the Bangladesh Bank extended similar scrutiny to four other state-owned banks—Sonali, Janata, Rupali, and Agrani—after critical financial indicators, such as capital adequacy and loan classification, began to deteriorate (The Daily Star, November 29, 2013).

3. **Sonali Bank Scandal:** Sonali Bank suffered massive losses due to fraudulent loans amounting to BDT 36 billion, marking one of the most severe financial scandals in Bangladesh's history. This case highlights the undue influence of powerful borrowers and a widespread lack of accountability among bank personnel. Board members bypassed due diligence processes and prioritized personal connections over institutional integrity.

The bank's ongoing financial troubles stem largely from irregularities in both loan disbursement and loan restructuring practices. In 2014, Salman

F. Rahman, citing liquidity constraints, rescheduled Beximco Group's outstanding loans from Sonali Bank. Beximco justified the request by pointing to credit restrictions imposed by political parties between 2001 and 2008. However, the company had already defaulted on loan repayments totaling Tk 800 crore over the prior three years. These financial difficulties were further exacerbated by prolonged political unrest, including shutdowns and blockades that occurred during 2013 and 2014.

Beximco appealed to the Bangladesh Bank for urgent debt restructuring, involving Tk 5,245 crore in loans from seven different banks. Bangladesh Bank responded by restructuring its large loan policy in January 2015, allowing borrowers with defaulted loans exceeding Tk 500 crore to apply for more lenient terms. Beximco and other borrowers quickly took advantage of the policy, collectively rescheduling over Tk 15,000 crore in defaulted loans. Under the revised terms, borrowers were granted highly favorable conditions, including a maximum 12-year repayment period and a significantly reduced down payment of just 1–2%, compared to the standard 10%. The policy stipulated that if a borrower missed two consecutive installments, banks had the option to cancel the rescheduling agreement. While the central bank advised legal action in such cases, enforcement was weak.

Sonali Bank rescheduled Beximco's Tk 1,070 crore in loans under this policy, extending the repayment period to 2027 and lowering the interest rate to 10%, down from the prevailing 13–14%. Even with a quarterly payment obligation of only Tk 57.4 crore starting in September 2016, Beximco made just two payments out of the six due by December 2017, thereby defaulting under the new policy. Despite this, Sonali Bank neither terminated the rescheduling agreement nor pursued legal action. Instead, it granted Beximco yet another loan rescheduling in March 2018. Although central bank regulations required 10% down payment to restructure defaulted loans, Beximco was again exempted, raising serious questions about regulatory enforcement and fairness.

4. **Hallmark Loan Scam:** On August 27, 2012, the central bank recommended that Sonali Bank suspend 31 executives, including two deputy managing directors. The Bangladesh Bank wrote to the managing director of the state-run commercial bank, requesting that they take action to prevent such officials from interfering with the bank's operations. The authorities were held accountable following an audit that discovered improper loan distribution to the relatively unknown Hallmark Group and other enterprises. According to the audit report, approximately Tk 3,547 crore ($443.4 million) had been stolen through unauthorized means.

Among the 31 personnel, AKM Azizur Rahman, deputy general manager of the bank's Rupasi Bangla Hotel branch (previously Sheraton Hotel branch), and Saiful Hasan, assistant general manager of the same branch, were both previously suspended. Sonali Bank would be required to provide fortnightly progress reports to the Bangladesh Bank on the implementation of the orders. The central bank stated that Alam and Co., a chartered accountant and consulting firm, had previously conducted a functional audit on the Rupasi Bangla Hotel branch of Sonali Bank to identify staff negligence in the scam. The audit revealed that officials exceeded their jurisdiction at the branch level. Additionally, it stated that the misappropriation of crores of taka had occurred either due to their incompetence or in collaboration with the executives of the GM Office and the Principal Office, which oversaw the monitoring and supervising of branch-level operations (Dhaka Mirror, August 27,2012).

5. **Destiny Multipurpose Cooperative Society Ltd (DMSCL) Scam:** Destiny Multipurpose Cooperative Society Ltd., the cooperative arm of the multilayered firm, was the site of a Tk 1,448-crore fraud involving 14 Destiny Group personnel, including its chairman Rafiqul Amin. According to a government inspection, Rafiqul Amin misused about Tk 130 crore of the funds. Gofranul Haque, the group's former vice president, stole around Tk 128 crore, and ex treasurer Akbar Hossain Sumon, Tk 119 crore. According to the Department of Cooperatives (DoC) investigation, nine additional officers of the notorious cooperative

business, including its former general secretary Zakir Hossain, received Tk 118.8 crore each. The report accuses Syedur Rahman, a director of Destiny Group, of misappropriating Tk 2.15 crore, and DMSCL Executive Director MA Muhith of misappropriating Tk—87 lakh.

According to the investigative report, the committee members misused the funds to promote businesses and lend money to nearly two dozen non-profit organizations. According to the charges, the defendants allegedly laundered Tk 3,285.26 crore ($478.2 million). Destiny Multipurpose Cooperative Society Ltd. (DMCSL) came under scrutiny after a central bank inquiry in March revealed that the company was engaged in unlawful banking. The Anti-Corruption Commission and the National Board of Revenue also investigated potential money laundering and tax evasion by the corporation. (The Daily Star, August 29, 2012).

6. **Farmers Bank Collapse:** Farmers Bank suffered liquidity challenges because of unscrupulous lending practices. Depositors lost faith as the bank's financial situation deteriorated. Farmers Bank, founded in 2013, failed owing to serious mismanagement, corruption, and aggressive, risky lending tactics. Investigations revealed that loans totaling over Tk 900 crore were granted without sufficient documentation or adherence to banking regulations, with political influence playing a significant role in circumventing due diligence. Weak internal controls and governance issues allowed massive lending irregularities and fraudulent activity to persist, further undermining the organization.

The absence of adequate regulatory supervision exacerbated the issue. Bangladesh Bank's delayed reaction worsened the bank's financial health, resulting in increased non-performing loans and liquidity difficulties. Political favoritism and collaboration between bank executives and powerful borrowers eroded trust and accountability, making Farmers Bank a cautionary story of systemic ethical and governance flaws in Bangladesh's banking sector.

7. **Janata Bank Crisis:** The state-owned Janata Bank suffered significant losses because of loans made to businessmen connected to the former Awami League administration. Approximately 55% of the bank's loans were given to 10 industrial organizations. Because these powerful clients failed to return their loans on time, 61% of the bank's debts are currently in default. This has resulted in a Tk 15.04 billion deficit for the first nine months of this year (January-September 2024). As of June 2024, Beximco has 72% of the total Tk 25,000 crore outstanding loans from the bank classified as bad loans [6]. In the most recent letter to the government, Janata Bank Chairman Fazlur Rahman noted that such a delicate scenario had never existed in the bank's history.

The Chairman further claims that loans have been disbursed to a select group of clients, unregulated. These loans have not been fully recovered. Nine of Janata Bank's top ten clients are now in default. Salman F. Rahman, the former prime minister's private sector and investment advisor, owns the Beximco Group. Beximco Group and its owner have utilized Janata Bank loans to establish a series of new businesses, one after another. However, they have not made the loan repayments with the same urgency. With Salman F. Rahman presently in prison, there is concern about the recovery of the loans. Beximco Group aggressively borrowed from the bank ahead of the 2024 legislative elections. Beximco's loan from Janata Bank was Tk 141.53 billion in 2021, but it has since increased to Tk 244.82 billion, with most of the amount in default. (for more, please see Prothom Alo report on 12 December 2024) [7], Janata Bank, once a reputable lender, gained notoriety during the previous administration for a range of frauds and loan irregularities involving companies such as Anontex, Crescent, Beximco, Thermax, and the S. Alam Group. The bad debts of these five defaulters exceeded Tk 45,000 crore [8].

8. **Islami Bank Bangladesh Ltd- PLC:** In 2017, Islami Bank Bangladesh's ownership and management dramatically shifted away from its "Jamat-e-Islami roots" after being nominated for the position. The bank is now

enduring a financial crisis due to this unexpected move [9]. Also, as a result of the shift, foreign investors sold off a portion of their bank holdings [10]. Islami Bank Bangladesh boasted 12 million customers, $10 billion in assets, and 90% of the Islamic banking industry's deposits and assets in Bangladesh as of 2017 [11]. It is also the largest private lender in the nation. Following the appointment of newly elected chairman Arastoo Khan, who replaced Mustafa Anwar, the bank revised its hiring practices to include a greater representation of women and non-Muslims [12, 13]. Islami Bank's bad loans then increased by 100%, reaching 69.16 billion BDT, between January and March of 2019. Additionally, it obtained special permits from the Bangladesh Bank to reschedule 600 loans that had defaulted [14].

Numerous news sources revealed in 2022 that the bank had been lending money to dubious companies without checking their credentials [15]. Just one month after launching a company named MediGreen, a 24-year-old man secured a 9 billion BDT loan from Islami Bank Bangladesh. Within three weeks of MediGreen's founding, another business, S.S. Straight Line, secured financing totaling Tk 9 billion. Marts Business received a loan of Tk 9 billion only one month after registering [16].

The bank's major controlling stakeholder, the S. Alam Group, borrowed Tk 300 billion from Islami Bank Bangladesh in violation of banking regulations [10, 17]. As a result, the bank fell into a major crisis of trust, leading to a liquidity shortage due to a substantial deposit withdrawal by depositors. The Bangladesh Bank extended an emergency loan of Tk 80 billion to Islami Bank on December 29, 2022 [18, 19]. To investigate a suspicious loan amounting to Tk 72.46 billion [20, 21], the Bangladesh Bank assigned an auditor to the bank and inquired about the Tk 300 billion loans. According to Ahsan H. Mansur of the Policy Research Institute of Bangladesh and the current governor of the Bangladesh Bank, Islami Bank loan schemes involving the S. Alam Group were allegedly known to government officials, including the then governor Fazle Kabir and Md. Shahabuddin Chuppu, who sat on the board of directors of Islami Bank

and was later elected President of Bangladesh, by the ousted Shekh Hasina regime, in February 2023. Furthermore, in January 2023, to address the capital crisis, Islami Bank issued Tk 8 billion in bonds through the Bangladesh Securities and Exchange Commission (BSEC) [22]. .

9. **IFIC Bank crisis:** The loan default culture gangman Salman F. Rahman was appointed as chairman, and his son, Shayan Fazlur Rahman was selected as director of the International Financial Institutions Corporation (IFIC) bank in 2015. Salman was alleged to have stolen thousands of crores in loans and bonds from the IFIC after taking the chairmanship [6]. His son was also accused of defaulting on loans from the bank. Both were in the politically privileged proximity of Sheikh Hasina.

Md. Mehmood Husain, who is now serving as the chairman of the IFIC, has said that the bank suffered significant damage from an ethical standpoint due to the absence of competent leadership. Now, the bank is having a difficult time recovering a sizeable amount of the loans that were given to politically vulnerable people and businesses who are affiliated with the Awami League. In June 2024, the IFIC held deposits of Tk 50,000 crore throughout its network of 1,422 banks and sub-branches. However, after the political upheaval, the bank experienced significant deposit withdrawals, resulting in deposits decreasing to Tk 44,400 crore by October as public trust faltered. Additionally, the bank was confronted with a substantial deficit in both its Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) according to the Bangladesh Bank. At one point, the deficit reached hundreds of crores for the first time. The IFIC faced a significant problem following the political shift, prompting concerns that the organization might go bankrupt. According to Husain, the IFIC reported a net deposit rise of 1,036 crores at the end of November, increasing its total deposits to 47,750 crores in December. The CRR and SLR of the bank have both been stabilized since then, and there is no present deficiency. During his presentation, Husain detailed the new board’s commitment to restoring accountability and transparency within the bank.

10. ICB Islamic Bank crisis: ICB Islamic Bank began as Al-Baraka Bank in 1987. After being labeled a 'problem bank' in 1994, the central bank started assigning monitors to troubled banks to maintain discipline. The institution became Oriental Bank, a scheduled commercial bank, in 2004. Bangladesh Bank terminated Oriental Bank's board in June 2006 after discovering severe irregularities. In 2005 and 2006, 34 charges were brought regarding the misappropriation of Tk 34 crore by a bank. The central bank took over the institution and appointed a BB executive director as administrator to preserve depositors' funds. Bangladesh Bank offered to sell a controlling share in August 2007. The bank became ICB Islamic Bank in 2008.

Currently, ICB Islamic Bank is facing an extreme capital and provisioning crisis. By the end of 2024, the bank's bad loans accounted for 91% of its total lending, resulting in the highest default loan ratio in the country. The collapse of the Awami League in 2024 led to a significant increase in debtors defaulting, according to bankers. This led to a record-high level of bad loans overall [8]. It also exposed the board's policy-level shortcomings, which caused financial discipline and governance issues, ultimately harming the bank and its depositors. The Bangladesh Bank disbanded its board.

8.2. High Figures, Political Influence, and Large Non-performing Loans (NPLs)

Over the past 16 years, Bangladesh Bank has adopted a series of flexible and politically influenced policies, often favoring individuals with strong ties to the ruling party. As a result, many politically connected figures have exploited these loopholes to secure massive loans and subsequently become willful defaulters. In several cases, defaulters were even granted additional loans, despite their non-compliance, with the tacit approval of the central bank. This section highlights some of the most egregious cases.

According to The Business Standard, two of the country's largest conglomerates, Beximco and S. Alam Group, have emerged as prominent defaulters, especially in the period following the decline of the Sheikh Hasina-

led administration. Their actions have pushed more than a dozen banks into financial turmoil, threatening the stability of the entire banking sector. In 2024, Beximco topped the list of defaulters with outstanding loans amounting to Tk 23,120 crore. As reported by The Daily Star, state-owned Janata Bank alone disbursed Tk 25,000 crore in loans to Beximco, an astonishing 950% of the bank's total capital. Of this, Tk 19,000 crore has already been defaulted. These loans were sanctioned primarily due to political favoritism. Salman F. Rahman, co-founder and vice chairman of Beximco, was also an advisor to Prime Minister Sheikh Hasina. His political connections allowed him to secure outsized loan privileges and avoid regulatory scrutiny.

Rahman also held the position of chairman at IFIC Bank, where he reportedly used the institution for personal gain. Despite owning only a 6% stake, he allegedly acquired approximately Tk 10,000 crore in loans, severely impacting the bank's financial health. Investigations have found that, due to regulatory limits on borrowing, Rahman redirected loans through associated companies under his control. To conceal the bank's actual condition, IFIC reported a non-performing loan (NPL) ratio of less than 5%, whereas the actual figure was between 26% and 27%. In addition to manipulating loan policies, Rahman was involved in launching a controversial financial instrument "IFIC Aamar Bond" with his son, Ahmed Shayan Fazlur Rahman. Notably, IFIC Bank itself acted as the guarantor for the bond, raising serious concerns. The bond is now at risk of default, which may leave the bank liable for repayment.

Rahman's proximity to political power enabled him to bypass regulatory and legal challenges, including obtaining favorable court orders, thereby shielding himself from accountability. In the final days of the Hasina government, he also sought to capitalize on the growing Islamic finance market. His unchecked behavior encouraged other politically connected borrowers to follow suit, deepening the systemic crisis in the banking sector. However, Rahman's case is not an isolated incident. Md. Saiful Alam Masud, chairman of the S. Alam Group, is another key figure accused of widespread financial misconduct, including money laundering, loan default, and fraudulent borrowing, which allegedly occurred under the protection of the previous administration. According to The

Daily Star, as of September 2024, companies linked to S. Alam Group accounted for Tk 33,791 crore, or 56% of the Tk 60,272 crore total disbursed loans from First Security Islami Bank (FSIB).

Following a change in government, investigations revealed widespread irregularities in the loan disbursement process for companies linked to S. Alam. These included the inflation of collateral values, abuse of loan rescheduling policies, and misclassification of defaulted loans as regular. These malpractices were facilitated by the group's political ties and collusion with banking officials, leading to a severe erosion of trust in the sector. A particularly egregious instance involved laundering approximately $815.78 million using fake Letters of Credit (LCs) through SS Power Ltd., a subsidiary of S. Alam Group. The funds were supposedly used to import machinery for a coal-based power plant in Chattogram. However, customs records showed no such imports. Investigations revealed that 184 false invoices were submitted to the Bangladesh Bank via Rupali Bank, 88 of which were issued by companies unrelated to the transaction. Despite clear evidence of forgery, the funds were authorized and disbursed.

In another case, Janata Bank filed a lawsuit against S. Alam Group in the Chattogram Money Loan Court over Tk 1,964 crore in defaulted loans. Reports from Bangladesh Bank and Janata Bank indicate that a single branch of the latter extended Tk 8,216 crore in loans to the group, representing 90% of that branch's total portfolio. The Anti-Corruption Commission (ACC) has since been directed to investigate the irregularities and identify those responsible. The financial damage did not stop there. S. Alam Group and its affiliates also drained Global Islami Bank (GIB), acquiring more than 86% of the bank's total loans Tk 13,880 crore between 2013 and 2018. After taking control of Islami Bank Bangladesh Ltd (IBBL) in 2017, the group received loans totaling Tk 74,900 crore, or 47% of IBBL's entire loan portfolio, severely undermining what was once the country's most successful Islamic bank. The group also secured 2,000 loans from Union Bank and Tk 4,200 crore in loans from Social Islami Bank.

This systemic exploitation raises critical questions: How could such large-scale financial misconduct go unchecked? Where was the regulatory oversight? The answer lies in political protection. Md. Saiful Alam Masud is a relative of

the late Awami League politician Akhtaruzzaman Chowdhury Babu and former land minister Saifuzzaman Chowdhury Javed. Between 2017 and mid-2024, S. Alam Group secured Tk 95,331 crore in loans from six banks, equivalent to 5.78% of total loans disbursed in the entire banking sector in 2024. Investigations by The Daily Star reveal that nearly all of these loans violated banking norms and were approved with the knowledge or even participation of top officials at the Bangladesh Bank and other regulatory bodies.

8.3. Ethical Crisis in Islamic Banking in Bangladesh

Recently, there are 10 Shariah-based Islamic banks in Bangladesh, where 25-35% of the total deposits are collected with these Islamic banks and other Islamic financial institutions (Hassan & Kawsar, 2024) [43]. 4 of these 10 Islamic banks, Islami Bank Bangladesh Ltd, First Security Islami Bank, Social Islami Bank, and Global Islamic Bank, were controlled by the S. Alam group. There is evidence of proximity to the deposed Sheik Hasina administration and of large loans issued under faulty documentation and fake companies. The growing Islamic banking sector has also seen degradation in its balance sheets and capital usage, which correspond to diminished levels of public trust.

S. Alam is just one individual in a pool of politicians with close ties to the Awami League government. According to The Daily Star [26], Islamic banks became a prime target for political capture during the Sheikh Hasina regime. The S. Alam Group allegedly took control of the bank by force, orchestrating what many view as a state-sanctioned financial heist. The then chairman, vice-chairman, and managing director were reportedly detained by the Directorate General of Forces Intelligence (DGFI) and pressured into resigning. Within an hour, a new executive board was installed, clearly indicating that the takeover was premeditated. Shockingly, Bangladesh Bank Governor Fazle Kabir and military officials were present and complicit in the transition, which occurred during a board meeting at a hotel in Dhaka. Not only did they occupy the Islamic Banks, but they also seized the Shariah Board, where they issued Sukuk bonds as both the issuer and the trustee. This created an apparent conflict of interest. The sukuk prospectus mentions that the trustee and the Shariah Board should work independently, which is immediately called into question. Similarly, the issuer

and the SPV are identical. This also does not conform to the international sukuk framework [56].

Three former central bank governors, Dr. Atiur Rahman, Fazle Kabir, and Abdur Rauf Talukder, were allegedly involved in the four-year scheme to hand over control of Islami Bank to S. Alam Group. Dr. Atiur Rahman laid the groundwork by creating a favorable environment for the takeover, while top officials, such as SK Sur Chowdhury and Subhankar Saha, worked to sever the bank's ties to Jamaat-e-Islami. After Atiur's tenure, S. Alam's influence within the Bangladesh Bank increased significantly [27]. Former Governor Fazle Kabir not only facilitated the capture of Islami Bank but also supported S. Alam Group's broader expansion into the banking sector. During his tenure, the group's access to bank loans, often through fraudulent documentation, grew unchecked. Reports indicate that central bank officials, including deputy governors and mid-level staff, aligned themselves with the group, many hoping to secure positions within S. Alam's network after retirement (Bangla Tribune). S. Alam eventually acquired over 82% of Islami Bank's shares and obtained Tk 74,900 crore in loans, significantly impairing the bank's financial health. The group also captured First Security Islami Bank and withdrew Tk 33,791 crore, approximately 56% of the bank's total loans, triggering a severe crisis.

These actions not only destabilized individual banks but also threatened the broader Islamic banking sector. Politically motivated statements and policy manipulations from top officials undermined the credibility and stability of Shariah-compliant banking in Bangladesh. The central bank's leniency and the installation of cronies in key positions allowed repeated regulatory breaches. Abdur Rauf Talukder, who succeeded Kabir as governor in July 2022, continued many of these harmful policies. Rather than curbing irregularities, he enabled them by relaxing credit standards, capping interest rates at 9%, and introducing lenient repayment schemes for politically connected borrowers. He also halted inspections of banks and financial institutions, while restricting media access to the Bangladesh Bank to conceal ongoing corruption. During his term, money was printed and funneled into S. Alam-controlled banks under the guise of loans, and funds were distributed from reserves to government-aligned business interests. In

a separate but related development, former Finance Minister Abul Maal Abdul Muhith (2009–2019) openly criticized Islamic banking, calling it a "deception" and "based on errors" in a 2015 parliamentary statement [28, 42]. Earlier in 2011, Islami Bank suffered reputational damage when former State Minister for Home Affairs Shamsul Hoque Tuku accused it—without evidence—of diverting 8% of its profits to fund terrorism. Echoing these claims, Dhaka University professor Abul Barakat alleged that Islami Bank provided Tk 1,700 crore to support extremist activities. Senior central bank officials, including former Deputy Governor SK Sur Chowdhury and BFIU head Masud Biswas, were also implicated in systemic irregularities and misuse of funds [42].

Under the Hasina administration, corruption permeated the banking sector, from the highest levels to operational management. This led to a surge in non-performing loans, willful defaults, loan rescheduling abuses, and widespread regulatory violations. While some may attribute the sector's collapse to technical or managerial failures, the reality reveals a deep-rooted ethical breakdown enabled by collusion between politically connected oligarchs, banking officials, and central regulators. The result has been a systemic failure of governance and accountability in Bangladesh's financial institutions.

8.4. Influential Authors and Their Themes in Nurul Matin Lectures

The Nurul Matin memorial lectures series was delivered by prominent banking sector experts, focusing on various aspects of ethics, governance, and banking in Bangladesh. This study identifies the key authors and their themes in the discussion.

Table 4: Influential Authors and Themes in the Nurul Matin Memorial Lecture Series.

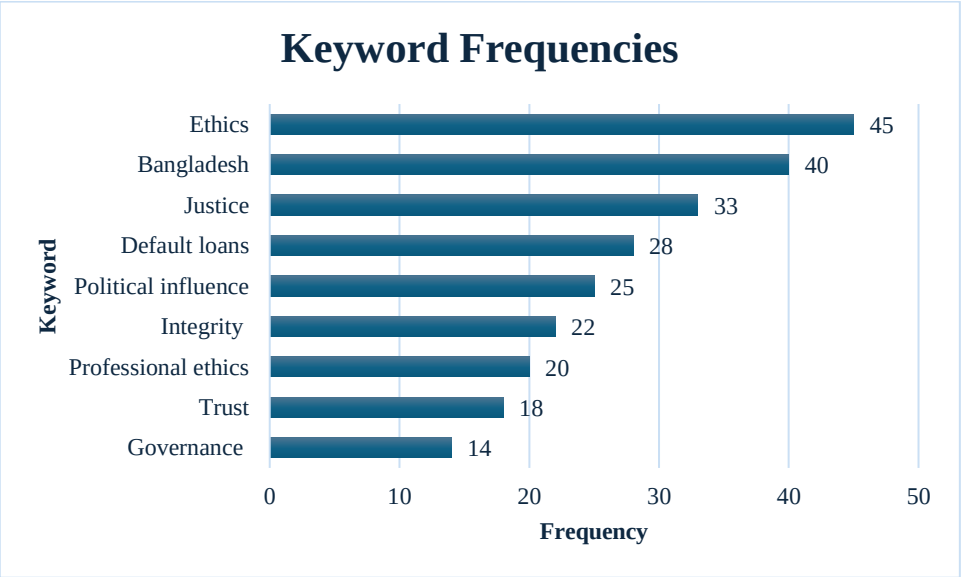
Author/Speaker	Theme Focus	Major Keywords
Justice Shahabuddin Ahmed [31]	Ethics in Banking and Professionalism	Ethics, Default Loans, Governance
Justice Muhammad Habibur Rahman [30]	Islamic Banking and Ethical Practices	Shariah, Trust, Islamic Banking
Professor Rehman Sobhan [34]	Justice and Governance in Banking	Justice, Political Influence, Integrity

Source: Authors' Findings.

8.5. Keyword analysis of the Nurul Matin Lectures

To present the experts' concerns about the ethical failures of the Bangladeshi banking sector, this study analyzes the keyword frequencies relevant to the ethical failure of the banking sector used in the 21 lectures included in the Nurul Matin Memorial Lecture on Ethics in Banking, organized by BIBM. The frequency visualization is depicted below.

Figure 1: Keyword Frequencies Based on the Lectures

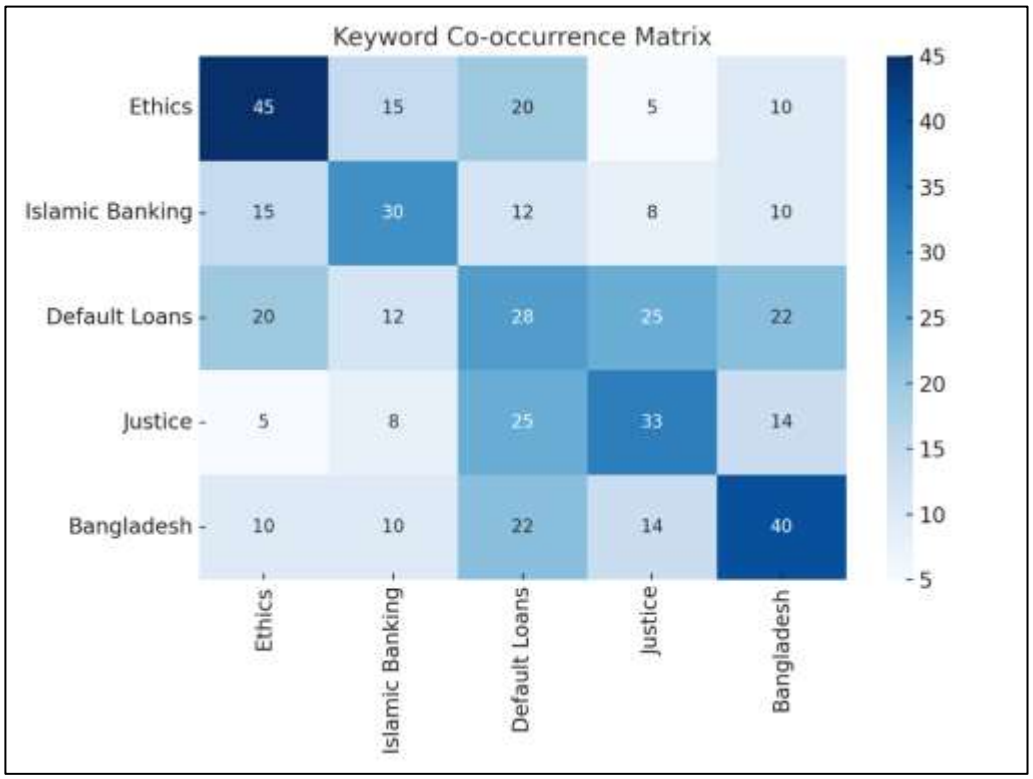


Source: Authors' Calculations.

Figure-1 shows that ethics is the most frequently addressed topic in expert lectures on banking in Bangladesh. Other significant concerns include justice, non-performing loans (NPLs), political influence, integrity, and governance. Influential speakers, such as Justice Shahabuddin Ahmed [31], emphasized ethics, default loans, and governance. Justice Muhammad Habibur Rahman focused on Shariah compliance and trust in Islamic banking, while Professor Rehman Sobhan highlighted injustice, political interference in loan approvals, and a lack of integrity. Overall, experts view ethical degradation, not technical issues, as the root cause of the banking sector's failure.

Figure-2 presents a keyword co-occurrence matrix, illustrating the frequency with which the key terms Ethics, Islamic Banking, Default Loans, Justice, and Bangladesh co-occur. Darker blue shades indicate higher co-occurrence. Ethics frequently co-occurs with Default Loans, highlighting its central role in discussions of banking failures in Bangladesh. Ethics also links closely with Islamic Banking, suggesting that stronger ethical practices in Islamic banks contribute to lower default rates. High co-occurrences between Justice and Default Loans, as well as between Justice and Bangladesh, indicate that concerns about justice are strongly associated with rising loan defaults, suggesting systemic governance issues during the previous administration.

Figure 2: Keyword Co-occurrence Matrix Based on the Lectures.



Source: Authors' Calculations.

9. Analytical Assessment of Expert Perspectives on Bangladesh's Banking Crisis

9.1. Methodological Framework and Stakeholder Analysis

The comprehensive survey undertaken in this research utilizes a multi-stakeholder method to establish a more acute understanding of the multi-faceted nature of the banking crisis in Bangladesh. The 205 participants were drawn from a variety of professional backgrounds, which included Bangladesh Bank officials, commercial bank employees, depositors, borrowers, academics, journalists, and providers of the Nurul Matin Memorial Lectures. Data drawn from these participant categories provides a broad range of expert views on the ethical vs. technical aspects of banking failures. The methodical design reflects the inherent multidimensionality of banking crises that impact different stakeholder groups. Surveying regulators, industry participants, academic researchers, media professionals, and banking customers provides a comprehensive analysis of how different stakeholder groups perceive the root causes of problems in the banking sector and possible solutions to these issues. The dataset provides a distinct analysis of a serious ethical concern that impacts decision-making. The survey questions comprise 59 questions within eight thematic areas. They are designed to gather both quantitative and qualitative information about the relevance of ethical and technical failures as drivers of the banking crisis. This data permits an analysis of convergence and divergence across stakeholders while delineating areas of consensus that allow the concluding sections to offer some solid policy recommendations.

According to the expert respondents (see Figure-3a), ethics is essential to the banking sector, showing that respondents significantly encourage ethical banking practices. Following the expert opinion in Figure 3b, ethical banks usually prioritize transparency and accountability (36% of respondents); second, ethical banks ensure fairness in lending and financial services (34% of respondents); and third, ethical banks are independent, meaning that they can bypass political influence and are free from collusion and corruption in banking activities (28% of respondents). However, the circumstances in Bangladesh's banking sector during the last decade, as described in Section 6, run entirely counter to ethical

banking practices due to extreme violations of transparency and accountability, political violations, collusion, and corruption.

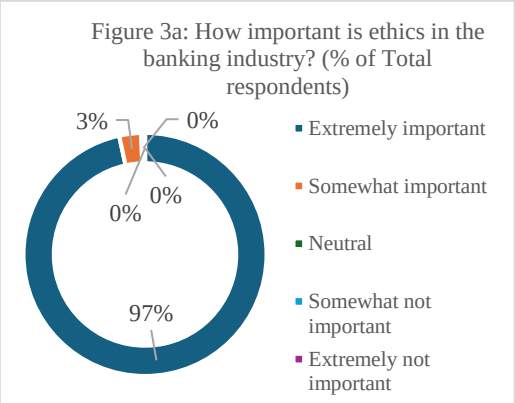


Figure 3a: How important is ethics in the banking industry? (% of Total respondents)

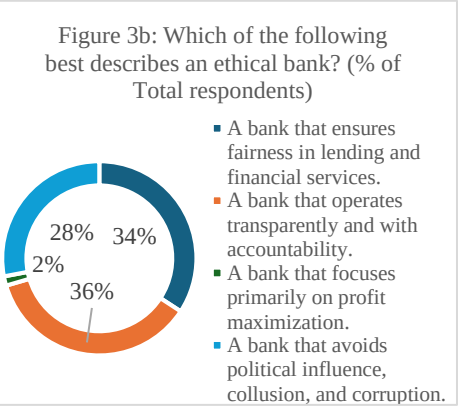
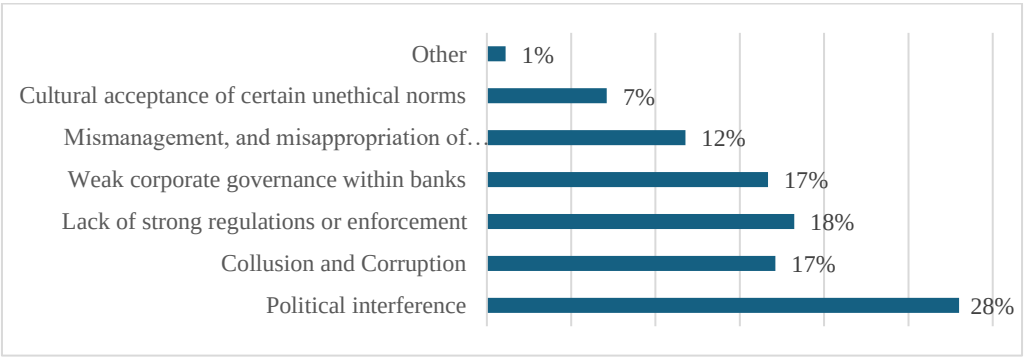


Figure 3b: Which of the following best describes an ethical bank? (% of Total respondents)

Source: Authors' Calculation.

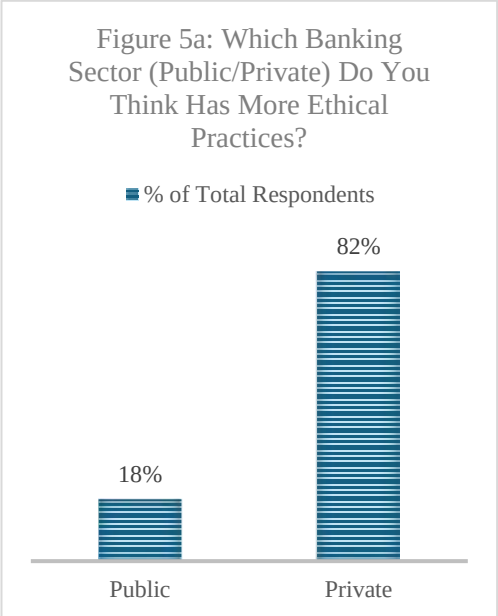
This study then asked the experts' viewpoints regarding ethical failure in the Bangladeshi banking sector. They propose (see Figure-4) that political influence (28% of respondents) is the main reason behind the unprecedented ethical failure in the banking sector. Other factors contributing to ethical failure include a lack of strong regulations and implementation, collusion and corruption, and poor governance. The case above studies support these viewpoints and further accentuate the serious financial malpractice and abuse of political connections within Bangladesh's banking industry.

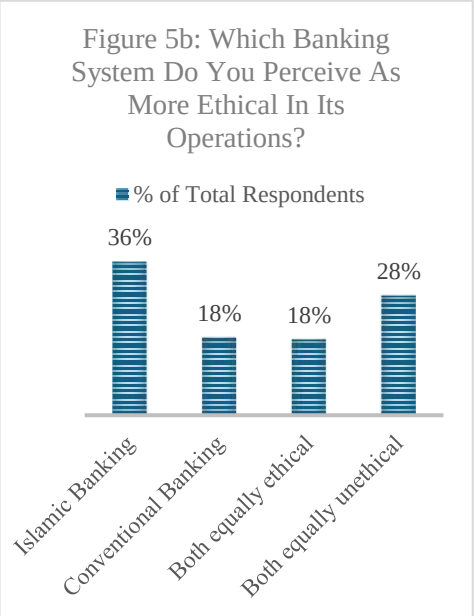
Figure 4: Which factor most undermines ethics in banking in Bangladesh?



Source: Authors' Calculation.

We compare the respective ethical practices in state-owned and private banks in Figure 5a. Aside from a few notable exceptions (i.e., Islami Bank Bangladesh Ltd, First Security Islami Bank, IFIC Bank, and ICB Bank), most private banks have remained free of ethical crises over the last decade. In contrast, state-owned banks experienced a notably higher degree of ethical failure. Comparing the conventional and Islamic banking systems (shown in Figure-5b), 36% of experts perceive that Islamic banking is more moral than conventional banking in Bangladesh.



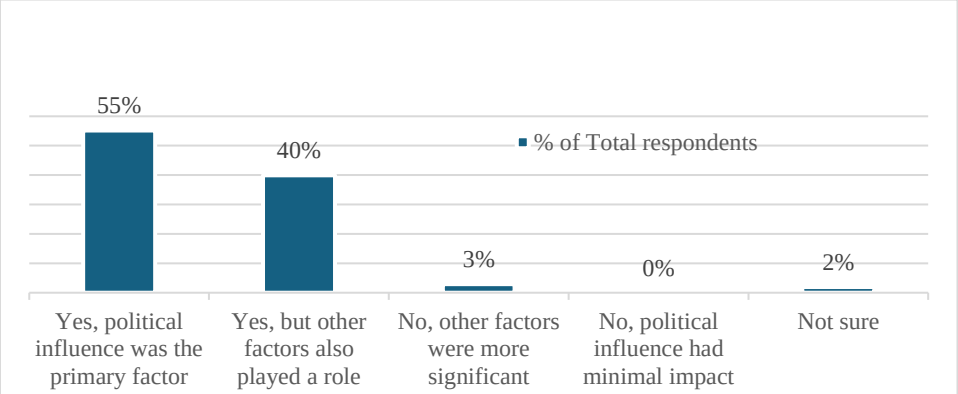


Source: Authors' Calculation.

However, as outlined in the case studies in Section-6, several Islamic banks have eroded public trust in this sector. As such, they are important subjects for examination and discussion in this study. While the Islamic banking system is firmly committed to upholding ethics in its activities, it is not immune to ethical failures, according to the experts' responses (Figures-8a and 8b), mirroring the conditions found in the conventional banking sector. As shown in Figure-6, the ethical flaws within Islamic banking system can be attributed to political pressure and illegal interference in tandem with political connections – 55% of

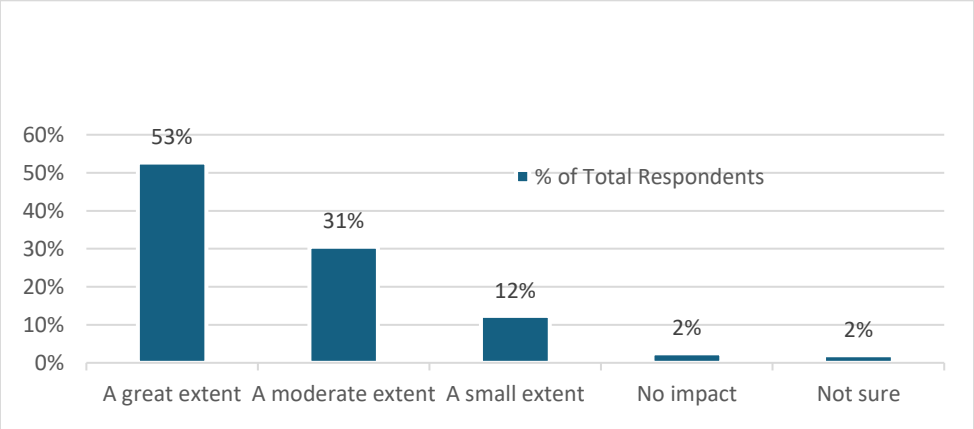
respondents stated that political influence was the primary factor behind ethical failure while 40% blame a plethora of secondary factors (i.e. collusion between bank officials and powerful borrowers and unfair loan grants and restructuring terms).

Figure 6: Do you believe political influence was the key factor behind ethical failures in both Islamic and conventional banking, especially in the last government tenure?



Source: Authors' Calculation.

Figure 7: To what extent do you think collusion between bank officials and powerful borrowers contributes to unethical banking practices?



Source: Authors' Calculation.

9.2. Consensus on Ethical Foundations and Institutional Trust

The survey findings demonstrate a striking level of agreement among stakeholders on the fundamental role of ethics in banking practices. This agreement appears to transcend the traditional demarcations of regulator, practitioner, and external observer, suggesting a widespread belief that ethical considerations are essential for maintaining bank stability and public confidence in the banking sector. The expert responses demonstrate an in-depth understanding of the more complex aspects of ethical banking practices. In their definitions of ethical banking characteristics, 36% of respondents identified transparency and accountability as the most important aspects, while 34% highlighted fairness in lending and financial services. The popular identification of independence from political influence and freedom from collusion and corruption as the primary ethical characteristic (28%) is significant. This suggests that stakeholders believe ethical banking is a multifaceted concept that encompasses issues of procedural fairness, institutional transparency, and political independence. While previous studies have identified political interference as the most common source of ethical failure, it is worth noting which stakeholder responses included political interference as the primary factor contributing to ethical failure. Twenty-eight percent of the respondents identified political interference as the leading cause of ethical failures, followed by inadequate enforcement of regulations, collusion and corruption, and insufficient governance mechanisms. These findings are consistent with the case study evidence previously discussed, which details how banks were captured politically during the previous administration. When considering public banks versus private ones, several important points are made in the responses of stakeholders. Private banks are generally regarded as upholding stronger ethical norms than state-owned banks. However, the considerable instances of ethical failures in high-profile private Islamic banks have altered this perception. Responses indicate that stakeholders generally recognize ethical failures can exist within all institutional types in the absence of appropriate governance mechanisms.

Evidence suggests that Bangladesh's banking sector has faced a decade-long financial crisis, eroding public trust, except in the case of Islamic banking, which remains relatively trusted. Figure 8b shows that Islamic banks are still perceived as more ethical, mainly due to their adherence to Shariah law and prohibition of interest. According to Figure 8a, 37% of experts view Islamic banks as more transparent and equitable, compared to 22% for conventional banks. Figure 9 supports these findings, with nearly 60% of respondents believing that Islamic governance structures promote fairness. However, only 43% believe Islamic banks maintain stronger ethical practices, with the remaining 57% uncertain or skeptical, likely due to political interference over the past decade. High-profile cases involving Islamic banks, such as Islami Bank Bangladesh Ltd., First Security Islami Bank, and Global Islami Bank, have shaken confidence. As shown above, Figure 6 reveals that 95% believe political influence is the leading cause of unethical banking practices, a view echoed by 82% of experts in Figure-9.

Figure 8a: Which Banking System is more Committed to Transparency and Fairness?

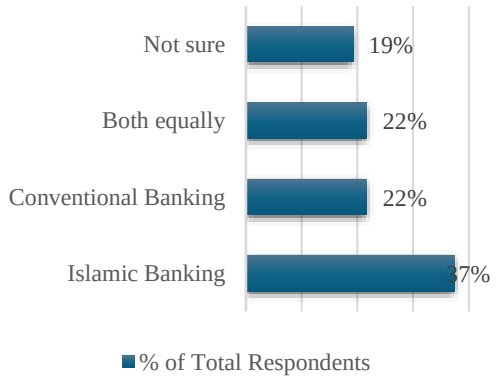
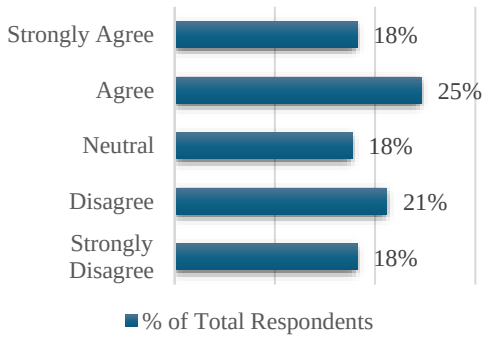


Figure 8b: Islamic Banks face Fewer Ethical Failures due to their Financial Principles.



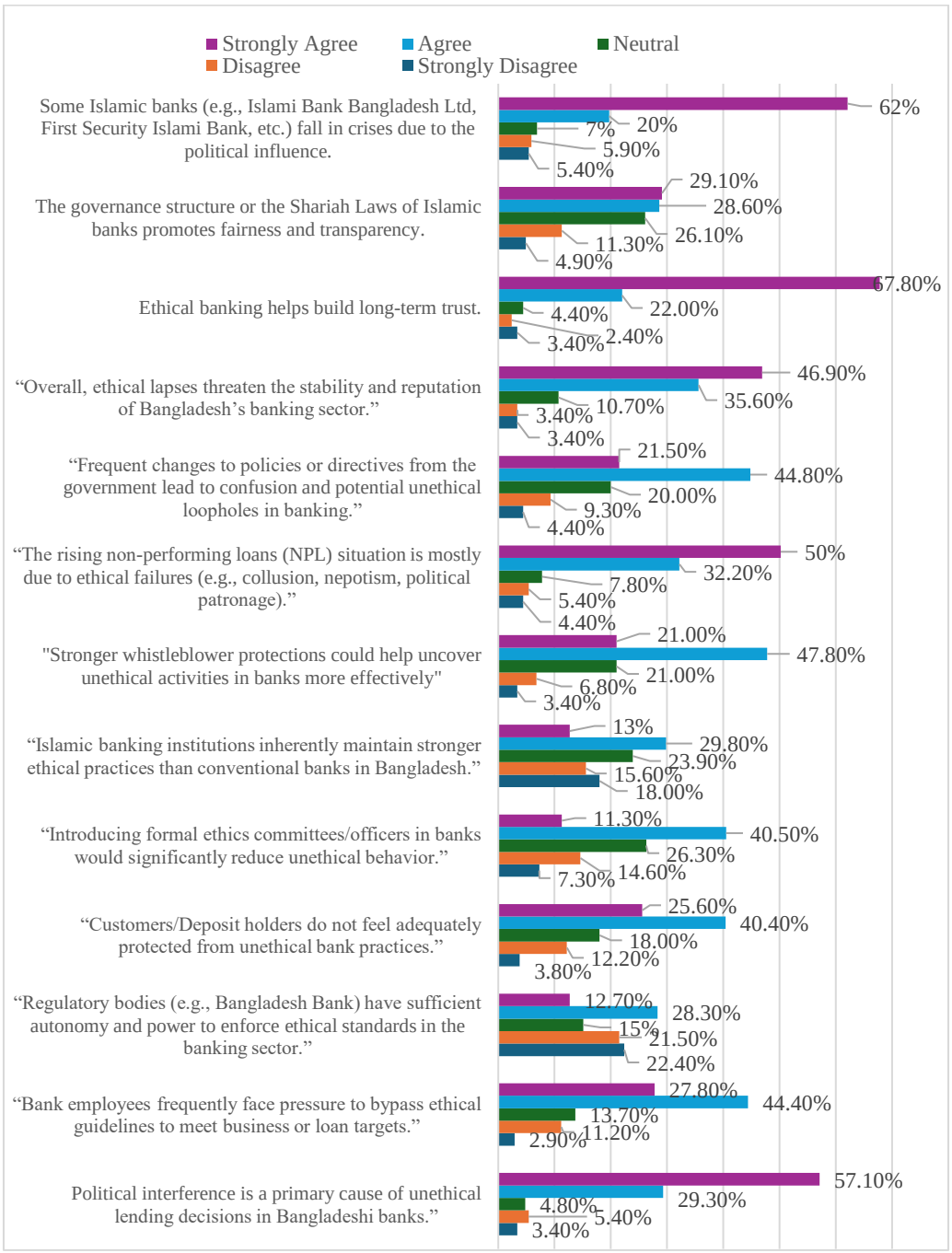
Source: Authors' Calculation.

9.3. Regulatory Effectiveness and Central Bank Autonomy

The survey yields very negative evaluations about how effective Bangladesh Bank's regulatory efforts were during the relevant period. Participants point out multiple aspects in which the central bank failed to regulate and supervise the ethics of the banking sector effectively. The inability to sanction politically connected defaulters was deemed the single most serious failure by a plurality of respondents (28%). Other key regulatory failures included the failure to enforce regulations consistently (24%), weak supervision of loan approvals and non-performing loans (21%), a lack of transparency in decision-making (15%), and inadequate coordination with anti-corruption agencies (11%). Together, these responses suggest that participants view regulatory failures as systemic issues, not merely failures in supervision. The survey responses indicate serious political interference in areas that participants deemed most affected by political influence, specifically in loan approvals and rescheduling, as 75% of participants made it clear that these two functions were susceptible to political interference. These findings correspond with cases that documented significant political manipulation of lending decisions in the previous administration.

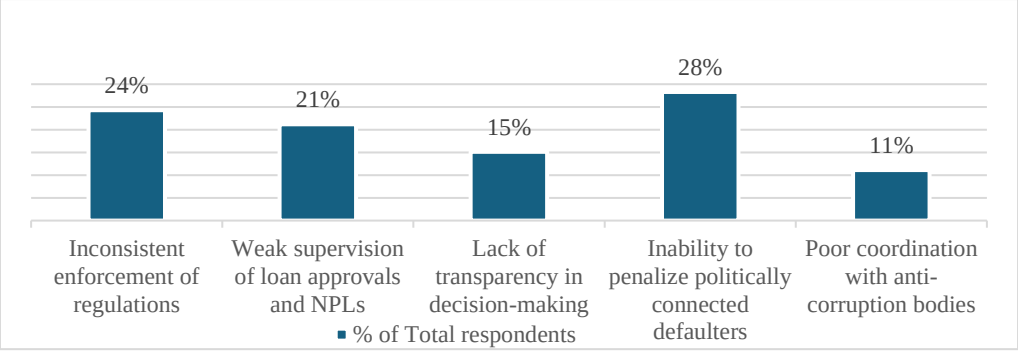
Stakeholder assessments of the independence of Bangladesh Bank reveal serious regulatory capture. The survey shows that regulators believe they have sufficient legal power to combat unethical practices in banks, but that political interference consistently hinders the impartial enforcement of regulations. The incongruity between formal regulatory powers and the actual ability to enforce those powers becomes a key governance issue for the banking sector. The survey responses of Bangladesh Bank officials were especially revealing regarding regulatory incapacities. The responses express an awareness of the limitations of regulations while acknowledging a degree of political influence that hinders effective supervision. The wide gap between regulatory aspirations and reality is the most pressing issue for reform.

Figure 9: Agreement Statements (5 Scale Likert)



Source: Authors' Calculation.

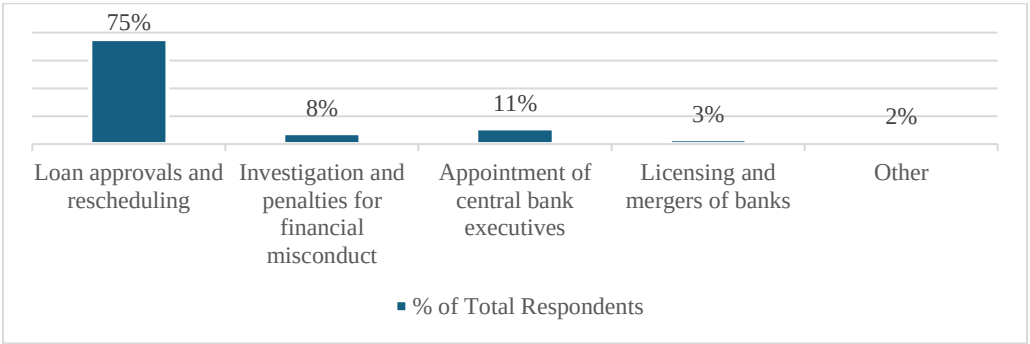
Figure 10: What are the Major Weaknesses of the Central Bank in Preventing Ethical Failures in Banking?



Source: Authors' Calculation.

Figure-11 shows that three-fourths of respondents believe loan approvals and rescheduling are the areas of banking regulations most affected by political parties, corroborating various reports from The Daily Star, Prothom Alo, and the Anti-Corruption Commission (ACC). Figure-12 also shows that political leaders influence the central bank's policies for their personal or party interests. As mentioned in a prior section, former Bangladesh Bank governors made credit policy overly flexible, set interest rates lower for risky borrowers, and made great efforts to satisfy their political relationships (i.e., Salman F. and Shayan Fazlur Rahman, S. Alam Masud – Islami Bank Bangladesh Ltd, and Abdullah Al Rakibe – Medigreen).

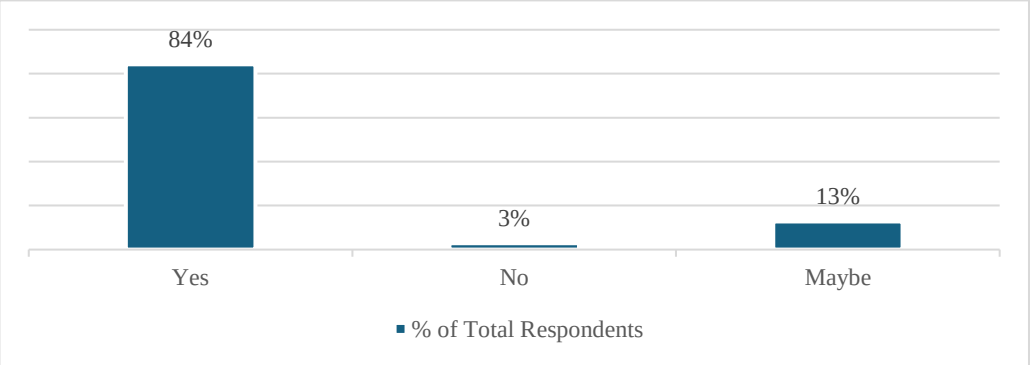
Figure 11: Which Area of Banking Regulation is Most Affected by Political Influence?



Source: Authors' Calculation.

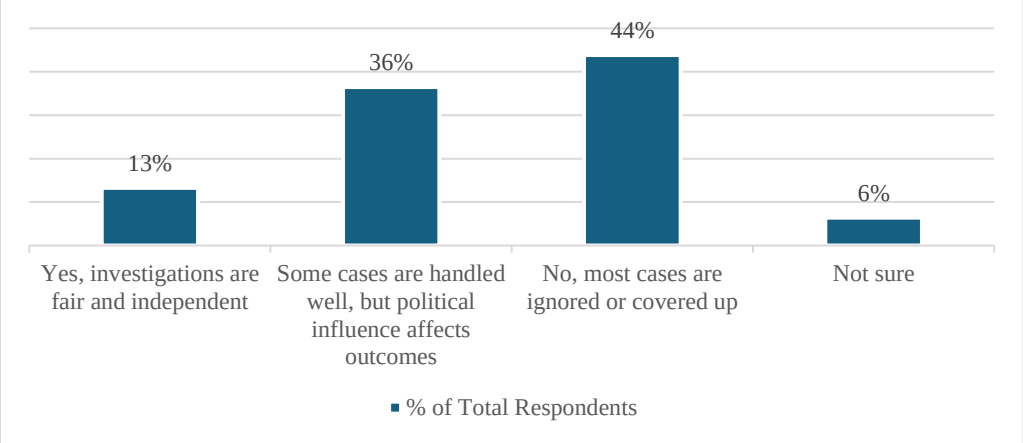
Therefore, political interference has a significant influence on policymaking in the banking sector. This statement is further verified by the experts' responses in Figure 9. Regrettably, as there were no repercussions for many agents involved in ethical transgressions, Figure-13 illustrates how such examples prompt responders to view litigation cases in the banking sector. 44% chose the complete pessimistic response; 36% held the partial pessimistic response.

Figure 12: Do you Believe High-ranking Politicians Influence Central Bank Policies for Personal or Party Benefits?



Source: Authors' Calculation.

Figure 13: Do you Believe Corruption Cases Involving Top Executives are Properly Investigated and Punished?



Source: Authors' Calculation.

This study also extends to Bangladesh Bank officials to gain a deeper understanding of their regulatory capabilities, as illustrated in Figures-14a and 14b. Although regulators believe they have sufficient legal authority to sanction banks for unethical practices, they often fail to exercise this authority effectively due to political pressure. Moreover, as shown in Figure-9, bank employees sometimes face pressure to meet the bank's business or loan targets, leading them to bypass ethical guidelines. The top executives are responsible for this ethical breakdown, as in most cases, they collude with the administration to pursue personal gains and allow unethical objectives to prevail. Therefore, the respondents also recommended reforming the boards of the Bangladesh Bank and other banks, especially those experiencing significant turmoil. The interim government has already reformed the Bangladesh Bank, as well as the governing bodies of some other banks, as part of the country's reforms.

Figure 14a: "We have enough legal authority to effectively sanction banks for unethical practices."

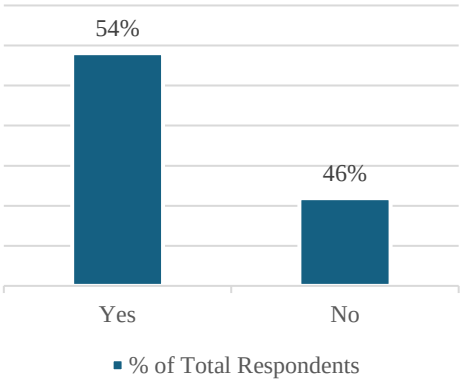
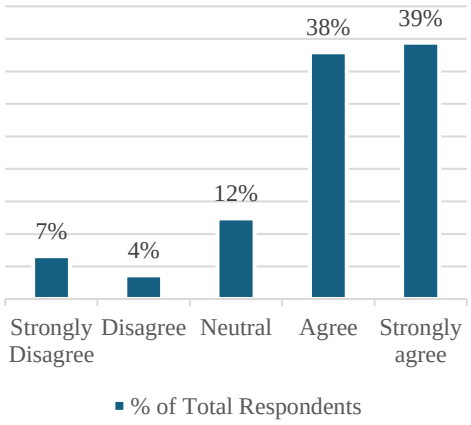


Figure 14b: "Political pressure often limits our ability to enforce regulations objectively."



Source: Authors' Calculation.

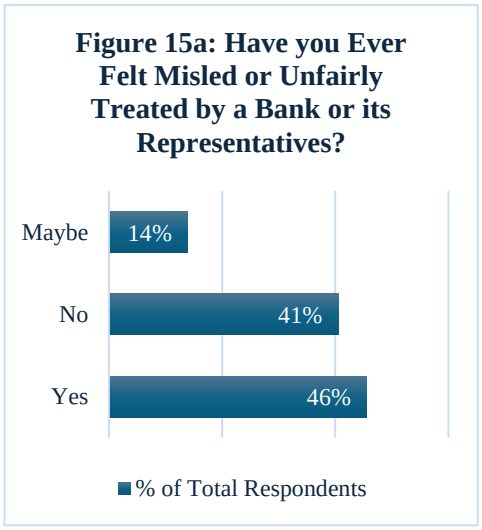
9.4. Customer Experiences and Market Trust

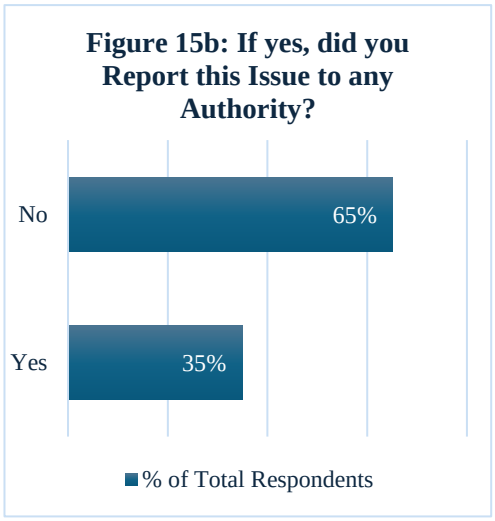
Regarding customer experiences, the study reveals significant gaps between banking institutions' declared commitments to ethical practices and what they

actually deliver to customers. The majority of depositors and borrowers report that their banks have treated them unfairly. Yet, only a small fraction have formally complained, citing low expectations of positive outcomes and a lack of trust in the authorities. This finding implies ethical failures in the banking sector are not the exclusive domain of high-profile scandals but are also evident in everyday customer experiences. The survey also indicates that customers hold strong attitudes towards ethical banking practices, with 71% responding that they would switch to a more ethical institution, even if it offered lower returns. This means that ethical reputation may be an important source of competitive advantage for banking institutions willing to invest in actual improvements to governance.

The survey reveals that customers perceive themselves as vulnerable to unethical banking practices, that existing complaint options are limited, and that regulatory oversight lacks confidence. The lack of protection renders the function of market discipline ineffective, as crude market mechanisms that establish some limits on unethical conduct, either through customer choice or reputational effects, are absent. Customers' views on Islamic banking reflect the wider conventional principal vs. practice dynamic. Customers have mixed confidence in Islamic banking institutions.

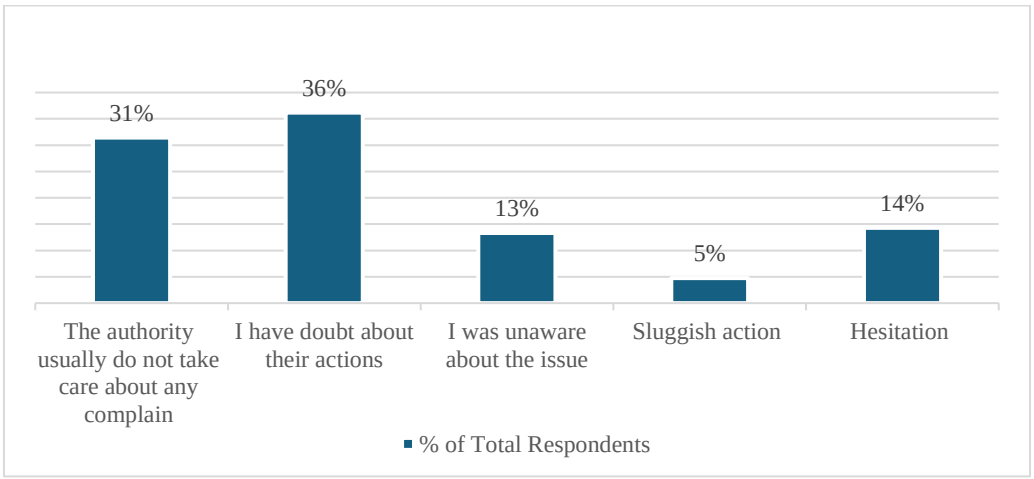
To understand the views of depositors and borrowers on banking ethics and political influence, specific questions were posed (Figures 15a, 15b, 16, and 17). Most respondents report experiencing unfair treatment from banks, but chose not to complain primarily due to doubt about outcomes (36%) and lack of trust in authorities. This highlights a serious ethical gap in the sector. As customers are vital to banking operations, failing to address unethical behavior risks losing them: 71% said they would switch to a more ethical bank, even if it offered lower returns. Figure 9 also shows that customers feel unprotected from unethical practices. M. Syeduzzaman [32] notes that Bangladesh's legal framework fails to safeguard depositors, urging stronger central bank oversight aligned with public welfare, justice, and fairness.





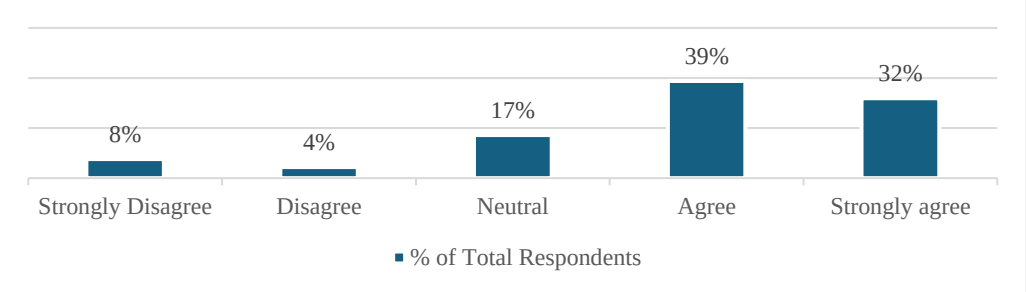
Source: Authors' Calculation.

Figure 16: If no, What May be the Reason(s)?



Source: Authors' Calculation.

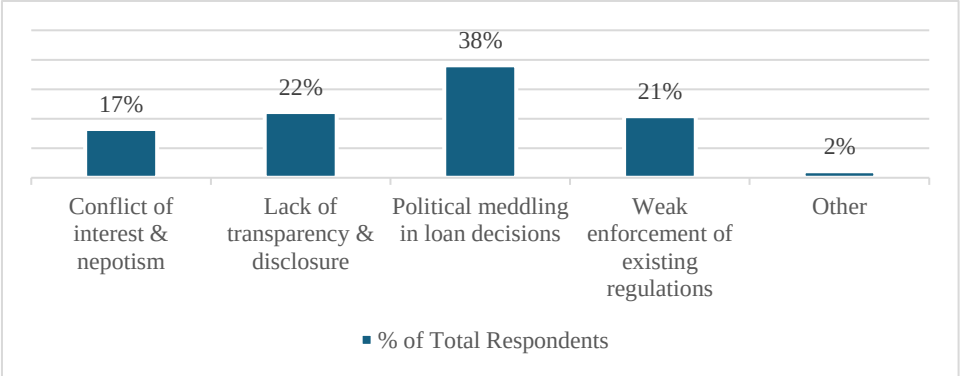
Figure 17: "I would Switch Banks if I Knew it Engaged in Unethical Practices, Even if it Offered better Interest Rates or Services."



Source: Authors' Calculation.

To gather academic perspectives, the study consults university researchers in Bangladesh. As shown in Figure 18, 38% identify political interference in loan decisions as the main barrier to ethical banking. Over the past decade, Bangladesh Bank, meant to oversee irregularities, instead became complicit in pressuring banks to favor politically connected borrowers. Researchers also cite a lack of transparency, weak regulatory enforcement, and nepotism as significant challenges. They emphasize that the reformed Bangladesh Bank leadership (post-August 5, 2025) must address these issues to restore ethical banking. Already, the interim government of Bangladesh has dissolved the boards of directors of 11 banks, seven of which are full-fledged Islamic banks, and reformed new boards for the institutions [44].

Figure 18: In Your Research or Observations, Which Ethical Challenges are most Prevalent in Bangladeshi Banking?



Source: Authors' Calculation.

9.5 Islamic Banking: Expectations vs Reality

The exploration of stakeholder views regarding Islamic banking presents a fascinating juxtaposition between expectations and reality. In light of recent scandals involving several Islamic banks, it is notable that 36% of respondents consider Islamic banking to be more ethical than conventional banking systems, with only 28% preferring conventional banking institutions. That these respondents show such confidence reinforces that they are making a distinction between the ethical essence of Islamic finance in theory and the ethical behavior of particular institutions in practice. This trust in Islamic banking, as demonstrated through various factors highlighted in the survey responses, can be attributed to several key factors. Respondents refer to the strong religious and ethical foundation of Islamic finance, as well as its lower levels of corruption, improved accountability and transparency measures, and more effective risk-sharing policies. Still, 57% state that they are not sure or are skeptical about whether Islamic banks engage in less wrongdoing, reiterating the significance of recent political interference and institutional capture.

The survey highlights that political interference is considered the proximate cause of ethical lapses in Islamic banking, with 55% of respondents attributing the problems to political pressure and illegal interference. This finding is particularly interesting, as it acknowledges that stakeholders consider the recent scandals in Islamic banking to be exceptions to institutional norms, rather than evidence of flaws in Islamic financial principles. A common theme within the survey responses is the differentiation between Islamic banking principles and their implementation in institutional terms, which emerges as significant. Stakeholders have a stronger preference for Islamic banking frameworks than their explicit connections to Islamic banking institutions, and the findings from the recent scandals have diminished institutional credibility without eroding trust in Islamic banking or religious principles.

9.6 Academic and Media Perspectives on Systemic Reform

Academic respondents provide astute analyses of the issues faced in the banking sector, identifying the political manipulation of loan disbursement as the

biggest obstacle to ethical banking. In subsequent answers, they note transparency, malfeasance in oversight, and nepotism as other pressing issues. These analyses are consistent with the theoretical frameworks and empirics outlined in this study. The academic respondents emphasize systemic changes, rather than technical fixes, as the solution to the dilemma of banking practices in Bangladesh, reflecting their understanding that the issues are institutional rather than operational. They support the overall contention of this study that ethical failure is the most dominant cause of instability in Bangladesh's banking system, not technical failure.

Media professionals' responses to the survey provide important insights into how political pressure hinders investigative journalists' ability to expose ethical problems in the banking sector. Several journalists report that higher-ups instructed them not to report on instances of unethical conduct in banks due to political pressure. Others only reported on information that they had personally verified, citing a lack of trust in the availability of reliable information on banks and the limited legal protections for whistleblowers. Situations like these constrain the media's ability to function as an external mechanism of accountability. The survey finds that whistleblower legal protections, legal protections to prevent journalists from defamation claims, enforcement of Right to Information laws, and independence of media editorial oversight are all substantially crucial to the media's oversight of ethics in the banking sector. The drivers of the banking crisis reveal a complex web of institutional reforms that intertwine with theoretically independent structures of accountability.

9.7. Outlook and Reform Optimism

Despite the extensive evidence of ethical failures and institutional flaws in Bangladesh's banking sector, the survey responses point to some optimism about the potential for reform. Approximately 66% of respondents express belief that the political reforms in the last year or so could contribute to restoring the banking system to stability. 54% anticipate there will be ethical banking practices in the next five years. It appears that many respondents envision the potential for key players in the project to succeed together with new leadership under restructured institutional frameworks. The survey responses to recommendations for

deepening ethical practices in the banking sector emphasize the need to levy heavier penalties for unethical conduct, improve executive disclosure, remove corrupt anti-corruption oversight bodies, and enhance whistle-blower protections. All recommendations cluster around accountability, transparency, and institutional independence.

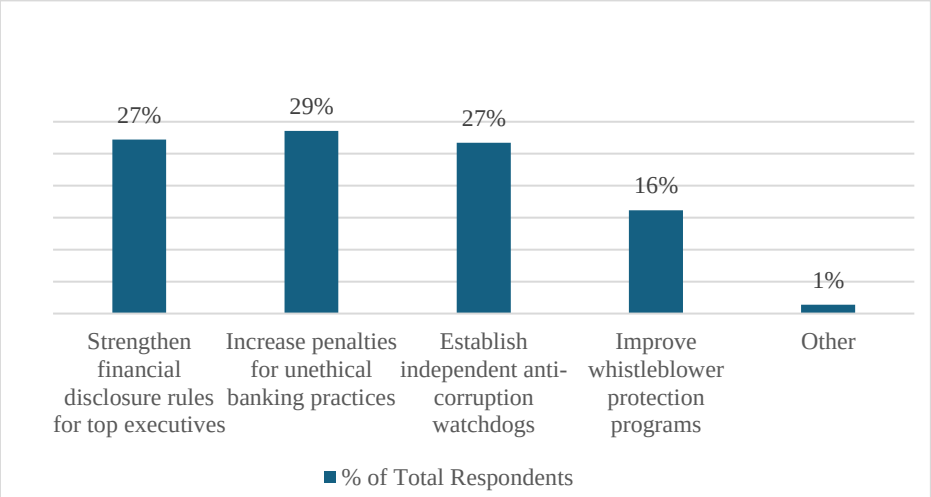
Respondents also see the present moment as a possible turning point in the development of ethics in Bangladesh's banking sector. This would require a methodological commitment among stakeholders to insist on reforming the system and to halt the traditional politics of interference, thereby allowing for potential improvements in banking sector governance. However, stakeholder awareness of previous failures in the reform process may temper excessive optimism. Respondents recognize that skepticism regarding regulatory reform may be warranted due to concerns about the politics of culture. Stakeholder recognition of this context suggests that implementing deep reforms would need to target more than one real source of governance at a time to be effective.

10. Discussion and Policy Recommendations

According to the findings of this study, the ethical crisis in the banking industry in Bangladesh was mainly caused by unprecedented political interference in banking activities. The case studies, as well as the survey responses, validate this view. The ousted Hasina government had a significant impact on every facet of decision-making in the banking sector. The most disappointing development was the willful, shameful continuation of unethical practices to the point of such misconduct becoming commonplace. The harshest irony of the previous decade is that, while banking and systemic transparency became increasingly opaque, negligence became more apparent. As such, the ethical failures and their determinants were discerned by the public, who thus had the utmost distrust in the country's banking system. For the collusion that was not always deliberate, authorities could not impose substantial penalties on large political borrowers, thus revealing a significant lack of independence and supervisory power among financial institutions.

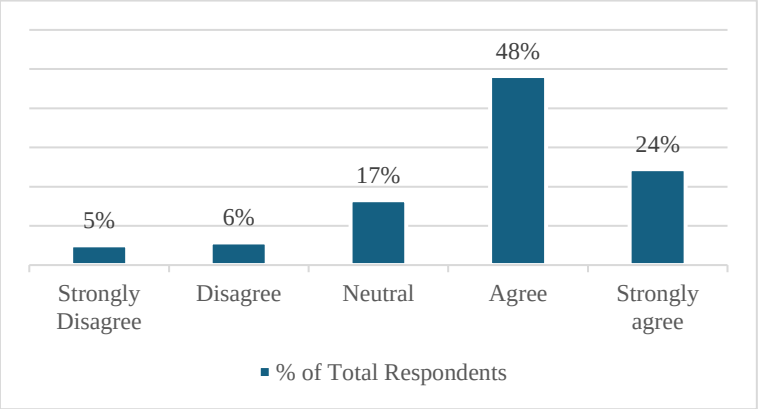
66% of survey respondents believe that the recent political regime change can contribute to the stability of the banking system (see Appendix-1). Moreover, 54% (Appendix-2) are hopeful that ethical banking practices will become stronger in Bangladesh over the next five years. However, to make this hope a reality, corruption at the top level of banking must be prevented through strong measures. As shown in Figure 19, nearly 30% of respondents suggest increasing penalties for unethical banking practices. Experts also recommend that financial disclosure rules for top executives be strengthened, independent anti-corruption watchdogs be established, and whistleblower protection programs be promoted. Figure 20 illustrates the overarching recommendation, and Figure 21 measures the desire to apply Islamic banking principles in reducing unethical practices in the banking sector.

Figure 19: What measures should be taken to prevent corruption at the highest levels of banking?



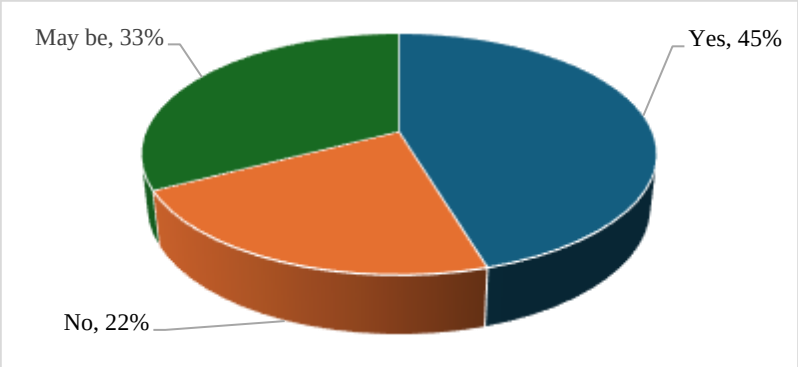
Source: Authors' calculation

Figure 20: "Bangladesh's Banking Crises could be Mitigated Significantly Through a Stronger Ethical Framework Rather than Introducing More Technical Regulations alone."



Source: Authors' calculation

Figure 21: Do you Think Incorporating Cultural or Religious Frameworks (e.g., Islamic Banking Principles) could Help Curb Unethical Practices?



Source: Authors' Calculation

The research identifies some structural issues beyond political interference that need strategic attention. There are ineffective regulatory oversight systems that fail to prevent or effectively respond to ethical breaches, and there are also technological deficiencies that limit transparency and accountability in banking activities. These problems demonstrate that meaningful reform must address both the governance breaches and operational deficiencies that have enabled unethical actions to persist and proliferate within the banking sector.

10.1 Increasing Regulatory Independence and Enforcement

The re-establishment of the operational independence of Bangladesh Bank represents one of the most fundamental needs related to sensible reform of the banking sector. Political interference has not only systematically deprived the central bank of its ability to act as an effective regulator, but has also created an environment in which influential players are allowed to avoid accountability for breaches of banking regulations and ethical standards. Justice Habibur Rahman articulated this well in his Nurul Matin Memorial lecture, suggesting that a regulatory body must be able to act independently in the interest of protecting the integrity of the financial system and maintaining the trust of all in the public system. For regulatory independence to be more than a principles-based policy requirement, legal and institutional policies must include provisions that insulate the Bangladesh Bank from political interference and grant it sufficient authority, resources, and power to perform its duties as a regulator of the banking system. The policy must also state objectives and incorporate essential enforcement actions by establishing the following features: explicit legal protections for regulatory actions against politically connected violators of banking regulations, transparent processes for appointments that favor professional competence over political loyalty, and accountability measures that regulate the regulators and hold them accountable for their oversight actions. The enforcement obligations must include meaningful leverage by implementing significant fines and publicly disclosing repeat offenders and unethical actors. Every effort must be made to ensure that those charged with deliberate breaches and misconduct meet their deserved legal consequences frequently and reliably. The system's inability to impose punitive costs for unethical behavior has created a moral hazard, under which the powerful expect to suffer no sanction, however minor, for any violation. This undermines the deterrent effect of any regulatory or legal framework on corporate governance.

10.2 Reform Addressing Political Patronage and Institutional Capture

Eradicating political patronage will require deep structural reform to prevent political interference in banking activities and to ensure that loans are awarded based on an individual’s creditworthiness and the merits of their financial

transactions and businesses. Justice Shahabuddin Ahmed's comment that 'political patronage diminishes trustworthiness and efficiency' of banking operations reflects a general understanding that political interference flips upside down the market pillars that are meant to regulate financial intermediation. Reform should underscore the establishment of transparent loan review processes. All loan approvals and risk rating decisions should be subject to pre-set criteria and guided by independent, regular monitoring of loan performance, with loan reviews reported impartially to the public. If all lending exposures are duly reported to the public for independent scrutiny, financial regulators and the public would be better equipped to objectively evaluate institutional performance while keeping a record of any politically motivated lending behaviors. Regular reporting of a bank's loan portfolio performance, full disclosure of class borrowers, and systematic analysis of any development lending that might be attributable to 'political connections' should all be standard practices for development banking.

Any institutional governance structure needs to be thoroughly reformed to ensure banking entities operate with ethical conduct and professionalism; consequence-free behaviors grounded in political considerations should not be employed by banking entities. This expectation requires the implementation of a professional merit-based appointment and selection policy and a process for the senior management positions of a senior management team to implement an apparent conflict of interest policy where political office-holders are prohibited from deliberately attempting to influence banking risk rating decisions, and to have mechanisms that regularly assess, identify, and report on compliance with ethical conduct requirements and other professional responsibilities.

Banking organizations will need to undertake significant governance reforms founded on independence, professionalism, and ethical action executed across all their functions. In his work on appointing knowledgeable and politically independent directors, Professor Rehman Sobhan reflects a broader consensus that assumes governance will devolve to knowledgeable individuals with expertise in the relevant area who will act honorably, with institutional integrity transcending both their personal and political interests. Regarding board

composition and selection, there are systemic reforms that enable boards to appoint independent directors with the appropriate qualifications to oversee banking organizations, while maintaining their independence from politics and potential conflicts of interest. Establishing high standards for independent directors' qualifications, term limits, and prohibitions on intervening in office matters that could create conflicts of interest would help establish more professional and accountable governance structures. Furthermore, providing periodic education and training on banking governance ethics, oversight, and risk management to all independent directors can help create awareness and keep them up to date on the knowledge required for oversight. For banking organizations, internal controls must be comprehensive, robust, and include independent audit functions, risk management responsibilities, and compliance monitoring that operates free from any political influence, with direct and clear lines of reporting to boards of directors and regulators. Comprehensive internal controls can create early warning systems for ethical misconduct that must operate not only in accordance with actual regulations but also with internal policies and procedures.

10.3 Creating Ethical Leadership and Cultures

Transformational reform necessitates a cultural shift within banking organizations from an institutional culture that tolerates and condones unethical behaviors to one that promotes integrity, transparency, and accountability. The establishment of formal ethics committees within banking organizations will serve to provide ongoing oversight of ethical behavior and ensure that institutional policies and practices conform to professional standards and regulatory requirements. Programs for developing leaders must include comprehensive ethics training that provides bank executives with both an understanding of the principles of ethical conduct and the tools to act in furtherance of these principles. In the words of Justice Shahabuddin Ahmed's lectures, ethics training must consider both an individual's personal responsibility and the role of an institution's systems in enabling ethical conduct and ensuring accountability against ethical violations. The recognition and reward systems of banking institutions must be reformed to reward ethical behavior and professional

excellence, rather than relying on short-term performance indicators and pressure to cross ethical boundaries. The implementation of an all-inclusive performance evaluation that includes ethical behavior will help to ensure that promotion and remuneration decisions are framed in terms of institutional integrity, rather than solely financial results.

10.4 Improving Financial Literacy and Public Awareness

One significant ongoing issue causing losses for the Bangladeshi banking sector is a lack of financial literacy within the population, which creates an environment where unethical practices can go unchecked and are further encouraged by a lack of public and market discipline. Providing comprehensive finance education will help citizens understand banking rules and learn how to properly evaluate banks and make informed choices about which financial service providers should receive their business. Public education should focus on helping citizens understand their rights and responsibilities as participants in banking transactions, identify warning signs of unethical behavior, and gain access to proper reporting options and recourse to report unfair treatment. Increased financial literacy will bolster market discipline systems while enabling consumers to hold financial institutions accountable for their actions. Community engagement programs that connect financial institutions with community stakeholders will help to rebuild trust while ensuring that financial organizations provide services that are geared to meet community needs and values. Such programs should include regular public meetings where banking officials explain institutional policies and performance, respond to questions and concerns, and demonstrate their commitment to serving the public interest over private profit maximization.

10.5 Improving Whistleblower Protection and Transparency Systems

Effective detection and prevention of unethical behavior requires robust systems of accountability that protect individuals who report breaches of ethical conduct and regulatory requirements. Current flaws in whistleblower protection have discouraged individuals from reporting unethical behavior, which has allowed breaches to propagate and compound throughout the banking sector.

Whistleblower protection should consist of comprehensive legislation that provides legal protection from retaliation while protecting the confidentiality of individuals who disclose unethical behavior in good faith. Protection arrangements should consider both legal remedies for individuals who have experienced retaliation and positive incentivization for reporting violations. Furthermore, investigation mechanisms should be independent to ensure that allegations of unethical conduct are properly received and followed up on. Transparent programs should use emerging technologies to improve the public's ability to access information on bank performance and regulatory oversight initiatives. The introduction of full disclosure requirements will allow stakeholders to monitor institutional performance as well as hold banking institutions and regulators accountable for their actions. Digital platforms should enable ongoing monitoring of key indicators and provide opportunities for public feedback and interaction.

10.6 Using Technology for Governance and Accountability

Advances in technology provide compelling opportunities to improve transparency, accountability, and efficiency in banking processes. The use of blockchain technology and other distributed ledgers could provide an irrefutable record of transactions and decisions, making it difficult to alter data or hide misconduct. Automated systems for monitoring compliance can utilize continuous evaluations of banking activities to identify possible breaches of regulatory or ethical obligations, thereby providing early warning systems that could be leveraged for corrective action. Digital platforms, whether facilitated by banking institutions or delivered outside of these contexts, can increase the public's access to information about the banking sector's performance and actively engage stakeholders involved in oversight to enhance regulatory effectiveness. User-friendly interfaces will enable citizens to monitor developments in the banking sector, report concerns, and participate in governance processes. Technology-supported transparency can revitalize the processes of social democratic accountability and diminish the likelihood that unethical behaviors continue undetected.

10.7 Implementation of Framework and Priority Changes

Achieving the full implementation of these policy measures will require the continued engagement of political leaders, regulators, banking institutions, and civil society organizations. The success of these efforts will depend on a unified understanding that ethical failures can no longer be understood as isolated occurrences in banking, and that the responses to ethical shortcomings must also be coordinated and targeted at the deepest possible roots of poor conduct, rather than merely addressing symptoms. The current moment of transition in Bangladesh's political development presents an opportunity to implement fundamental reforms that will improve the integrity and performance of the banking sector in support of the country's economic development agenda. Priority should be given to reforms that make substantial improvements to regulatory effectiveness in the short term, while also supporting the discipline of institutional reforms in the long term. The most pressing area of reform is to grant operational independence to the Bangladesh Bank in a manner appropriate to the needs of enforcement. The operational independence of the Bangladesh Bank, as an essential regulatory authority tasked with effective governance over the banking sector, is a prerequisite for lowering the risk of future ethical breaches and restoring public trust and confidence. At the same time, comprehensive governance reform within banking institutions will help ensure that any improved regulatory oversight measures are implemented within institutional environments that actively support ethical practices, rather than merely limiting unethical practices. The reforms must reflect both the traditional governance structures and the informal institutional cultures that shape decision-making processes in operational day-to-day conduct.

The long-term success of these efforts will depend on the sustained political will to achieve organizational transformation and move beyond tokenism, which seeks to improve superficial cultural norms without confronting the systemic and structural causes. Lastly, international partnerships in pursuit of governance reform should adequately invest in institutional capacity building while respecting the sovereignty of Bangladesh as well as its unique democratic development processes. The analytical framework we examine in this project

provides the means to understand the complexities involved in the reform process and attain the optimal level of intervention where international support can be effectively applied to sustain institutional transformation.

11. Consequences of the Banking Crisis in Bangladesh

The banking crisis in Bangladesh has far-reaching consequences throughout the economy and society, potentially threatening the country's long-term development. These consequences serve as a stark demonstration of how ethical failures within the banking and finance sector can destabilize economic systems, thereby creating significant risks to the credibility of governance institutions. The most overt and immediate issue of the banking crisis is economic insecurity. Within the context of excessive loan defaults, negative capital reserves, and ineffective regulatory oversight, the concept of 'credit rationing' appears to be fully realized, restricting organizations willing to lend to businesses (in the financial sector) or those able to access productive credit. The World Bank projects nominal GDP growth of 4.0% for 2024-25, which is down from 5.8% in 2023 due to the devastating instability of the banking industry, leading to declines in consumption and exports.

This reduced GDP growth may reflect broader systemic issues that extend beyond technical banking issues to governance failures and a lack of trust in financial institutions. The Asian Development Bank identifies banking sector ailments as the primary impediment to economic recovery. Lending restrictions within the financial sector halted lending in critical sectors of the economy, particularly textiles, manufacturing, and agriculture. More directly impacted are those small and medium enterprises that use bank credit for working capital, expansion, opening new product lines, or onboarding staff. Thus, reductions in the availability of bank credit will inevitably lead to a decline in business development and employment opportunities.

Perhaps the most troubling outcome of the banking crisis has been the slow decline of trust in the safety and integrity of the overall institutional capability of banking. Public distrust is typically expressed in larger withdrawals from deposits as depositors begin to lose the trust they once had in an institutional source of

safety. According to Bangladesh Bank statistics, total deposit liabilities dropped by 0.73% to Tk 18.253 trillion at the end of September 2024, down from Tk 18.388 trillion at the end of June 2024. This can be attributed to increased public skepticism regarding the safety of bank deposits, particularly following several high-profile scandals involving major banks. The reduction in deposit growth rates also supports this explanation, since the growth rate decreased from 10.15% in 2023 to 7.69% in 2024. This continuing loss of confidence in the banking system threatens the system's deposit-based funding model.

The regulatory, operational, and financial failures of state-owned banks have created significant fiscal burdens for the government through bailout and recapitalization actions, depleting public resources and increasing the national debt. The government made numerous capital injections into collapsing state-owned banks. One prominent example occurred in 2019, when Sonali Bank had its total financial assets depleted and experienced unprecedented NPL volume worth a staggering BDT 12,000 crore (approximately $1.4 billion). Such use of public funds to remedy the misbehaviors and misadventures of political appointees unfairly shifts the burden of poor governance and political interference to the public. These actions have contributed to a fiscal loss of financial capital, whereby costs imposed on the public balance sheet reflect risk and uncertainty, where the costs of capital are transferred to the taxpayer.

The issues in fiscal procurement extend beyond state bailouts to longer-term solvency problems relating to the sustainability of debt. In December 2024, Bangladesh's total debt was approximately $168 billion, accounting for 38.5 percent of its GDP, according to the International Monetary Fund. While the ratio is still within tolerable limits according to international benchmarks, the trajectory suggests growing fiscal pressure, partially driven by banking sector support bills that divert goods and services from productive public investments in infrastructure, education, and health.

The impact of banking sector uncertainty on foreign investment flows has been significant, as international investors are concerned with the reliability of the financial system and the effectiveness of regulation. Foreign direct investment fell 13.25% to $1.27 billion in 2024, demonstrating investor hesitance to commit

resources into an economy with compromised financial infrastructure. The drop in investment, especially in the manufacturing and export sectors of the economy, impacts predictable access to working capital and trade financing, creating a feedback loop that further limits the potential for economic growth.

The crisis has also exacerbated national unemployment, particularly for women and young workers who are still seeking opportunities outside of school and face even greater barriers to alternative employment. The unemployment rate for the July-September 2024 quarter was 4.49%, compared to 4.07% in the previous quarter, with women experiencing higher job losses than men. Credit constraints have caused many businesses to either significantly downsize or cease operations. Across the country, small and medium-sized enterprises report significant challenges in maintaining payroll and sustaining operational budgets in light of diminished banking services.

Another casualty of the banking sector's dilemmas was the rise in inflationary pressures on consumers and businesses. Government and central bank actions to inject liquidity into the financial system to assist distressed banks have also led to monetary expansion in the means of production, driving price increases. According to the Bangladesh Bank, inflation reached 11.7 percent in July 2024, partly due to currency depreciation and supply chain disruptions arising from financial sector instability. Food inflation has been particularly problematic, with the low-income population being the hardest hit, while social issues undermine poverty reduction efforts. The health of the banking sector has deteriorated significantly, with 28 out of 59 banks falling short of Bangladesh Bank’s capital adequacy ratio requirement of 12.5 percent by 2020. The share of non-performing loans increased to 20.2 percent of total loans by December 2024 from 16.9 percent in September 2024. This increase signaled an upsurge in poor asset quality across the banking system, with state-owned banks accounting for approximately 80 percent of total non-performing loans, reflecting the degree of political interference and poor governance in these institutions.

There has been a tightening of credit conditions, with private sector credit growth reaching 6.82 percent in February 2025, the lowest level in 21 years, according to Bangladesh Bank statistics. The contraction of credit has been most

evident among small to medium-sized enterprises, which received approximately 20 percent of the total amount of loans disbursed by banks by the end of December 2023. Bangladesh Bank has a target of 25 percent. The barrage of business closures and sector contraction exacerbates the negative spiral of recession, prolonging the crisis across the economy. The social consequences have been accompanied by political instability as the problems in the banking sector have triggered widespread negativity towards governance and dissatisfaction with institutions. This dissatisfaction has manifested in public protests in response to bank corruption scandals, combined with government bailout packages that primarily reward well-connected bank defaulters. At the same time, ordinary citizens are left to deal with deteriorating access to credit and higher living costs. The crisis now limits the government's ability to mobilize finance for social welfare programs, with cash flows being diverted to address banking sector problems, rather than funding healthcare, educating the poor, and tackling poverty reduction.

The interrelatedness of these consequences illustrates how ethical failures in the banking sector create a ripple effect across the economy and society, resulting in prolonged periods of instability with negative implications for sustainable development. The crisis has also exposed systemic flaws in governance arrangements that extend beyond the banking sector to encompass broader institutional arrangements that prioritize political patronage over merit-based decision-making and the public's best interests.

12. Conclusion

This comprehensive assessment of the banking crisis in Bangladesh suggests that failures of ethics and governance, rather than purely mechanical failures, are the primary causes of institutional instability and the crisis of public confidence. Evidence from case study experiences, expert interviews, and unique stakeholder surveys illuminates how governance of the banking system was undermined by political interference, creating ideal conditions for fraud, corrupt practices, and regulatory capture to become routine. Interestingly, the survey data reflect a remarkable consensus across stakeholder groups on the connection between ethical practices and banking sector stability, even as scandals have

occurred in institutions that were historically touted as best-practice cases of ethical behavior. The findings demonstrate that stakeholders distinguish between institutional failures and framework failures, particularly in Islamic Banking, where confidence in the underlying principles remains despite well-documented failures within specific institutions. This distinction illustrates potential pathways for institutional recovery through repair and commitment to ethical governance frameworks, provided there is a restoration of favorable political-economic conditions.

The Bank Resolution Ordinance 2025 is the most significant institutional response to date; however, the journey from a potential solution to an actual one hinges on cultivating the appropriate political and economic conditions for a sustained commitment to regulatory independence and accountability. The dialectical analysis applied in this study suggests that the crisis conditions have created the possibility of a regulatory synthesis that extends beyond previous practices, contingent upon addressing political-economic conditions rather than simply tweaking technical regulatory processes. The implications of this research extend beyond the context of Bangladesh to provide a broader understanding of governance problems in the banking sectors of developing economies with similar patterns of political interference and institutional fragility. The analytical framework offers greater conceptual precision for assessing how ethical failures intersect with technical deficiencies, leading to systemic crises. The policy recommendations suggest routes to develop comprehensive reform agendas that address the root causes rather than merely remedying superficial symptoms.

Future investigations should include longitudinal assessments of the efficiency and sustainability of current reform projects, as well as comparative assessments with other post-crisis regulatory reform processes in similar institutional contexts. In addition, combining quantitative analytical approaches with qualitative approaches in this study may prove beneficial in understanding the relationships among ethical governance, institutional performance, and systemic stability. Moving forward, the future of Bangladesh's banking sector requires ongoing commitment to ethical leadership, institutional independence from political patronage, and systemic governance reform to eliminate the

structural weaknesses identified throughout this report. The current transitional moment provides unprecedented opportunities for institutional development, but sustaining genuine progress against entrenched political interference and regulatory capture across the sector will require continued momentum.

The stakes involved in these reform efforts extend well beyond the banking sector alone, to Bangladesh's overall financial stability and its capacity for sustainable economic development. The decisions made at this crucial transitional moment will determine the country's ability to establish systems of governance that position it for long-term prosperity rather than continue a path of cyclical crises and instability that significantly constrains its development potential. Success will depend not only on taking technical reform seriously but also on transforming political practices and institutional cultures to prioritize the public interest over opportunities for private benefit extraction.

The research indicates that a sustainable recovery of the banking sector relies on a complete re-engineering of governance culture, genuine regulatory independence, and the institutionalization of accountability measures capable of confronting the pressures of party-political considerations. These outcomes have significant implications for advancing financial sector governance in developing economies and designing effective assistance programs that can accommodate the political-economic constraints at play, rather than assuming that technical solutions alone can resolve complex institutional problems. As the international community engages in Bangladesh's reform efforts, it too must acknowledge these political economy issues to support institutional changes that enhance democratic accountability and the rule of law. The analytical framework outlined in this research provides conceptual tools to make sense of these interconnected processes and identify possible points of intervention where external support can be most effective in achieving sustainable institutional reform.

Ultimately, this study contributes to a greater understanding of how ethical considerations can complement technical competence to shape institutional performance in contexts where political interference undermines formal governance. The insights gained from Bangladesh's experience can inform other developing economies facing similar issues, while highlighting the importance of

viewing ethical foundations as essential prerequisites for effective financial sector governance and sustainable economic development.

References

[1] Banks and Financial Institutions Overview, Bangladesh Bank https://www.bb.org.bd/en/index.php/financialactivity/bankfi

[2] The Daily Star report by Priyam Paul on Dec 1, 2024. "Bridging Gaps, Building Trust: How Bangladesh's Banks Are Powering Progress" https://www.thedailystar.net/supplements/your-partner-financial-wellbeing/news/bridging-gaps-building-trust-how-bangladeshs-banks-are-powering-progress-3765426

[3] "White paper on State of the Bangladesh Economiy: Dissection of a Development Narrative." Prepared by the White Paper Committee 2024, Constituted by the Hon'ble Chief Adviser of the Government of Bangladesh.

[4] Prothom Alo report by Nurul Amin on 22 January 2025. "ACC seeks responsibilities to investigate reserve heist case" https://en.prothomalo.com/business/kf4xnz16id

[5] Central Banking report by Aditya Anand Kumar 21 February, 2025. "Bangladesh pursues ex-governor for alleged embezzlement" https://www.centralbanking.com/central-banks/governance/accountability/7972361/bangladesh-pursues-ex-governor-for-alleged-embezzlement

[6] The Daily Star report by AM Jahid on September 5, 2024. "Salman loses grip on IFIC Bank" https://www.thedailystar.net/business/news/salman-loses-grip-ific-bank-3694816

[7] Prothom Alo report by Shanaullah Sakib on 12 December 2024. "Janata Bank in severe crisis due to loans to AL-aligned businesspersons" https://en.prothomalo.com/business/wradwmfgt0#:~:text=State%2Downed%20Janata%20Bank%20has,among%20just%2010%20industrial%20groups

[8] The Daily Star report by Md Mehedi Hasan on 19 March 2025. "Bad loans at scam-hit banks surge after political changeover" https://www.thedailystar.net/business/news/bad-loans-scam-hit-banks-surge-after-political-changeover-3851851

[9] মালিকানা বদলের পর ১৫ মাসেই ইসলামী ব্যাংক সংকটে. *Prothom Alo* (in Bengali). 26 April 2018

[10] Taiyeb, Faiz Ahmad (2022-12-06). "The rise and fall of Islami Bank". . Retrieved 2023-04-16.

[11] "Islamic banking grows in Bangladesh, no thanks to the authorities". *The Economist*. 2017-08-24. ISSN 0013-0613. Retrieved 2021-03-19.

[12] "Islami Bank to hire people of all religions, more women". *The Daily Star*. 2017-01-12. Retrieved 2023-04-16.

[13] "Major changes in Islami Bank key positions". *The Daily Star*. 2017-01-06. Retrieved 2023-04-16.

[14] Uddin, AKM Zamir (2019-06-30). "Islami Bank's default loans double in three months". *The Daily Star*. Retrieved 2023-04-16.

[15] Sakib, Shanaullah. "'Nasty November' for Islami Bank". *Prothom Alo*. Retrieved 2023-01-02.

[16] "How a 24-year-old greenhorn is 'blessed' with a Tk900cr loan". *The Business Standard*. 2022-11-27. Retrieved 2023-01-02.

[17] Jamal, Eresh Omar (2022-12-04). "Destroying the economy to save the thieves". *The Daily Star*. Retrieved 2023-04-16.

[18] Parvez, Sohel (2023-02-24). "Depositors withdraw Tk 11,426cr from Islamic banks in 3 months". *The Daily Star*. Retrieved 2023-04-16.

[19] "Islami Bank gets special loan of Tk 80 billion". *Prothom Alo*. Retrieved 2023-04-16.

[20] "BB decides to appoint observers at the two Islamic banks". *The Daily Star*. 2022-12-12. Retrieved 2023-04-16.

[21] Uddin, AKM Zamir (2022-11-29). "TK 7,246CR loans to 9 firms: BB probing 'breach of rules' at Islami Bank". *The Daily Star*. Retrieved 2023-04-16.

[22] "Islami Bank gets nod to raise Tk 800 crore by issuing bonds". *The Daily Star*. 2023-01-01. Retrieved 2023-04-16.

[23] The Daily Star report by Md Mehedi Hasan on Feb 11, 2025. “Salman F Rahman used IFIC Bank for personal gains” https://www.thedailystar.net/business/economy/banks/news/salman-f-rahman-used-ific-bank-personal-gains-3821276

[24] The Daily Star report by Md Mehedi Hasan on December 26, 2024. "S Alam-linked firms account for 56% of loans from First Security" https://www.thedailystar.net/business/economy/news/s-alam-linked-firms-account-56-loans-first-security-3784576

[25] The Daily Star report by Md Mehedi Hasan, AM Jahid on August 21, 2024. "S Alam group, associates: Tk 95,000cr loans taken from 6 banks" https://www.thedailystar.net/business/economy/banks/news/s-alam-group-associates-tk-95000cr-loans-taken-6-banks-3681421

[26] The Daily Star report by Md Mehedi Hasan on September 1, 2024. "How Islami Bank was taken over 'at gunpoint'" https://www.thedailystar.net/business/economy/banks/news/how-islami-bank-was-taken-over-gunpoint-3691281

[27] Golam Maola, September 10, 2024. "এস আলম গ্রুপের 'ব্যাংক লুটের' কাহিনি-১, ইসলামী ব্যাংক দখলে সরাসরি জড়িত ছিলেন তিন গভর্নর!"

[28] Prothom Alo report on February 1, 2015. "সংসদে অর্থমন্ত্রী; ইসলামি ব্যাংকিং একটি প্রতারণা"

[29] Nanto, Dick K. 1998. The 1997-98 Asian Financial Crisis. CRS Report for Congress. http://fas.org/man/crs/crs-asia2.htm

[30] Justice Muhammad Habibur Rahman. 1999. Ethics in Banking. Second Nurul Matin Memorial Lecture. BIBM, Dhaka

[31] Justice Shahabuddin Ahmed. 1998. Ethics in Banking. First NurulMatin Memorial Lecture. BIBM, Dhaka

[32] M. Syeduzzaman. 2002. Ethics in Banking. Fourth Nurul MatinMemorial Lecture. BIBM, Dhaka

[33] Wahiduddin Mahmud, Ethics in Banking. Fifth Nurul Matin Memorial Lecture. BIBM, Dhaka.

[34] Professor Rehman Sobhan. Restoring Justice to Banking in Bangladesh. third Nurul Matin Memorial Lecture. BIBM, Dhaka.

[35] The Daily Star report by Staff Correspondent on January 6, 2025. "Unemployment rises." https://www.thedailystar.net/news/bangladesh/news/ unemployment-rate-climbs-3792721?utm_source=chatgpt.com

[36] The Daily Star Report by Star Business Report on March 2025. "Banks' deposit growth dropped in 2024 amid confidence crisis" https://www.thedailystar.net/business/news/banks-deposit-growth-dropped-2024-amid-confidence-crisis-3848826?utm_source=chatgpt.com

[37] The Financial Express report on December 12, 2024. "Bank deposits drop nearly 1.0pc in Q1." https://today.thefinancialexpress.com.bd/first-page/ bank-deposits-drop-nearly-10pc-in-q1-1733939756?utm _source= chatgpt. com

[38] IMF, World Economics report, "Bangladesh Debt to GDP Ratio: 38.5%" https://www.worldeconomics.com/GrossDomesticProduct/Debt-to-GDP-Ratio/Bangladesh.aspx#:~:text=GDP%20in%20Bangladesh%20is%20 offically, debt%20level%20is%20%24168%20Billion.

[39] The NEWAGE report on March 6, 2025. "Food inflation 11-month low"

https://www.newagebd.net/post/economy/259468/food-inflation-11-month-low?utm_source=chatgpt.com

[40] The NEWAGE report on April 9, 2025. "Pvt sector credit growth slumps to 21-year low" https://www.newagebd.net/post/economy/261886/pvt-sector-credit-growth-slumps-to-21-year-low?utm_source=chatgpt.com

[41] The Daily Star's Star Business report on March 2023. "Raise SME loan ratio to 25% by 2024" https://www.thedailystar.net/business/economy/ banks/news/raise-sme-loan-ratio-25-2024-3273411?utm_source=chatgpt.com

[42] M. Kabir Hassan, & Md. Nurruddin Kaosar "A Forensic Audit of Islamic Banking Crisis in Bangladesh: An Investigation (in Bangla)," 2025. Forthcoming

[43] M. Kabir Hassan, & Md. Nurruddin Kaosar "Revival of Islamic Banking in Bangladesh (in Bangla)," 2025. Forthcoming

[44] M. Kabir Hassan, & Md. Nurruddin Kaosar "Reform of Islamic Banking in Bangladesh: a Roadmap (in Bangla)," 2025. Forthcoming

[45] Bernanke, B. S. (1983). Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression. *American Economic Review*, 73(3), 257-276.

[46] Diamond, D. W., & Dybvig, P. H. (1983). Bank Runs, Deposit Insurance, and Liquidity. *Journal of Political Economy*, 91(3), 401-419.

[47] Diamond, D. W. (1984). Financial Intermediation and Delegated Monitoring. *Review of Economic Studies*, 51(3), 393-414.

[48] Friedman, M. (1992). *A program for monetary stability*. Ravenio Books.

[49] Zaman, A. (2020). Islamic banking after financial crises. *Islamic Finance as a Complex System: New Insights*, 159-180.

[50] Werner, R. A. (2014). Can banks individually create money out of nothing? The theories and the empirical evidence. *International Review of Financial Analysis*, *36*, 1-19.

[51] Alonso, I. M. (2015, March). Mit Ghamr: Pioneer in Islamic Banking. In *10th International Conference on Islamic Economics and Finance* (pp. 23-24).

[52] Asmatullah, M. (2014). Money and its Usage: An Analysis in the Light of the Sharia', translated by Omar Javaid. *Karachi: Darul Ishaat*.

[53] Ur Rehman, A., & Shahzad, M. A. (2017). Eradicating Poverty through Salam and Istisn'a'Strategy for Poverty Reduction in Rural Pakistan. *Ma'arif Research Journal, January-June*.

[54] Benes, M. J., & Kumhof, M. M. (2012). *The Chicago plan revisited*. International Monetary Fund.

[55] Brown, E. (2011). *Web of Debt*. Third Millennium Press.

[56] সুকুক প্রসপেক্টাস নিয়ে কিছু কথা - জানুয়ারি ০৭, ২০২১. *বণিক বার্তা* - ড. এম কবির হাসান, মুফতি আব্দুল্লাহ মাসুম https://bonikbarta.net/home/news_description/252410/-

[57] Hickel, J. (2013). Aid in Reverse: How Poor Countries Develop Rich Countries. *New Left Project*.

[58] Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. Harcourt.

[59] Laeven, L., & Valencia, F. (2008). *Systematic Banking Crises: A New Database*. IMF WP/08/224.

[60] McLeay, M., Radia, A., & Thomas, R. (2014). *Money Creation in the Modern Economy*. Bank of England Quarterly Bulletin, 54(1), 14–27.

[61] Mian, A., & Sufi, A. (2014). *House of Debt*. University of Chicago Press.

[62] Piketty, T. (2014). *Capital in the Twenty-First Century*. Belknap Press.

[63] Shiller, R. (2015). *Irrational Exuberance* (3rd ed.). Princeton University Press.

[64] Sigurjonsson, F. (2015). *Monetary Reform: A Better Monetary System for Iceland*. Iceland Prime Minister's Office.

[65] Stiglitz, J. (2012). *The Price of Inequality*. Penguin.

[66] World Bank. (2006). *Where is the Wealth of Nations?*. The World Bank.

[67] Zaman, A. (Forthcoming). *The Nature of Modern Money*. IRTI Working Paper. SSRN: https://ssrn.com/abstract=2535697

[68] Hassan, M. K., Muneeza, A., & Hasan, R. (2025). *Islamic finance and sustainable development*. Cambridge University Press.

[69] Hassan, M. K., Saraç, M., & Khan, A. (2018). Sustainable development goals and Islamic finance. *A presentation material for Bank Indonesia Plenary Session in Indonesia Sharia Economic Festival (ISEF), Surabaya*.

[70] Hassan, M. K., Muneeza, A., & Sarea, A. M. (2021). Impact of COVID-19 on Islamic social finance. In *COVID-19 and Islamic social finance* (pp. 9-23). Routledge.

[71] Hassan, M. K., Aliyu, S., & Brodmann, J. (2017). An introduction to Islamic banking and finance. In *The most important concepts in finance* (pp. 250-276). Edward Elgar Publishing.

[72] Hassan, M. K., & Gider, Z. (2025). The Systematic Failures of the Current Economic System. In *Islamic Economics and Financial Crisis* (pp. 56-71). Routledge.

[73] Ismail, S., Hassan, M. K., & Rahmat, S. (2023). *Islamic social finance: Waqf, endowment, and SMEs*. Edward Elgar Publishing.

[74] The Daily Star report on July 1, 2008. "Islamic banking shows upward trend." https://www.thedailystar.net/news-detail-43636

[75] Kayed, Rasem and M. Kabir Hassan, "The Global Financial Crisis and Islamic Finance," *Thunderbird International Business Review*, Volume 53, Issue 5 (September/October, 2011):551-564, https://doi.org/10.1002 /tie. 20434

[76] Mahmud, W. (2005, June 1). *Ethics in banking* (Fifth Nurul Matin Memorial Lecture). Bangladesh Institute of Bank Management.

[77] NewAges report on February 19, 2025. "BB's power to dissolve weak banks proposed" https://www.newagebd.net/post/banking/258350/bbs-power-to-dissolve-weak-banks-proposed#google_vignette

[78] Star Business report of The Daily Star report on February 24, 2025. "Bridge banks proposed to run failed banks" https://images.thedailystar.net/business/news/bridge-banks-proposed-run-failed-banks-3832141 ? utmsource= chatgpt.com

[79] M. Janbaz, M.K. Hassan, J. Floreani, A. Dreassi , "Liquidity pressure and sovereign-bank diabolic loop," International Review of Economics and Finance, Volume 93, Part A, June 2024, Pages 1039-1057

[80] M. Kabir Hassan, Muhammed Tarik Islam, Zobayer Ahmed and Jahidul Islam Sarker, "A Bibliometric Analysis of Islamic Banking in Bangladesh using Scopus 1999 to 2021," International Journal of Islamic and Middle Easter Finance and Management, http://dx.doi.org/10.1108/IMEFM-05-2022-0185

[81] Ahmad, A.U.F. and M. K. Hassan (2007), "Regulation and Performance of Islamic Banking in Bangladesh," Special Issue on *Islamic Finance* in *Thunderbird International Business Review*, Volume 49, Number 2 (March-April), pages: 251-278, https://doi.org/10.1002/tie.20142

For Additional Reading

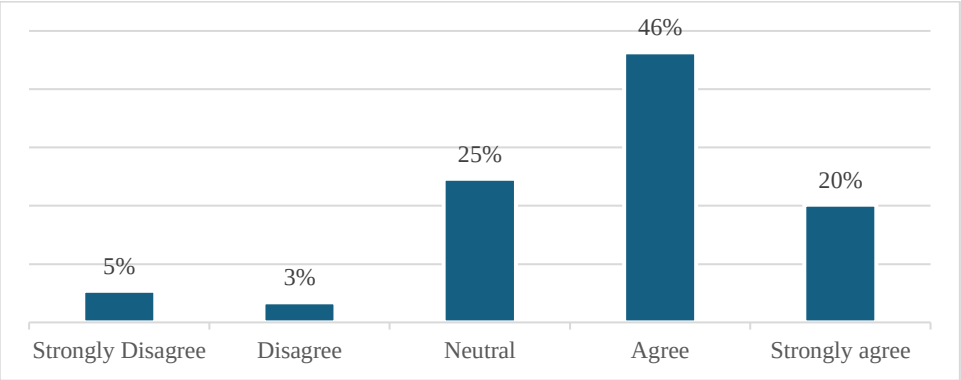
1. Bernanke, B. S. (1983). *Non-monetary effects of the financial crisis in the propagation of the Great Depression* (No. w1054). National Bureau of Economic Research.
2. Bernanke, B. S. (2009). The federal reserve's balance sheet: an update. https://elischolar.library.yale.edu/ypfs-documents/335/
3. Bernanke, B. S. (2015). The courage to act: A memoir of a crisis and its aftermath. https://elischolar.library.yale.edu/ypfs-documents/8330/
4. Bernanke, B. S. (2024). Essays on the great depression. https://www.torrossa.com/en/resources/an/5641749#
5. Bernanke, B. S., & Gertler, M. (1995). Inside the black box: the credit channel of monetary policy transmission. *Journal of Economic perspectives*, *9*(4), 27-48. DOI: 10.1257/jep.9.4.27

6. Bernanke, B. S., Gertler, M., & Gilchrist, S. (1999). The financial accelerator in a quantitative business cycle framework. *Handbook of macroeconomics*, *1*, 1341-1393. https://doi.org/10.1016/S1574-0048(99)10034-X
7. Carlstrom, C. T., & Fuerst, T. S. (1997). Agency costs, net worth, and business fluctuations: A computable general equilibrium analysis. *The American Economic Review*, 893-910. https://www.jstor.org/stable/2951331
8. Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of political economy*, *91*(3), 401-419.
9. Diamond, P. (2011). Unemployment, vacancies, wages. *American Economic Review*, *101*(4), 1045-1072.
10. Diamond, P. A. (1971). A model of price adjustment. *Journal of economic theory*, *3*(2), 156-168. https://cemi.ehess.fr/docannexe/file/2360/diamond.pdf
11. Diamond, P. A. (1982). Aggregate demand management in search equilibrium. *Journal of political Economy*, *90*(5), 881-894. https://www.journals.uchicago.edu/doi/abs/10.1086/261099
12. Diamond, P. A. (1982). Wage determination and efficiency in search equilibrium. *The Review of Economic Studies*, *49*(2), 217-227. https://doi.org/10.2307/2297271
13. Diamond, P. A. (1998). *Economics of Social Security Reform and Overview*. World Economy Laboratory at Massachusetts Institute of Technology.
14. Diamond, P. A. (Ed.). (1999). *Issues in Privatizing Social Security: Report of an Expert Panel of the National Academy of Social Insurance*. Mit Press.
15. Diamond, P. A., & Mirrlees, J. A. (1971). Optimal taxation and public production I: Production efficiency. *The American economic review*, *61*(1), 8-27. https://www.jstor.org/stable/1910538
16. Diamond, P. A., & Orszag, P. R. (2002). An assessment of the proposals of the President's Commission to Strengthen Social Security.
17. Diamond, P. A., & Orszag, P. R. (2004). Accrual Accounting for Social Security. *Harv. J. on Legis.*, *41*, 173.
18. Dybvig, P. H. (1988). Distributional analysis of portfolio choice. *Journal of Business*, 369-393. https://www.jstor.org/stable/2353045

19. Dybvig, P. H. (1988). Inefficient dynamic portfolio strategies or how to throw away a million dollars in the stock market. *The Review of Financial Studies*, *1*(1), 67-88. https://doi.org/10.1093/rfs/1.1.67
20. Dybvig, P. H. (1988). Security Markets: Stochastic Models. https://doi.org/10.1093/rfs/1.3.329
21. Dybvig, P. H., & Marshall, W. J. (1997). The new risk management: the good, the bad, and the ugly. *REVIEW-FEDERAL RESERVE BANK OF SAINT LOUIS*, *79*, 9-22. https://dybfin.wustl.edu/research/ papers/ riskman _fed.pdf
22. Dybvig, P. H., & Wang, Y. (2012). Increases in risk aversion and the distribution of portfolio payoffs. *Journal of Economic Theory*, *147*(3), 1222-1246. https://doi.org/10.1016/j.jet.2011.11.009
23. Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The review of economic studies*, *51*(3), 393-414. https://doi.org/10.2307/2297430
24. PETER, A., & Mirrlees, A. (1971). Optimal taxation and public production II: Tax rules. *American economic review*, *61*, 261-278. https://assets.aeaweb.org/asset-server/files/9447.pdf
25. Peter, D. (1965). National debt in a neoclassical growth model. *American economic review*, *55*(5), 1126-1150. https://assets.aeaweb.org/asset-server/files/9443.pdf

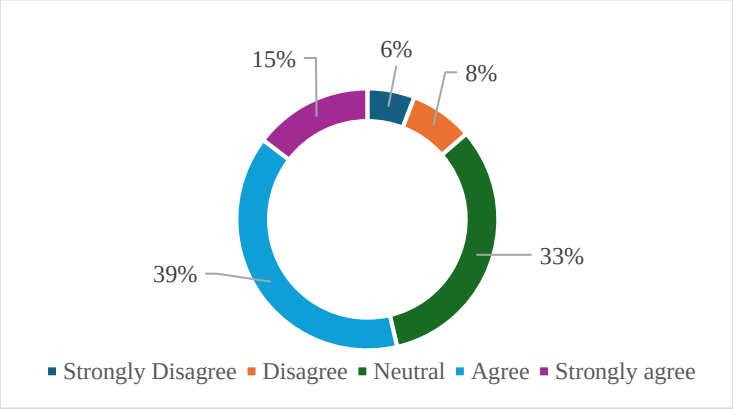
Appendices

Appendix 1: The recent change in political leadership has contributed to greater stability in the banking system.



Source: Authors' calculation.

Appendix 2: "I remain hopeful that ethical banking practices will become stronger in Bangladesh over the next five years."



Source: Authors' calculation.

NOTE FOR CONTRIBUTORS AND GENERAL READERS

I. *Bank Parikrama*, a professional refereed journal dedicated to banking and finance, is the semi-annualy publication of the Bangladesh Institute of Bank Management (BIBM). Usually, two issues are +published in June and December each year.

II. *Bank Parikrama* is listed in Cabell's Jarnalytics, Directory of Excellence in Research for Australia (ERA), Australian Business Deans Council (ABDC) Journal Quality List, Elton B. Stephens Co. (EBSCO) Database and Europa World Year Book.

III. The main objective of the journal is to publish articles, notes, comments, review, etc. on relevant topics in the fields of banking, finance, economics and allied subjects which may contribute to the development of academic, professional and administrative expertise in the banking sector. **The similarity index after checking plagiarism with a software like Turnitin should not be exceeded 20%.**

IV. Articles must be original and in consonance with the objectives of the journal.

V. If the article is accepted for publication elsewhere, it must be communicated immediately.

VI. If the Editorial Board is of the opinion that article provisionally accepted for publication needs to be shortened or particular expressions deleted or rephrased, such proposed changes will be sent to the author(s) of the article for clearance prior to its publication. The author(s) may be requested to recast any article in response to the review there of by any reviewer.

VII. No submission fee or publication fee is required.

VIII. The title of the article should be short. Brief subheadings may be used at suitable points throughout the text. The Editorial Board reserves the right to alter the title of the article.

IX. The cover page of the paper should include the Title, Name, Designation, institutional Address, Phone/ Mobile Number and Email Address of each author. Authors should not identify themselves either directly or indirectly in the first page of the article.

X. The author has to submit the softcopy of the article in MS Word format at: **bibmresearch@bibm.org.bd** addressing to the Executive Editor of Bank Parikrama.

XI. Article to be submitted should be organized generally into the following sections:

Abstract: within 150 words

Keywords: 3-5

JEL Classification/ Code: At least One (01)

1. Introduction: Stating the Background and Problem
2. Literature Review
3. Objectives and Hypotheses
4. Methodological Issues Involved
5. Findings and Analysis
6. Policy Implications
7. Conclusion

References (Use the American Psychological Association (APA) Referencing Style for referencing and ensure all the references should be both in the text of the paper and reference section as well)
Appendix/ Appendices
Acknowledgement (If Required)

(XII) Formatting:

- Paper size: A4 Size (wide 8.5" and long 11")
- Margins: Top=1", Bottom=1", Left=1", Right=1"
- All paragraphs must be justified, i.e., both left-justified and right-justified.

- Line Spacing: Multiple (1.5)
- Font Name: Times New Roman
- The length of the manuscripts should not exceed 30 pages, including footnotes, references, appendices, charts, figures, and tables.
- All the Figures and Tables must be in Black-and-White in Color.
- Sources must be mentioned below each Tables and Figures of the article.
- Page Numbers must be included.
- Paper must be submitted in MS Word version.

All communications should be addressed to:

Research, Development & Consultancy (R.D.&C.) Wing
Bangladesh Institute of Bank Management (BIBM)
Plot-4, Main Road-1 (South), Mirpur-2, Dhaka-1216, Bangladesh
PABX : 48032091-4; 48032097-8, 48032104 (Ext. 135)
Office Time: Sunday-Thursday, 10:00 a.m. - 6:00 p.m. (GMT +6 hours)
E-mail : bibmresearch@bibm.org.bd

Please visit: www.journal.bibm.org.bd

DOI: https://doi.org/10.64204/BP1019-7044

Communication should be addressed to:

Publications-Cum-Public Relations (PPR)
Bangladesh Institute of Bank Management (BIBM)
Plot-4, Main Road-1 (South), Mirpur-2, Dhaka-1216, Bangladesh
PABX: 48032091-4; 48032097-8, 48032104 (Ext. 120)
Email: ppr@bibm.org.bd
almamun@bibm.org.bd

Support Team ***Research, Development and Consultancy Wing***
Papon Tabassum, *Assistant Senior Officer, BIBM*
Sk. Md. Azizur Rahman, *Officer, BIBM*
Md. Awalad Hossain, *Officer, BIBM*

Publications-cum-Public Relations Section
Md. Al-Mamun Khan, *Senior Officer, BIBM*
Md. Morshadur Rahman, *Officer, BIBM*

Design & Illustration **Md. Awalad Hossain,** *Officer, BIBM*

Published in November, 2025

Published by Bangladesh Institute of Bank Management (BIBM)
Plot No. 4, Main Road No. 1 (South), Section No. 2
Mirpur, Dhaka-1216, Bangladesh.
PABX : 48032091-4, 48032097-8, 48032104
E-mail : bibmresearch@bibm.org.bd
Web : www.bibm.org.bd

Copyright © BIBM 2025, All Rights Reserved

Printed by **.....**

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 120-150)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20252

Analyzing Stock Returns of Non-Life Insurance Firms: The Role of Investor Attention

- Shaikh Masrick Hasan*
- Priya Saha**

Abstract

This study analyses the impact of investor attention on the stock returns of non-life insurance firms in Bangladesh, utilizing company-specific and macroeconomic factors as control variables. This study employs 1,360 quarterly observations from 34 publicly traded non-life insurance companies spanning 2014 to 2023, using Feasible Generalized Least Squares and Panel Corrected Standard Errors models to tackle panel data challenges, including heteroscedasticity and cross-sectional dependence. The results indicate that investor attention, quantified through the Google Search Volume Index, substantially affects stock returns. This indicates that observing investor behaviour and public interest can improve investing strategies and market forecasts. Return on assets, net profit margin, and firm age exhibit favorable connections with stock returns, although firm size negatively affects them. Macroeconomic variables, including inflation and GDP growth, correlate negatively with stock returns, whereas the exchange rate demonstrates a favorable influence. This study enhances the literature by integrating investor behavior with fundamental and macroeconomic variables within the insurance industry of an emerging market, providing significant insights for investors and policymakers.

Keywords: *Investor Attention, Google Search Volume Index, Panel Data, Macroeconomic Variables, Insurance, Bangladesh.*
JEL Classification: G22, E44, C33

1. Introduction

Conventional finance theories often presume that investors can obtain relevant information and dedicate the necessary attention to analyzing and reacting to it (Hirshleifer, Lim, and Teoh, 2011). In accordance with the efficient market hypothesis theory, asset prices incorporate all essential market-related information, necessitating that investors consider all available data (Akarsu & Süer, 2022). In reality, investors cannot access all relevant information because of individuals' limited attention spans (Pashler & Johnston, 1998). The sheer

* Shaikh Masrick Hasan, Ph.D. is an Associate Professor, Department of Finance, Faculty of Business Studies, Jagannath University, Dhaka, Bangladesh, Email: masrick@fin.jnu.ac.bd and **Priya Saha, Research Associate, Department of Finance, Faculty of Business Studies, Jagannath University, Dhaka, Bangladesh, Email: priyasaha6798@gmail.com. The views expressed in this paper are the authors' own.

volume of data in today's information age forces retail investors to concentrate on only a small subset of available information, making it challenging to track all market developments comprehensively (Barber, Odean & Zhu, 2008). This limited attention can significantly affect their trading activities, leading to potentially suboptimal decision-making and influencing stock returns by causing mispricing or delayed reactions to new information (Yang, Ma, Wang & Wang, 2021).

Investors prioritize returns when making investment decisions, assessing the potential gains against the associated risks to align with their investment goals and risk tolerance (Fama, 1990). Insurance is defined as the pooling of risks through insurers who compensate for losses, provide financial benefits, or offer related services (Linnerooth-Bayer, Surminski, Bouwer, Noy & Mechler, 2019). In Bangladesh, where natural disasters, political instability, and inflation pose significant challenges, the insurance industry is crucial to helping businesses reduce these risks (Mamun & Chowdhury, 2021). Insurance returns are vital for assessing the financial health and risk management capabilities of insurance companies, as investor focus significantly influences the dynamics of the stock market.

Retail investors often base their investment decisions on stocks that draw attention due to factors such as media coverage, social media trends, and market sentiment (Barber & Odean, 2008). A company's Google Search Volume (GSV) is a crucial indicator of investor attention, providing insights into the interests of uninformed investors (Bank, Larch & Peter, 2011). It can be a helpful indicator of how the stock market will behave, providing insights into how investor sentiment and attention can influence market outcomes (Aziz & Ansari, 2021). Bank et al. (2011) explore that Stocks that gain attention often see price increases due to heightened investor interest, while those that receive negative attention may suffer from reduced demand and declining prices. Smales (2021) notes that investor attention can create selling pressure, as investors may avoid stocks linked to controversy, scandals, or poor performance. Thus, investor attention becomes crucial in shaping investor behavior and influencing stock market outcomes.

This study primarily examines how investor attention impacts the stock returns of non-life insurance companies in Bangladesh. It investigates the detailed correlation between investor attention and stock returns, examining how market responses and investor sentiment influence this relationship. However, stock returns are not solely driven by investor attention. Various firm-specific characteristics and macroeconomic factors also significantly influence stock returns. To ensure a comprehensive analysis, the study incorporates a set of control variables, including both firm-level and macroeconomic indicators to better understand their combined impact on stock returns.

Existing literature, including research by Akarsu and Süer (2021), Swamy and Dharani (2019), Ekinci and Bulut (2021), Tan and Taş (2019), Tantaopas, Padungsaksawasdi and Treepongkaruna (2016), and Bank et al. (2011), has explored the effect of investor attention on returns of stock in various contexts. However, there is a significant gap in the research, particularly in Bangladesh, where studies have not yet been done on how investor attention affects stock returns, especially on non-life insurance companies. This study intends to bridge this gap by delivering a comprehensive examination of the impact of investor attention on stock returns within the Bangladeshi non-life insurance sector, providing insights into local market dynamics and investor behaviour.

The impact of investor attention on stock returns is inadequately understood for non-life insurance companies in Bangladesh, requiring a thorough investigation to deepen the level of knowledge, and thus the following questions are set to examine: (1) How can the investor's attention to the company, which is measured by Google Search Volume Index, contribute to the stock return? (2) How investor interest fluctuations may influence stock performance. (3) How can the firm-specific variables and macroeconomic factors influence the stock return of the non-life insurance companies?

This study makes significant contributions by addressing a key gap in current research. It offers a thorough examination of the ways investors' focus influences stock returns for non-life insurance companies. The study applied Google search volume as an indicator of investor attention, a method rarely used in Bangladeshi insurance companies. Additionally, it utilizes the PSEC dynamic regression

model to enhance the analysis of these effects. These findings provide essential insights for policymakers in Bangladesh, particularly within the life insurance industry. Analyzing how investor attention influences stock performance can aid investors and stakeholders in shaping more effective investment strategies and making better decisions.

The rest of the study consists of section two, which thoroughly explores the existing literature and hypotheses guiding the research; section three, which outlines materials and methods; section four, which relates the results and discusses the method; and the fifth chapter, which provides the conclusion.

2. Literature Review and Hypothesis Development

Classical asset-pricing models assume that asset prices reflect all relevant information instantaneously, assuming that investors can consistently devote adequate attention to each asset (Da, Engelberg & Gao, 2011). However, acknowledging the constraints on investor attention, Peng and Xiong (2006) and Hirshleifer and Teoh (2003) have created theoretical models to investigate how these limitations affect asset pricing. However, studies have shown that individual investors typically base their choices on their level of attention. Barber and Odean (2013) state that this limited attention impacts investment choices. Peng and Xiong (2006) demonstrate that capital market investors concentrate on comprehensive market information due to attention limits rather than details about specific companies.

Two prominent theories challenge the efficient market theory underlying typical asset pricing models by examining how investor attention impacts stock prices. Merton (1987) presents the investor recognition theory, suggesting that investors are inclined to acquire stocks with which they possess greater familiarity. Barber and Odean (2008) propose the price pressure theory, indicating that individual investors, restricted by time and resources, are inclined to purchase stocks that catch their interest. This focus-driven behavior results in higher returns and increased trading volumes for these stocks, while selling is easier since investors know about the stocks they own. Information visibility is essential for individual investors when making decisions (Nofsinger, 2001).

Investor attention, a psychological bias, significantly influences trading and asset pricing. Shleifer and Summers (1990) highlight that irrational investor sentiment can affect prices, as noise trading and limited arbitrage opportunities are prevalent. Previous research has assessed investor attention using various indirect indicators, including advertising, noteworthy events, and media coverage. Grullon, Kanatas, and Weston (2004) state that companies with bigger advertising budgets attract more investors and have improved liquidity of stocks. The advertising activity enhances immediate stock returns through enhancing investor awareness, but it results in lower future returns (Chemmanur & Yan, 2019). Hsu and Chen (2019) demonstrate that portfolios with high advertising expenditures achieve higher abnormal returns in low-volatility periods, but these returns become insignificant during high-volatility periods despite increased advertising efforts.

In recent years, researchers have utilized Internet search data to indicate attention to particular subjects directly. Recognizing the value of attention and actively managing it has become increasingly crucial in navigating the digital world (Yang et al., 2021). Google Trends utilizes data from Google Search and its affiliated sites to provide insights into internet search patterns and trends. Users can access a user-friendly interface in Google Trends, download data for further analysis, and view relative search volumes (RSV) adjusted to the maximum query share observed over time and define specific geographic areas and periods, comparing relative search volume across different terms or locations (Nuti, Wayda, Ranasinghe, Wang, Dreyer, Chen & Murugiah, 2014). They also point out that Google Trends only captures data from a subset of the population using Google Search.

The search volume index (SVI) for a specific phrase is its query share for a given region and period, whereas the query share for a certain term is the proportion of queries for that phrase compared to the total number of searches in a specific region and period (Cziraki, Mondria, & Wu, 2011). Data following Google Trends searches can be used for selecting portfolios and diversifying risk (Kristoufek, 2013). Google search trends have also been employed to measure investor sentiment. Google Insights measures the daily variations in the Google

Search Volume Index that are associated with liquidity across different dimensions, particularly for stocks with higher retail trading proportions (Fink & Johann, 2012). Google search data can enhance the ability to predict directional fluctuations in the S&P 500 index and potentially improve investment decision-making processes (Huang, Rojas, & Convery, 2020). In the Asia-Pacific region, the Google Search Volume Index (GSVI) indicates investors' attention, offering crucial insights into retail investor behavior and its influence on market variables (Tantaopas et al., 2016).

Swamy and Dharani (2019) find that the predictive potential of the Google Search Volume Index extends beyond forecasting the direction of capital market movements; it also offers insightful information into the magnitude of potential market changes. They suggest that the GSVI not only signals whether the market will move up or down but also gives an indication of how significant those movements might be. Investors' attention can impact both current stock prices and future returns in two primary ways. Firstly, events that attract attention can affect buying and selling behaviors in distinct manners. Secondly, increased awareness might amplify the variation in investors' beliefs about a stock's value. Vozlyublennaia (2014) demonstrates that investor attention, assessed by Google searches, influences the outcome of metrics for stocks, bonds, and commodities, though the effect usually lasts for a short period.

Investor attention performs a crucial role in determining stock returns. Especially in markets like Turkey, where behavioral factors are significant, indicating that small stocks are particularly affected by changes in attention, leading to notable price pressure effects. (Tan and Taş, 2019). Bank et al. (2011) discovered that investor attention has a favorable correlation with the German stock market's future return. Ekinci and Bulut (2021) investigate the Turkish capital market and show that stock returns are significantly related to the investor's attention. Vosen and Schmidt (2011), Cziraki et al. (2011), Nurazi and Usman (2015) and Yang et al. (2021) have found that investor attention is positively correlated with stock returns. Perlin, Caldeira, Santos, and Pontuschka (2017) observe that in developed countries, the volume of searches for stock market-related terms adversely correlates with stock returns. Chen (2017) reveals

that in 20 out of 67 countries, increased investor attention is associated with decreased stock returns. Meanwhile, Han, Li, and Yin (2018) find that investor attention has a notable impact on index returns, with negative attention proving to be a more accurate predictor than positive attention in both developed and developing countries. However, Ekinci and Bulut (2021) also opined that investor attention does not predict future stock returns.

Stock returns are also shaped by a range of firm-specific characteristics, such as return on assets, firm size, firm age, net profit margin, and debt-to-equity ratio, beyond investor attention. A company's declining return on assets over time signals negative information to investors, potentially decreasing stock trading activity and stock returns (Suciati, 2018). Generally, a higher return on assets is associated with increased share prices, which can boost stock returns. Both Aminah (2021) and Sorongan (2016) support the positive correlation between return on assets and stock returns. However, Suciati (2018) identified that return on assets has an insignificant relationship with stock returns. Similarly, a low net profit margin may indicate inefficiency, raising concerns about the company's profitability. While Sorongan (2016) and Nurazi and Usman (2015) revealed a positive influence of net profit margin on stock returns, Kusmayadi, Rahman, and Abdullah (2018) and Aminah (2021) reported no substantial effect.

Debt-to-equity ratio positively influences stock returns, as higher debt reliance can improve company performance when managed effectively (Jabbari & Fathi, 2014; Hertina & Saudi, 2019). Conversely, Elevated debt levels can negatively impact stock returns. Kusmayadi et al. (2018), and Nurazi and Usman (2015) found a negative effect on stock return. Larger firms are typically better positioned to secure loans due to their stronger industry presence and broader access to funding (Rochim & Ghoniyah, 2017), while smaller firms are often more adaptable. Sharif (2019) and Adawiyah & Setiyawati (2019) found a positive relationship between firm size and stock returns, whereas Barua (2020) and Suciati (2018) observed a negative relationship. Rochim & Ghoniyah (2017) found no significant impact on firm size. Additionally, older companies tend to generate higher stock returns (Matemilola et al., 2017), supporting the positive outlook. Akwe and Garba (2019) reported a substantial positive correlation

between company age and stock returns, indicating that maturity and scale can drive better market performance. On the other hand, Dawar (2014) observed that firm age negatively influenced stock returns.

In addition, macroeconomic variables like inflation rate, GDP growth rate, and exchange rate significantly influence stock returns. Abubakar (2016) identified that GDP growth rate exerts a favorable short-term influence on stock returns, as economic expansion supports business activity and market optimism. However, a negative long-term effect was found on return due to increased market volatility and speculative behavior. Similarly, Madsen, Dzhumashev, and Yao (2013) and Alam (2020) established a positive relationship between GDP growth and stock performance, highlighting GDP's role in shaping investor expectations and guiding investment strategies. Conversely, excessive inflation tends to reduce purchasing power and lead to higher interest rates which in turn negatively affect stock returns (Lee, Lee, & Wu, 2023). Inflation-induced interest rate hikes raise borrowing costs, discourage investment, and reduce market activity, ultimately lowering stock returns (Madadpour & Asgari, 2019; Rosalyn, 2018). Exchange rate movements also impact stock returns, stronger domestic currencies can attract foreign investment, boosting stock prices. Granger, Huangb and Yang (2000), Rosalyn (2018) and Tian and Ma (2010) observed a favorable correlation between exchange rates and stock returns. Whereas Kusumaningtyas, Widagdo, and Nurjannah (2021) reported a strong negative correlation between exchange rates and stock returns.

While numerous studies have investigated the association between investor attention and stock returns in various countries (Ying, Kong & Luo, 2015; Tan & Tas, 2018; Akarsu & Süer, 2022), there is a notable absence of research investigating this relationship in Bangladesh. Specifically, there is no existing research that examines whether investor attention influences stock returns within the Bangladeshi market. Specifically, the non-life insurance sector has been largely unexplored in this context. This gap highlights the need for a focused study to understand how investor attention might affect stock performance in Bangladesh. Consequently, this study aims to overcome this gap by investigating the effect of investor attention on the stock return of non-life insurance firms in

Bangladesh, while broadening the scope by incorporating both company-specific variables and macroeconomic variables as control factors. Based on the above discussion, the hypotheses on the association between investor attention and stock returns are formulated as follows:

H_0: Investor attention has no significant influence on stock returns.

H_1: Investor attention has a significant influence on stock returns.

3. Methods

3.1 Sample Selection and Data Source

This study evaluates the impacts of investor attention on the stock returns of non-life insurance firms listed on the Dhaka Stock Exchange (DSE), specifically focusing on 34 non-life insurance companies that have been listed since before 2014. This selection ensures a balanced dataset. Quarterly data is collected from January 2014 to December 2023, resulting in 1,360 observations. In this study, five firm-specific variables (e.g., return on assets, firm age, firm size, net profit margin, and debt to equity ratio and three macroeconomic variables (such as exchange rate, inflation, and GDP growth rate) are used as the control variables. Google search volume index data is collected from Google Trends[1] following Tantaopas et al. (2016) and Akarsu & Süer (2022). Data on firm-specific variables and stock price is collected from the Dhaka Stock Exchange (DSE)[2] and audited annual reports of the respective companies following Alam (2020), Akwe and Garba (2019) and Kusumaningtyas et al. (2021). GDP growth rate and inflation rate of Bangladesh are extracted from the World Bank database[3] following Hasan & Islam (2023), the exchange rate data is collected from the International Monetary Fund (IMF) database[4] following Kemoe, Mbohou, Mighri, Quayyum & Quayyum (2024).

[1] https://trends.google.com/trends/
[2] https://www.dse.com.bd/index.php
[3] https://data.worldbank.org/
[4] https://data.imf.org/en

3.2 Variable Description

The analysis employs stock returns as the dependent variable, with investor attention serving as the independent variable. The profit or loss that an investor makes on a stock investment within a particular period is called the stock return. From the collected data, logarithmic quarterly returns are computed from March 2014 to December 2023 following Hasan (2024) and Budhathoki, Bhattarai and Dahal (2024). Log return is computed to stabilize variance, ensure time additivity, and better approximate normality in financial return series (in agreement with Gregory, Matatko & Luther,1997). The following formula calculates the stock return (aligned with Barua, 2020; Hasan, Tawfiq, Hasan & Islam, 2024a).

$$Stock\ Return = LN\left(\frac{CSP_t}{CSP_{(t-1)}}\right) - - - \ - - - - - - - - - - - - - (1)$$

Where *LN* stands for natural logarithm, CSP_t refers to the closing stock price at the quarter end, and $CSP_{(t-1)}$ refers to the closing stock price at the beginning of the quarter.

Investor Attention

The Google search volume index (GSVI) derived from Google Trends is used as a direct proxy measure of investor attention following Da et al. (2011) and Swamy and Dharani (2019). This index quantifies the number of times the terms associated with the selected companies are searched by the investor (Tan & Tas, 2019). Google Trends can quantify and display investor interest towards certain topics and analyze the dynamics of the search interest over time (Da et al., 2011). The formula below measures investor attention-

$$Investor\ Attention = \frac{(SVI_{m1} + SVI_{m2} + SVI_{m3})}{3} - - - - - - - - - - - - - (2)$$

Control Variables

Five firm-specific variables, including return on assets, net profit margin, firm age, firm size, and debt-to-equity ratio are utilized as control variables to account for internal company characteristics that may affect stock returns, as per Tan & Tas (2019), Hertina & Saudi (2019), and Aminah (2021). Furthermore,

macroeconomic variables such as GDP growth rate, inflation rate, and exchange rate are also considered following Msomi (2023), Zinyoro and Aziakpono, (2024), Akwe and Garba (2019) and Hasan & Hasan (2024), to reflect the broader economic conditions. A concise overview of these variables is presented below.

Return on Assets

Return on assets is a key metric utilized by investors, analysts, and management to evaluate a firm's financial stability and performance in comparison to its asset base. This ratio indicates how successfully a corporation generates profits from its assets. A greater return on assets implies that the company uses its assets more efficiently to generate profits, whereas a lower return on assets may imply inefficiency or underperformance (Aminah, 2021). Following Sorongan (2016), return on assets is calculated as:

$$Return\ on\ Assets = \frac{Net\ Income}{Total\ Assets} - (3)$$

Debt-to-Equity Ratio

The debt-to-equity ratio measures solvency, which reveals a company's financial framework and its capacity to meet its debt responsibilities. Specifically, it evaluates the degree to which a company's financing is sourced from debt compared to equity. Based on Sharif (2019) and Kusmayadi et al. (2018), the calculations were done as follows:

$$Debt - to - Equity\ Ratio = \frac{Total\ Debt}{Total\ Shareholder's\ Equity} - - - - (4)$$

Net Profit Margin

A key financial indicator that evaluates a business's capacity to control expenses and turn a significant profit in relation to sales revenue is net profit margin. A larger net profit margin demonstrates a company's operational effectiveness and financial soundness, as it demonstrates the successful conversion of revenues into actual profit (Sorongan, 2016; Nurazi & Usman, 2015). Net profit margin calculated as:

$$Net\ Profit\ Margin\ = \frac{Net\ Income}{Revenue} - - - - - - - - - - - - - - - - - - - (5)$$

Firm Size

Total assets are used to measure firm size, which is a key variable in most asset pricing models. There is a need to understand that the efficiency of the firm size as a predictor of expected stock returns may differ from one period to another and from one market to another. Following Astakhov, Havranek and Novak (2019), the logarithmic value of the total assets is used to measure the firm size.

Firm Age

Firm age is defined as the number of months since a company's establishment (Akwe & Garba, 2019). It often reflects the firm's experience, stability, and market adaptability. Established firms typically benefit from enhanced operational stability and strategic knowledge, which can contribute to stronger profitability and financial performance (Matemilola et al., 2017). However, as firms mature, they may face growth limitations, potentially leading to lower returns compared to younger firms with higher growth prospects (Dawar, 2014).

GDP Growth Rate

GDP growth rate indicates the annual percentage change in a country's economic output. It reflects the overall economic condition in which businesses operate. Economic expansion typically boosts corporate earnings, improves investor sentiment, and reduces systematic risk (Alam, 2020). As firms tend to perform better in a stable economic climate, the GDP growth rate is often considered a relevant factor in explaining variations in stock returns (Abubakar, 2016).

Inflation Rate

Inflation is the persistent increase in general price levels over time, resulting in a reduction of money's purchasing power (Lee et al., 2023). As inflation rises, it increases operational costs for companies, lowering their profit margins and reducing stock returns (Madadpour & Asgari, 2019). Higher inflation creates an unfavorable environment for both businesses and investors. This often leads to reduced investment activity in the stock market.

Exchange Rate

The exchange rate represents the value of one currency relative to another (Hasan & Islam, 2023). A strong domestic currency may attract foreign investors seeking currency gains, driving stock prices higher (Tian & Ma, 2010). In contrast, currency depreciation can trigger capital outflows as foreign investors withdraw their funds, leading to reduced demand for stocks and lower stock returns (Kusumaningtyas et al., 2021).

3.3 Econometric Model of Data Analysis

The dataset comprises a panel structure, combining cross-sectional data from 34 non-life insurance companies with 40 quarterly observations from 2014 to 2023, resulting in a balanced panel of 1,360 firm-quarter observations. Several diagnostic tests are performed before panel data regression analysis, including the normality test using the Shapiro-Wilk test, the multicollinearity test using Variance Inflation Factor (VIF), and Wooldridge test for autocorrelation (Hasan, Islam, Tawfiq & Saha, 2025; Hasan, Tawfiq, Hasan & Islam, 2024b). Additionally, heteroscedasticity test using the Breusch-Pagan test and Pesaran's test is applied to evaluate cross-sectional independence within the panel data (Mercan, Kızılkaya & Okde, 2015). The data exhibited issues with normality, prompting the use of a two-step data normalization model to address these concerns following Templeton (2011). The panel regression equation is set for this study:

$$Stock\ Return = \beta_0 + \beta_1 IA_{i,t} + \beta_2 Controls_{i,t} + \varepsilon_{i,t} \quad ------(6)$$

Here, *IA* denotes investor attention. The control variables, denoted as $Controls_{it}$, capture the impacts of both firm-specific characteristics and macroeconomic conditions. The firm-specific variables include return on assets, debt-to-equity ratio, net profit margin, firm size, and firm age. The macroeconomic variables consist of GDP growth, inflation, and exchange rates. The subscript *i* refers to the cross-sectional unit (i.e., each insurance company), and *t* indicates the time period (i.e., each quarter from 2014 to 2023). β_0 is the intercept, while β_1 and β_2 are the coefficients measuring the influence of investor attention and control variables on stock returns, respectively. ε_{it} denotes the error

term, accounting for random disturbances or unobserved factors not captured in the model.

4. Results and Discussions

4.1 Descriptive Statistics

Table 1 displays the descriptive statistics of the variables utilized in this analysis, based on 1,360 quarterly observations from 34 non-life insurance companies in Bangladesh, spanning January 2014 to December 2023. The natural logarithm mean of selected companies' stock return is 0.55 percent, accompanied with a standard deviation of 0.2194, indicating moderate volatility. This conclusion aligns with Barua (2020), who documented a comparable range of stock return volatility for insurance firms in emerging markets. The average investor attention score of 29.58, accompanied by a substantial standard deviation of 22.40, indicates significant variability in search intensity over time. This finding aligns with Swamy and Dharani (2019) who observed that investor attention fluctuates as a market sentiment indicator and frequently displays significant variability at times of economic or company-specific announcements.

The average return on assets and net profit margin are 3.89 percent and 25.76 percent, respectively, indicating reasonable profitability despite considerable fluctuations. These results are in line with Sorongan (2016), who observed comparable levels of profitability across markets in Indonesia. The debt-to-equity ratio exhibits considerable variability (mean = 0.77), corroborating Sharif (2019) findings that capital structures among Bangladeshi enterprises are markedly uneven. The average age of the insurance company is around 298 months, whereas the average firm size, indicated by the natural logarithm of total assets, is around 20.96. Finally, the GDP growth rate, inflation rate, and exchange rate have mean values of 6.47 percent, 6.53 percent and 85.42, respectively.

Table 1: Descriptive Statistics

Variables	Observations	Mean	Std. dev.	Median	Min	Max
Stock Return	1360	0.0055	0.2194	0.0054	-0.6955	0.7066
Investor Attention	1360	29.5759	22.4023	29.7865	0.0000	102.00
Return on Assets	1360	0.0389	0.2602	0.0395	-0.7928	0.8704
Net Profit Margin	1360	0.2576	0.6982	0.1670	-0.4661	25.0490
Debt-Equity Ratio	1360	0.7659	1.3652	0.5955	0.0026	31.0432
Firm Age	1360	297.6211	80.5927	279.0000	158.0000	464.00
Firm Size	1360	20.9615	1.5516	20.9609	16.0160	25.9001
GDP Growth Rate	1360	6.4708	0.8871	6.4699	3.4500	7.8800
Inflation Rate	1360	6.5381	1.3994	6.5366	5.5100	9.8800
Exchange Rate	1360	85.4202	8.5820	85.4083	77.4000	110.2500

Note: The table displays the descriptive statistics for the variables studied, including the number of observations, mean, standard deviation, minimum, and maximum values. The data is derived from quarterly observations of 34 non-life insurance companies in Bangladesh from March 2014 to December 2023.

4.2 Pairwise Correlation

Table 2 demonstrates a statistically significant positive correlation between stock return and investor attention ($r = 0.0808$, $p < 0.05$), suggesting that higher investor attention is typically associated with greater stock returns, and vice-versa. This finding aligns with studies by Cziraki et al. (2011) and Yang et al. (2021), who also reported a positive relationship between investor attention and stock returns. Moreover, return on assets, firm age, and exchange rate exhibit a statistically significant positive correlation with stock return, suggesting that increased profitability, firm maturity, and advantageous exchange rate fluctuations may improve stock performance by elevating investor confidence, diminishing risk perceptions, and indicating enhanced financial stability (Aminah, 2021; Matemilola et al., 2017; Granger et al., 2000).

Conversely, firm size and inflation rate exhibit statistically significant negative correlations with stock return. Large corporations may encounter declining growth prospects (Suciati, 2018), as inflation escalates operational expenses and diminishes purchasing power, hence decreasing return and investor attractiveness (Lee et al., 2023). GDP growth rate also exhibits negligible correlations with stock returns, indicating a restricted direct impact on the return. The correlation coefficients among the independent variables are all below 0.6,

suggesting a no risk of multicollinearity (Hasan, 2024). The variance inflation factor (VIF) values are all far below the crucial threshold of 10, with a mean VIF of 1.43, further validating that multicollinearity is not an issue in the regression study.

Table 2: Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10	VIF
(1) Stock Return	1.0000										
(2) Investor Attention	0.0808**	1.0000									1.38
(3) Return on Assets	0.0168*	-0.1090***	1.0000								1.17
(4) Net Profit Margin	0.0030	-0.0805**	0.2997***	1.0000							1.19
(5) Debt-Euity Ratio	0.0097	0.1331***	-0.0712**	-0.0925**	1.0000						1.11
(6) Firm Age	0.0656*	0.2651***	-0.1084***	0.0292	-0.0726**	1.0000					1.77
(7) Firm Size	-0.0251*	0.4116***	-0.1099***	0.1713***	0.0569*	0.5031***	1.0000				1.62
(8) GDP Growth Rate	-0.0044	-0.0911**	-0.0090	-0.0268	-0.0746**	-0.0940**	-0.0780**	1.0000			1.32
(9) Inflation Rate	-0.0547*	0.2913***	0.0678*	0.0168	0.1257***	0.2044***	0.1607***	-0.4850***	1.0000		1.60
(10) Exchange Rate	0.0830**	0.3462***	-0.1447***	-0.0018	0.1882***	0.5183***	0.3037***	-0.2232***	0.4175***	1.0000	1.75
Mean VIF											1.43

Note: This table displays the Pairwise Correlation Matrix, highlighting the correlations between examined variables, and covers the period from March 2014 to December 2023, using quarterly data from 34 non-life insurance companies in Bangladesh.

4.3 Regression Analysis

Diagnostic assessments are performed before the regression analysis to select the appropriate panel data analysis model. The results of the diagnostic tests indicate no issues with normality, multicollinearity, or autocorrelation, while heteroscedasticity and cross-sectional dependence are detected. Due to the presence of heteroscedasticity and cross-sectional dependence issues, the Feasible Generalized Least Squares (FGLS) model is employed to address and refine the analysis, thereby yielding more robust and reliable estimates (Hoechle, 2007; Hasan et al., 2025).

Table-3 displays the Feasible Generalized Least Squares (FGLS) regression outcomes regarding the influence of public attention on the returns of stocks. The findings demonstrate that investor attention exhibits a statistically significant positive correlation with stock returns ($\beta = 0.0009$, $p < 0.001$), hence supporting hypothesis H_1, which posits that investor attention substantially influences stock returns. The positive correlation indicates that an increase in investor attentiveness correlates with an increase in stock returns. This association is due to the fact that increased attention elevates demand for the stock, thus driving up prices. These findings align with the price pressure hypothesis (Barber & Odean, 2008), which posits that investors are more inclined to purchase equities that attract their attention, leading to a temporary price inflation due to heightened buying pressure. This link is theoretically based on Merton's (1987) investor recognition hypothesis, which asserts that more investor knowledge results in higher valuations due to expanded investor participation. The results are further substantiated by previous empirical studies, which consistently indicate that when stocks attain visibility via media exposure, advertising, or search engine trends, they typically witness heightened investor interest, trading volume, and, ultimately, price appreciation (Da et al., 2011; Yang et al., 2021).

Table 3: Regression Result of Impact of Public Attention on Stock Return using Feasible Generalized Least Squares Method

Variables	Stock Return T-stat
Investor Attention	0.0009*** (18.66)
Return on Assets	0.0069* (2.52)
Net Profit Margin	0.0031*** (4.48)
Debt to Equity Ratio	0.0002 (0.37)
Firm Age	0.0001*** (11.72)
Firm Size	-0.0072*** (-11.35)
GDP Growth Rate	-0.0111*** (-6.94)
Inflation Rate	-0.0227*** (-25.63)
Exchange Rate	0.0024*** (12.57)
Chi^2	2526.25***
Constant	0.1080*** (4.87)
No. of Observation	1360

Statistically Significant * p<0.05, ** p<0.01, *** p<0.001.
Notes: The table represents the result of the FGLS model of panel data analysis using the quarterly data of 34 non-life insurance companies from March 2014 to December 2023. All variables are subjected to a two-step data transformation process to enhance the data's normality (Templeton, 2011), except firm size, which is transformed using natural logarithms.

In addition to investor attentiveness, other control variables (company characteristics and macroeconomic variables) significantly influence stock performance. Return on assets exhibits a positive correlation with stock returns ($\beta = 0.0069$, $p < 0.05$), suggesting that more profitable companies are likely to attain greater market valuations. This outcome aligns with Sorongan (2016), who contend that profitability is a crucial indicator of business quality, drawing increased investor attention and elevating stock return. Likewise, net profit margin demonstrates a substantial positive correlation with stock returns ($\beta = 0.0031$, $p < 0.001$), highlighting that companies with elevated margins are regarded as financially robust and more likely to achieve enduring returns. This

supports the findings of Nurazi and Usman (2015), who observed that more profitable firms tend to perform better in the stock market.

The age of a firm exhibits a statistically significant positive impact on stock returns ($\beta = 0.0001$, $p < 0.001$), indicating that older, more established enterprises often provide higher returns. This may result from their perceived stability, credibility, and established operational track record, which strengthens investor confidence. These findings align with Akwe and Garba (2019), highlighting the influence of firm maturity on investor perception and market performance. Conversely, firm size exhibits a statistically significant negative correlation with stock returns ($\beta = -0.0072$, $p < 0.001$), consistent with (Suciati, 2018). Large corporations frequently encounter diminished growth rates, heightened bureaucracy, and less agility, which may constrain their capacity to yield substantial returns.

Macroeconomic variables profoundly affect stock returns. The GDP growth rate exhibits a statistically significant inverse correlation with stock returns ($\beta = -0.0111$, $p < 0.001$), which is consistent with Oktavia and Handayani (2018) and Toni and Simorangkir (2022). This indicates that investors are likely to reallocate their attention to high-growth sectors during periods of economic prosperity, thereby diminishing demand for defensive equities such as non-life insurance. Inflation adversely impacts stock returns ($\beta = -0.0227$, $p < 0.001$), as escalating prices diminish purchasing power and elevate costs, in accordance with Rosalyn (2018). The exchange rate favorably affects returns ($\beta = 0.0024$, $p < 0.001$), corroborating the notion that advantageous currency fluctuations improve company competitiveness (Tian & Ma, 2010).

In summary, the findings highlight the substantial influence of investor attention on stock returns, together with profitability, firm age and size, and macroeconomic variables. Comprehending these processes provides essential information for investors and regulators to make informed decisions.

4.4 Robustness Analysis

Robustness of the regression outcomes derived from the FGLS model, the Panel Corrected Standard Errors (PCSE) model was utilized, following Adekoya

(2019) and Nkam, Akume and Sama (2020). The PCSE approach is appropriate for panel data exhibiting potential cross-sectional dependence and heteroscedasticity, providing trustworthy estimates in these circumstances (Nkam et al., 2020). The results from the PCSE model, as presented in Table 4, are mostly congruent with those of the FGLS model, hence affirming the stability of the findings. Despite the coefficient for net profit margin being positive yet statistically insignificant in the PCSE model, it remains directionally consistent with the FGLS outcome.

Table 4: Regression Result of Impact of Public Attention on Stock Return using Panel Corrected Standard Error (PCSE) Method

Variables	Stock Return T-stat
Investor Attention	0.0009*** (4.17)
Return on Assets	0.0100* (2.06)
Net Profit Margin	0.0039 (0.80)
Debt-Euity Ratio	0.0003 (0.65)
Firm Age	0.0001* (2.02)
Firm Size	-0.0064* (-2.07)
GDP Growth Rate	-0.0110* (-2.10)
Inflation Rate	-0.0229*** (-7.46)
Exchange Rate	0.0024*** (5.53)
Chi2	456.03***
R2	0.3371
Constant	0.0906* (2.02)
No. of Observation	1360

Statistically Significant * p<0.05, ** p<0.01, *** p<0.001.
Notes: The table represents the result of the FGLS model of panel data analysis using the quarterly data of 34 non-life insurance companies from March 2014 to December 2023. All variables are subjected to a two-step data transformation process to enhance the data's normality (Templeton, 2011), except firm size, which is transformed using natural logarithms.

5. Conclusions and Implications

This study examines the effects of investor attention on the stock returns of non-life insurance firms in Bangladesh. The analysis utilizes quarterly panel data from 2014 to 2023 for 34 publicly traded non-life insurance companies, employing Feasible Generalized Least Squares (FGLS) and Panel Corrected Standard Errors (PCSE) models to mitigate heteroscedasticity and cross-sectional dependence. The empirical findings demonstrate that investor attention, quantified via Google Search Volume Index, significantly positively affects stock returns suggesting that increased public interest can enhance stock price performance in the insurance sector. Among firm-specific variables, return on assets, net profit margin, and firm age demonstrate positive correlations with stock returns, whereas firm size presents a negative correlation. These findings imply that investors tend to favor more profitable, established firms with efficient operations, while showing less enthusiasm for larger firms, possibly due to perceived limitations in growth potential and flexibility. Macroeconomic factors such as inflation and GDP growth adversely affect stock returns, whereas advantageous exchange rate fluctuations improve corporate performance. The findings indicate that behavioural factors such as investor attention, alongside fundamental financial indicators and macroeconomic variables, collectively shape the stock returns of non-life insurance companies.

This study theoretically enhances the literature on behavioral finance by incorporating investor attention alongside conventional firm-level and macroeconomic factors within the relatively underexplored domain of non-life insurance companies in an emerging market. This study demonstrates the effectiveness of using FGLS and PCSE models to produce reliable estimates in the presence of common data anomalies in panel datasets. The findings offer significant insights for investors, portfolio managers, and analysts by emphasizing the necessity of monitoring public attention and essential financial metrics in assessing company performance. Policymakers and regulators could gain insights from these findings by incorporating behavioral factors such as market sentiment and attention trends into their regulatory frameworks.

This study concentrates exclusively on a certain sector within a specific country, and the application of the Google Search Volume Index may not encompass the entirety of investor opinion. The utilization of quarterly data may restrict the capacity to identify short-term market movements. Subsequent study may rectify these shortcomings by employing high-frequency data, implementing sentiment analysis from social media or news outlets, and broadening the investigation to encompass various sectors or worldwide comparisons. Such additions would offer a more sophisticated comprehension of the relationship between investor behavior and market performance.

References

Abubakar, A. B. (2016). Economic growth impact of Indian stock market: an econometric investigation. *Pacific Business Review International*, *8*(12), 128-134.

Adawiyah, N. R., & Setiyawati, H. (2019). The Effect of Current Ratio, Return on Equity, and Firm Size on Stock Return (Study of Manufacturing Sector Food and Beverage in Indonesia Stock Exchange). *Scholars Bulletin*, *5*(9), 513-520. https://doi.org/10.21276/sb.2019.5.9.4

Adekoya, A. F. (2019). Income Inequality and Violent Crime in Nigeria: A Panel Corrected Standard Error Approach, *Ibadan Journal for Peace and Development*, *9*(2), 1-10

Akarsu, S., & Süer, Ö. (2022). How Investor Attention Affects Stock Returns? Some International Evidence, *Borsa Istanbul Review*, *22*(3), 616-626. https://doi.org/10.1016/j.bir.2021.09.001

Akwe, J. A., & Garba, S. B. (2019). Effects of internal and external factors on stock returns of large size firms in Nigeria. *Global Journal of Accounting*, *5*(1), 44-56. Retrieved from http://gja.unilag.edu.ng/ article/ view/460, accessed on 22 April 2024

Alam, N. Q. (2020). Impacts of macroeconomic variables on the stock market returns of South Asian region. *Canadian Journal of Business and Information Studies*, (2)*2*, 24-34. https://doi.org/10.34104/cjbis.020.24034

Aminah, L. S. (2021). The Effect of Current Ratio, Net Profit Margin, and Return on Assets on Stock Return: (Study on Food and Beverages Companies Listed on the Indonesia Stock Exchange 2015-2017 Period). *Journal of Management, Accounting, General Finance and International Economic Issues*, *1*(1), 1-9. https://doi.org/10.55047/marginal.v1i1.8

Astakhov, A., Havranek, T., & Novak, J. (2019). Firm Size and Stock Returns: A Quantitative Survey, *Journal of Economic Surveys*, 33(5). https://doi.org/ 10.1111/joes.12335

Aziz, T., & Ansari, V. A. (2021). How Does Google Search Affect the Stock Market? Evidence from Indian Companies, *Vision*, *25*(2), 224-232. https://doi.org/10.1177/0972262920985368

Bank, M., Larch, M., & Peter, G. (2011). Google Search Volume and Its Influence on Liquidity and Returns of German Stocks, *Financial Markets and Portfolio Management*, *25*, 239-264. https://doi.org/10.1007/s11408-011-0165-y

Barber, B. M., & Odean, T. (2008). All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors, *The Review of Financial Studies*, *21*(2), 785-818. https://doi.org/ 10.1093/ rfs/hhm079

Barber, B. M., & Odean, T. (2013). The Behavior of Individual Investors, *in Handbook of the Economics of Finance*, *2*, 1533-1570. Elsevier. https://doi.org/10.1016/B978-0-44-459406-8.00022-6

Barber, B. M., Odean, T., & Zhu, N. (2008). Do Retail Trades Move Markets? *The Review of Financial Studies*, *22*(1), 151-186. https://doi.org/ 10.1093/rfs/hhn035

Barua, S. (2020). Firm Level Characteristics and Stock Returns: Evidence from Selected Insurance Companies Listed on the Dhaka Stock Exchange, *Asian Economic and Financial Review*, *10*(12), 1356-1365. https://doi.org/ 10.18488/ journal.aefr.2020.1012.1356.1365

Budhathoki, P. B., Bhattarai, G., & Dahal, A. K. (2024). The impact of liquidity on common stocks returns: Empirical insights from commercial banks in

Nepal. *Banks and Bank Systems*, *19*(1), 148. http://dx.doi.org/10.21511/bbs.19(1).2024.13

Chemmanur, T. J., & Yan, A. (2019). Advertising, Attention, and Stock Returns, *Quarterly Journal of Finance*, *9*(3), 1950009. https://doi.org/10.1142/S2010139219500095

Chen, T. (2017). Investor Attention and Global Stock Returns, *Journal of Behavioral Finance*, *18*(3), 358-372. https://doi.org/10.1080/ 15427560. 2017.1331235

Cziraki, P., Mondria, J., & Wu, T. (2021). Asymmetric Attention and Stock Returns, *Management Science*, *67*(1), 48-71. https://doi.org/10.2139/ssrn.1772821

Da, Z., Engelberg, J., & Gao, P. (2011). In Search of Attention, *The Journal of Finance*, *66*(5), 1461-1499. https://doi.org/10.1111/j.1540-6261.2011. 01679.x

Dawar, V. (2014). Agency theory, capital structure and firm performance: some Indian evidence. *Managerial Finance*, *40*(12), 1190–1206. https://doi.org/10.1108/mf-10-2013-0275

Ekinci, C., & Bulut, A. E. (2021). Google Search and Stock Returns: A Study on BIST 100 Stocks, *Global Finance Journal*, *47*, 100518. https://doi.org/10.1016/j.gfj.2020.100518

Fama, E. F. (1990). Stock Returns, Expected Returns, and Real Activity, *The Journal of Finance*, *45*(4), 1089-1108. https://doi.org/10.1111/j.1540-6261.1990.tb02428.x

Fink, C., & Johann, T. (2014). May I Have Your Attention, Please: The Market Microstructure of Investor Attention: The Market Microstructure of Investor Attention. University of Mannheim, 1-56. https://doi.org/ 10.2139/ssrn.2139313

Granger, C. W., Huangb, B. N., & Yang, C. W. (2000). A bivariate causality between stock prices and exchange rates: evidence from recent Asianflu. *The quarterly review of economics and finance*, *40*(3), 337-354. https://doi.org/10.1016/S1062-9769(00)00042-9

Gregory, A., Matatko, J., & Luther, R. (1997). Ethical unit trust financial performance: small company effects and funds size effects. *Journal of Business Finance & Accounting*, *24*(5), 705-725. https://doi.org/10.1111/1468-5957.00130

Grullon, G., Kanatas, G., & Weston, J. P. (2004). Advertising, breadth of ownership, and liquidity, *The Review of Financial Studies*, *17*(2), 439-461. https://doi.org/10.1093/rfs/hhg039

Han, L., Li, Z., & Yin, L. (2018). Investor attention and stock returns: International evidence, *Emerging Markets Finance and Trade*, *54*(14), 3168-3188. https://doi.org/10.1080/1540496X.2017.1413980

Hasan, S. M. (2024). Does Islamic Mutual Fund Bear Higher Risk than Conventional Mutual Funds? An Empirical Analysis from Bangladesh: Islamic Mutual Fund vs. Conventional Mutual Fund. *Jahangirnagar University Journal of Business Research*, *24*(01), 43-62. https://doi.org/10.53461/jujbr.v24i01.43

Hasan, S. M., & Hasan, M. M. (2024). Effect of Macroeconomic Factors on Mutual Funds Risk and Return: An Empirical Study from Bangladesh: Mutual Funds Risk and Return. *Jahangirnagar University Journal of Business Research*, *24*(01), 101-120. https://doi.org/10.53461/ jujbr. v24i01.31

Hasan, S. M., & Islam, R. (2023). Influence of macroeconomic variables on exchange rate: a study on Bangladesh. *International Journal of Accounting & Finance Review*, *14*(1), 1-10. https://doi.org/10.46281/ijafr.v14i1.1923

Hasan, S. M., Islam, K. A., Tawfiq, T. T., & Saha, P. (2025). Triple pillars of sustainable finance: The role of green finance, CSR, and digitalization on bank performance in Bangladesh. *Banks and Bank Systems*, *20*(1), 38-50. http://dx.doi.org/10.21511/bbs.20(1).2025.04

Hasan, S. M., Tawfiq, T. T., Hasan, M. M., & Islam, K. A. (2024a). Risk in the Shadows: Macroeconomic Shifts and Their Effects on Bangladeshi Mutual Funds. *Innovations*, *21*(4), 371-384. http://dx.doi.org/ 10.21511/imfi.21(4). 2024.30

Hasan, S. M., Tawfiq, T. T., Hasan, M. M., & Islam, K. A. (2024b). Corporate governance dynamics in financial institution performance: A panel data analysis. *Investment Management & Financial Innovations*, *21*(3), 292-303. http://dx.doi.org/10.21511/imfi.21(3).2024.24

Hertina, D., & Saudi, M. H. M. (2019). Stock return: Impact of return on asset, return on equity, debt to equity ratio and earning per share, *International Journal of Innovation, Creativity and Change*, *6*(12), 93-104.

Hirshleifer, D., & Teoh, S. H. (2003). Limited attention, information disclosure, and financial reporting, *Journal of Accounting and Economics*, *36*(1-3), 337-386. https://doi.org/10.1016/j.jacceco.2003.10.002

Hirshleifer, D., Lim, S. S., & Teoh, S. H. (2011). Limited investor attention and stock market misreactions to accounting information, *The Review of Asset Pricing Studies*, *1*(1), 35-73. https://doi.org/10.1093/rapstu/rar002

Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *The stata journal*, *7*(3), 281-312. https://doi.org/ 10.1177/ 1536867X0700700301

Hsu, C. C., & Chen, M. L. (2019). Asymmetric effect of advertising on the Chinese stock market, *Applied Economics Letters*, *26*(2), 157-162. https://doi.org/10.1080/13504851.2018.1441506

Huang, M. Y., Rojas, R. R., & Convery, P. D. (2020). Forecasting stock market movements using Google Trend searches, *Empirical Economics, 59, 2821–2839*. https://doi.org/10.1007/s00181-019-01725-1

Jabbari, E., & Fathi, Z. (2014). Prediction of stock returns using financial ratios based on historical cost, compared with adjusted prices (accounting for inflation) with neural network approach. *Indian Journal of Fundamental and Applied Life Sciences*, *4*(4), 1064-1078.

Kemoe, L., Mbohou, M., Mighri, H., Quayyum, M. S. N., & Quayyum, S. (2024). Effect of Exchange Rate Movements on Inflation in Sub-Saharan Africa. *IMF Working Paper 24/59*, International Monetary Fund, Washington, DC.

Kristoufek, L. (2013). Can Google Trends search queries contribute to risk diversification?, *Scientific Reports*, *3*(1), 1-6. https://doi.org/ 10.1038/ srep02713

Kusmayadi, D., Rahman, R., & Abdullah, Y. (2018). Analysis of the effect of net profit margin, price to book value, and debt to equity ratio on stock return, *International Journal of Recent Scientific Research*, *9*(7), 28091-28095. https://doi.org/10.24327/ijrsr.2018.0907.2392

Kusumaningtyas, N., Widagdo, B., & Nurjannah, D. (2021). The Effect of Interest Rate, Inflation and Exchange Value on Stock Returns with Profitability as Intervening Variables. *Jurnal Manajemen Bisnis dan Kewirausahaan*, *1*(2), 97-108. https://doi.org/10.22219/ jamanika. v1i2. 16773

Lee, C. C., Lee, C. C., & Wu, Y. (2023). The impact of COVID-19 pandemic on hospitality stock returns in China. *International Journal of Finance & Economics*, 28(2), 1787-1800. https://doi.org/10.1002/ijfe.2508

Linnerooth-Bayer, J., Surminski, S., Bouwer, L. M., Noy, I., & Mechler, R. (2019). Insurance as a Response to Loss and Damage? *Loss and damage from climate change: Concepts, methods and policy options*, 483-512. https://doi.org/10.1007/978-3-319-72026-5_21

Madadpour, S., & Asgari, M. (2019). The puzzling relationship between stocks return and inflation: a review article. *International Review of Economics*, *66*(2), 115-145. https://doi.org/10.1007/s12232-019-00317-w

Madsen, J. B., Dzhumashev, R., & Yao, H. (2013). Stock returns and economic growth. *Applied Economics*, *45*(10), 1257-1271. https://doi.org/10.1080/ 00036846.2011.613802

Mamun, M. Z., & Chowdhury, F. (2021). Financial performance of general insurance companies in Bangladesh: A 2003-2020 evaluation, *International Journal of Research and Innovation in Social Science*, *5*(07), 715-726. https://doi.org/10.47772/ijriss.2021.5738

Matemilola, B. T., Bany-Ariffin, A. N., Nassir, A. M., & Azman-Saini, W. N. W. (2017). Moderating Effects of Firm Age on the Relationship between Debt and Stock Returns. *Journal of Asia-Pacific Business*, *18*(1), 81–96. https://doi.org/10.1080/10599231.2017.1272999

Mercan, M., Kızılkaya, O., & Okde, B. (2015). Are The Kaldor's laws valid? Panel data analysis under cross section dependency for NIC countries, *Procedia Economics and Finance, 23*(1), 140-145. https://doi.org/10.1016/ S2212-5671(15)00399-8

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information, *Journal of Finance, 42*(3), 483-510.

Msomi, T. S. (2023). Macroeconomic and firm-specific determinants of financial performance: Evidence from non-life insurance companies in Africa. *Cogent Business & Management*, *10*(1), 1-20. https://doi.org/10.1080/ 23311975. 2023.2190312

Nkam, F. M., Akume, A. D., & Sama, M. C. (2020). Macroeconomic drivers of private equity penetration in sub-Saharan African countries. *International Business Research*, *13*(1), 192-205. https://doi.org/10.5539/ibr.v13n1p192

Nofsinger, J. R. (2001). The impact of public information on investors, *Journal of Banking & Finance*, *25*(7), 1339-1366. https://doi.org/10.1016/S0378-4266(00)00133-3

Nurazi, R., & Usman, B. (2015). Public attention and financial information as determinants of performance in telecommunication industry, *Journal of Finance and Banking*, *19*(2), 235-251. https://doi.org/10.26905/ jkdp.v19i2.846

Nuti, S. V., Wayda, B., Ranasinghe, I., Wang, S., Dreyer, R. P., Chen, S. I., & Murugiah, K. (2014). The use of Google Trends in health care research: A systematic review, PloS One, *9*(10), e109583. https://doi.org/10.1371/ journal.pone.0109583

Oktavia, S., & Handayani, W. (2018). Effect of Rupiah Exchange Rate, GDP Growth, and Dow Jones Index on Composite Stock Price Index in Indonesia Stock Exchange. *Journal of Accounting and Strategic Finance, 1*(1), 23-32.

Pashler, H., & Johnston, J. C. (1998). Attentional limitations in dual-task performance. In H. Pashler (Ed.), *Attention* (155–189). Psychology Press/Erlbaum (UK) Taylor & Francis.

Peng, L., & Xiong, W. (2006). Investor attention, overconfidence and category learning, *Journal of Financial Economics*, *80*(3), 563-602. https://doi.org/10.1016/j.jfineco.2005.05.003

Perlin, M. S., Caldeira, J. F., Santos, A. A., & Pontuschka, M. (2017). Can we predict the financial markets based on Google's search queries?, *Journal of Forecasting*, *36*(4), 454-467. https://doi.org/10.1002/for.2446

Rochim, R., & Ghoniyah, N. (2017). Analysis on the effect of current ratio, cashflow from operation to debt, firm size and return on equity on stock return, *International Journal of Islamic Business Ethics*, *2*(3), 41-51. https://doi.org/10.30659/ijibe.2.3.41-51

Rosalyn, A. M. (2018). The effect of rupiah exchange rate and inflation rate towards composite stock price index in Indonesia stock exchange. *Russian Journal of Agricultural and Socio-Economic Sciences*, *78*(6), 53-58. https://doi.org/10.18551/rjoas.2018-06.05

Sharif, S.H. (2019). The impact of capital structure on stock return of selected firms in the pharmaceutical and chemical sector in Bangladesh, *International Journal of Social Sciences Perspectives*, *5(1)*, 9-21. https://doi.org/10.33094/7.2017.2019.51.9.21

Shleifer, A., & Summers, L. H. (1990). The noise trader approach to finance, *Journal of Economic Perspectives*, *4*(2), 19-33. https://doi.org/10.1257/jep.4.2.19

Smales, L. A. (2021). Investor attention and global market returns during the COVID-19 crisis, *International Review of Financial Analysis*, *73*, 101616. https://doi.org/10.1016/j.irfa.2020.101616

Sorongan, F. A. (2016). Factors affecting the return stock company in Indonesia Stock Exchange (IDX) LQ45 in years 2012-2015, Tarbiah: *Jurnal Pendidikan Agama Islam*, *17*(1), 57-72. https://doi.org/10.21512/tw.v17i1.1808

Suciati, N. H. D. (2018). The effect of financial ratio and firm size on stock return in property and real estate companies listed on the Indonesia stock exchange, *The Indonesian Accounting Review, 8*(1), 96-108. https://doi.org/ 10.14414/ tiar.v8i1.1633

Swamy, V., & Dharani, M. (2019). Investor attention using the Google search volume index–impact on stock returns, *Review of Behavioral Finance*, *11*(1), 56-70. https://doi.org/10.1108/rbf-04-2018-0033

Tan, S. D., & Taş, O. (2019). Investor attention and stock returns: Evidence from Borsa Istanbul, *Borsa Istanbul Review*, *19*(2), 106-116. https://doi.org/ 10.1016/j.bir.2018.10.003

Tantaopas, P., Padungsaksawasdi, C., & Treepongkaruna, S. (2016). Attention effect via internet search intensity in Asia-Pacific stock markets, *Pacific-Basin Finance Journal, 38,* 107-124. https://doi.org/10.1016/ j.pacfin. 2016.03.008

Templeton, G. F. (2011). A two-step approach for transforming continuous variables to normal: implications and recommendations for IS research, *Communications of the Association for Information Systems*, *28*(4), 41-58. https://doi.org/10.17705/1CAIS.02804

Tian, G. G., & Ma, S. (2010). The relationship between stock returns and the foreign exchange rate: the ARDL approach. *Journal of the Asia Pacific economy*, *15*(4), 490-508. https://doi.org/10.1080/13547860.2010.516171

Toni, N., & Simorangkir, E. N. (2022). Analysis of the effect of exchange rate, interest rate, inflation, and GDP growth on property and real estate stock price index listed on IDX in 2011-2019. *International Journal of Business, Economics and Law*, *26*(2), 33-39. Retrieved from https://ijbel.com/wp-content/uploads/2022/07/IJBEL26.ISU-2_319.pdf, accessed on 30 May 2025

Vosen, S., & Schmidt, T. (2011). Forecasting private consumption: survey-based indicators vs. Google trends, *Journal of Forecasting*, *30*(6), 565-578. https://doi.org/10.1002/for.1213

Vozlyublennaia, N. (2014). Investor attention, index performance, and return predictability, *Journal of Banking & Finance, 41*, 17-35. https://doi.org/ 10.1016/j.jbankfin.2013.12.010

Yang, D., Ma, T., Wang, Y., & Wang, G. (2021). Does investor attention affect stock trading and returns? Evidence from publicly listed firms in China, *Journal of Behavioral Finance, 22*(4), 368-381. https://doi.org/ 10.1080/ 15427560.2020.1785469

Ying, Q., Kong, D., & Luo, D. (2015). Investor attention, institutional ownership, and stock return: Empirical evidence from China, *Emerging Markets Finance and Trade, 51*(3), 672-685. https://doi.org/ 10.1080/ 1540496X.2015.1046339

Zinyoro, T., & Aziakpono, M. J. (2024). Performance determinants of non-life insurance firms: a systematic review of the literature. *Cogent Business & Management*, *11*(1), 1-37. https://doi.org/10.1080/23311975.2024.2345045

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 151-180)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20253

Application and Applicability of Theory Z in Banks: Evidence from an Emerging Economy

- Mohammad Barkat Ullah Chowdhury*
- Mohammad Tazul Islam**
- Md. Shihab Uddin Khan***

Abstract

This paper aims to examine the application and applicability of theory Z management system in the banking sector of an emerging economy – Bangladesh as a case. A self-administered semi-structured questionnaire has been used to collect the data. Data have been collected by face-to-face interviews as well as e-mail responses. A total of 496 sample respondents have analyzed to interpret the data. The study uses Factor Analysis (FA) Data Reduction Model (DRM) by SPSS to analyze the data. The study finds that there is no uniformity of the management system among the banks in Bangladesh. The management structure and employee management are widely varied across the banks. Moreover, the study finds that Some features of theory Z such as friendly employee management system and trust between management and employees, and bonding between management and employees are already practicing in the banking system of Bangladesh. Although all of the features of theory Z are not fully applied but employees are ready to accept the features of theory Z such as lifetime employment, engagement in decision making, taking self-responsibility and accountability, execution of scientific evaluation and promotion, proper measures of the control mechanism, clear career path, mutual trust, values and freedom. Hence, there is considerable scope to implement theory Z in the management systems of banks of Bangladesh.

Keywords: Applicability, Theory Z, Emerging Economy
JEL Classification: G21, D23, M54

1. Introduction

Unlike manufacturing companies banking banks are highly leveraged organizations. As much as compliance of a bank as much as strong its base. So, for being a well-stable bank, the management of that bank plays an important role. Research studies (e.g. Mamun et al., 2021) shows that the banking sector of Bangladesh experienced numerous scams[1] (e.g., Hallmark scam, Bismillah group

*Mohammad Barkat Ullah Chowdhury is a Joint Director, Bangladesh Bank, Bangladesh, Email: mtaanveer@gmail.com, **Mohammad Tazul Islam, Ph.D., Professor and Director (Training), BIBM, Dhaka, Bangladesh (Corresponding Author: tazul@bibm.org.bd) and ***Md. Shihab Uddin Khan, Professor and Director (RD&C), BIBM, Dhaka, Bangladesh, Email: msukhan@bibm.org.bd. The views expressed in this paper are the authors' own.

[1] "BASIC Bank Audit Objection (The Daily Ittefaq, 7 August 2020); MP Papul lost his directorship of NRBC (Prothom Alo, 28 June 2020); BASIC Bank caught in huge bad loans: Scam-hit three branches account for more than 78pc of total default loans (The Daily Star: Wednesday, November 27, 2013); Tk 1200 crore Embezzled from 6 Banks (Janata Bank, Jamuna Bank, Prime Bank, Premier Bank, South East Bank and Shahjalal Islami Bank): ACC moves to tighten noose

scam, BASIC Bank scam, SB Group scam). Moreover, the recent spark of the Non-Performing Loans (24.13%, Tk. 4.20 crore) in March 2025 which is expected to reach 30% in June 2025 in the banking sector of Bangladesh which raised question regarding the efficacy of the governance system (Mamun et al., 2021). Moreover, board and management interplays, board intervention in the operational activities of banks (Siddique et al., 2022), board political affiliation (Uddin et al., 2022), board qualification (Islam and Uddin, 2022) and the overall management (Mamun et al., 2022) are the key issues of concern which are related to the board and management system of the banks. The study concentrates on the people aspects of the management system of the banking sector of Bangladesh.

There are different approaches of management that an organization can use. Theory Z is one of them (Ouchi and Price 1978). Islam and Kalumuthu (2020) explained that the survival of enterprises is significantly linked with the managing people at work and theory Z is an excellent tool for increasing productivity and managing people at work. Robbins (1983) stated that top management will be attracted to the theory Z concept because it increases their control while giving the impression of lessening it. Moreover, the attractiveness of the Theory Z organization is not due to any inherent improvement it offers in organizational effectiveness. Differing to theory X and theory Y, theory Z is based on some unique features for organization development such as lifetime employment or tenured post (Shusliinkoyo), decision-making (RINGI), responsibility, evaluation and promotion, control, career path specialization, scope of concern, mutual trust, values and freedom (Ouchi and Price 1978). Other hand, theory X and theory Y emphasis on the employee motivation side only. Our study uses theory Z to explain how the elements of theory Z improves human productivity as well as organizational development.

---

around Bismillah high-ups (A Prime News Special Report, March, 2013); Embezzlement of Tk 140cr - Shahjalal bank director held (The Daily Star: Thursday, June 26, 2014); Hallmark scam: Cracks in management and monitoring systems of banks - Salehuddin Ahmed, Former Governor, Bangladesh Bank (The Daily Star: Tuesday, September 4, 2012); BASIC Bank faces BB ultimatum: The central bank asks the bank to sign a deal to improve performance, or face actions (The Daily Star: Tuesday, July 9, 2013); 5 banks swindled: Terry towel maker (Bismillah group) siphons off over Tk 1,250cr, opens businesses in Dubai (The Daily Star: Monday, July 29, 2013); TK 28 CR Scam: ACC sues SB Group owners, Bangladesh Commerce Bank officials (The Daily Star: Monday, September 23, 2013)."

The banks in Bangladesh are operated under the rules and regulations and the supervision and complete control of Bangladesh Bank, empowered by the Bangladesh Bank Order, 1972, and the Bank Company Act, 1991. There are six state-owned commercial banks, three specialized banks. Specialized banks are also owned by the government of Bangladesh wholly or majorly. The number of private commercial banks are 43 that are majorly owned private entities. Private commercial banks are categorized into two types, conventional banks and Islamic banks. Thirty-three conventional and ten Islamic Shariah-based private commercial banks are now operating in Bangladesh. Further, total nine foreign commercial banks (FCBs) are operating in Bangladesh.

The research agenda on the implication of theory Z in the banking sector is unique in some reasons. First, earlier studies (e.g. Islam and Kalumuthu, 2020; Robbins, 1983) concentrated on some factors specific application of theory Z in different industries and hardly a study conducted in the banking sector to explain how the features of theory of Z can be applied. Moreover, no study so far conducted in the banking sector of Bangladesh to the applicability of theory Z. Second, research studies (e.g. Mamun et al., 2021; Siddique et al., 2022; Uddin et al., 2022; Islam and Uddin, 2022; Mamun et al., 2021) explained that the efficacy of the governance and management structure raised a question because the classified loan is marked at highest in the year 2025 by around 25%. This study add value to explore how the theory Z can improve the work environment, job satisfaction, employee motivation, job commitment and reduces employee turnover rate (Islam 2014). Third, there is a limited literature on the theory Z and its applicability in a developing country like Bangladesh. The study add value to the existing literature particularly in the developing country.

Based on the above introduction, the generic aim of the study is to assess the application and applicability of theory "Z" in an emerging economy like Bangladesh. However, the specific objectives of the study are i) to examine the application of the features of theory Z in the bank management system of Bangladesh; and ii) assess the applicability of the features of theory Z in the bank management system of Bangladesh.

2. Literature Review

Ouchi (1981) stated that in the early 1980s, dozens of books and articles aiming to explain the Japanese approach to enhancing industrial and technological effectiveness. None has been more positively accepted than Theory Z. He explained how Americans could learn from Japanese economic success. Ouchi put out theory Z, a hybrid model which combines aspects of effective Japanese managerial strategy with an analysis of the needs of the US workforce. It strongly emphasizes teamwork, a humanistic mindset, and consensual decision-making. This theory's foundation is the notion that motivated individuals will work more productively in an environment where they feel engaged and committed.

According to Ouchi (1981), the heart of a successful Japanese corporation is the principle that involved workers are the key to increased productivity. Living together for centuries on an island that has few natural resources other than its people, the Japanese have always made the most of the only resource they have available. Historically, Japanese culture has enabled people to live in greater harmony and at much greater population densities than almost anywhere else on 'earth. Under these circumstances, it is not surprising that the enigmatic Japanese culture has traditionally emphasized trust, subtlety, and intimacy, in rays barely understandable by Westerners born and bred in a culture shaped by the frontier, the westward movement the wide-open spaces (Paul, 1984).

Further, according to theory "Z," American businesses may be able to address the widespread dissatisfaction and even worry about Japanese companies surpassing their American counterparts (Daft, 2004). According to theory Z, some presumptions about workers include those that say they prefer to form amicable and cooperative working connections. According to theory Z, employers must meet the particular needs of Theory Z employees to foster a more valuable workplace and care for the welfare of their families as well (Aydin, 2012). The premise of Theory Z is that workers seek to form partnerships with their employers and teammates. There is a great yearning for connection among employees that takes a lot of assistance from the management and the company in the shape of a secure workspace and the appropriate amenities (Wilkins and

Ouchi, 1983). It is inconceivable to consider that workers would exercise initiative. In contrast, McGregor developed his Y-theory, which claims that workers enjoy their jobs and value the opportunity to contribute ideas and influence decisions. The secret to employee motivation is considering these deeper psychological needs (Lunenburg, 2011). One of the essential elements of this philosophy is that for participative management to be effective, managers must have a high degree of faith in their employees. This theory assumes that employees will have a large say in how the company makes decisions. As per Ouchi, the ability to make those judgments and a keen understanding of the corporation's many challenges are both essential. He adds that authority sometimes undervalues staff members' capacity to effectively contribute to the judgment process (Bittel, 1989).

Rather than claiming that the Japanese corporate structure is the best approach for American enterprises, like McGregor's theories, Ouchi's theory Z is based on specific hypotheses about workers. This theory makes assumptions about workers, one of which is that they want to form deep, pleasurable relationships with the people they work for. Employees of theory Z also place a high value on a work environment that values family, cultures, customs, and social systems as much as employment itself and expresses a great desire to be supported by their employer. These employees have a feeling of community with coworkers, a highly advanced perception of control and discipline, and a moral imperative to work diligently. Last but not least, it is believed that theory Z staff members can be expected to work to the greatest of their capabilities, provided that management can be relied upon to support them and look out for their welfare (Massie and Douglas, 1992).

The importance of personnel becoming opportunistic instead of specialists deepening their grasp of the business. Its procedures through career progression and ongoing training are emphasized by theory Z. Indeed, in this setting, promotions are frequently slower since staff members receive far more training and have additional time to understand how the business operates. According to this theory, the aim is to create a team that is more devoted to sticking with the organization throughout their professions and more stable than other kinds of

work situations. It is anticipated that if a person reaches a high-level management position, they will have a better knowledge of the company and how it functions and can successfully implement theory Z management theories to new staff (Luthans et al., 2015).

Although theory Z has some insightful positive outcomes in the management system, hardly a study explained the implacability of theory Z in a banking industry, particularly in the banking sector of Bangladesh. Some studies (e.g. Islam and Kalumuthu, 2020; Robbins, 1983) concentrated on some factors specific application of theory Z in different industries. Moreover, research findings (e.g. Mamun et al., 2021; Mamun et al., 2022) stated that failure of the management in the banking sector of Bangladesh is one of the prime reasons of the high NPLs. Studies (e.g. Siddique et al., 2022; Uddin et al., 2022; Islam and Uddin, 2022) explained the reasons of such high NPLs but failed to explore the way out of the failure. This study addresses this research gap in examining the applicability of theory Z to address the employee engagement, leadership and motivation to improve performance of banks in Bangladesh.

3. Research Methods

A semi-structure survey questionnaire is designed (Appendix-A) based on the literature review of the study.

Sample Size and Sampling: In determining the sample size the study used the following formula.

Required sample size= $\frac{(Z-scors)2*StDev*(1-Std.Dev)}{(margin\ of\ error)2}$ assuming a 95% confidence level, 5 standard deviations, and a margin of error (confidence interval) of +/- 5%.

((1.96)2 x .5(.5)) / (.05)2; (3.8416 x .25) / .0025; .9604 / .0025; 384.16

Hence, total of 385 respondents is needed. The study considered a total of 496 sample respondents.

The research population was the bank employees of banks (government bank, private bank, foreign private bank, specialized bank) of Bangladesh. The research area is all over Bangladesh. The bank branches are located in the urban area of Dhaka, Chattogram, Rajshahi, and other divisional areas (Appendix-A). The survey responses cover 47 banks (Out of 61 banks) including state-owned, private-commercial and the foreign banks in Bangladesh. The study used multi-stage sampling approach. In this approach, at first, we have used cluster the geography areas of the population (e.g. employees working in banks of Bangladesh). In this case, we considered all of the Divisions in Bangladesh. Then, again we considered the urban/city corporation areas of each divisions of Bangladesh. Purposive sampling technique has been used to define the sample respondents from each of the urban/city corporation in each division. The semi-structure questionnaires were delivered physically and via e-mail the bank branches located in the region. Data were collected from the branches of banks physically or via email.

Inclusive and Exclusive Criteria: Employees from lower levels to higher levels were the research participants. Both males and females were included in this study. Schedule banks such as government banks, private commercial banks, foreign private commercial banks, and the specialized banks of Bangladesh are considered in this study.

Data Analysis: Data of the study are measured as nominal, ordinal, interval, and ratio scales. The findings have been presented in graphs and diagrams. Again, Factor Analysis (FA) data reduction model has been used in this study using SPSS. KMO and Bartlett's Test has been used for sampling sufficiency.

Ethical Considerations: To ensure the employees' confidence, this research did not use the bank's name or the employee's name in the questionnaire and ethical consent has been taken (via e-mail) from the sample respondents to analyze and interpret the result.

4. Theory Z and Its Implication

Management systems is an entirely theoretical field that constantly changes rapidly. Management theory evolves as organizations grow and globalize, technologies develop, and the international business environment changes. This kind of evolution develops different definitions, concepts, and theories rapidly and uncontrollably. This scenario is called "Management Theory Jungle" by Harold Koontz. Theory “Z” is one of the most popular management theories. An organizational theory known as "Theory Z" focuses on productivity and company behavior and describes how employees see their management and its principles, attitudes, and beliefs. William Ouchi, a management expert who advanced a theory containing Japanese components and explained American cultural norms, is the one who made the suggestion. American business practices the core of individualism, contrasting with the Japanese mindset of collectivism. Compared to how organizational culture has historically been viewed in the U.S., the Japanese industry runs on human behavior assumptions contrary to those beliefs. The focus on temporary employment, expertise, independent decisions, and managers exercising excessive control are characteristics of the American approach to management. The Japanese business mindset, in contrast, is well known for promoting long-term relationships, sensitivity to risk, and a preference for groupthink. Both management philosophies are fighting for their lives in the modern global economy. With its integration of Japanese and American business behavior, Theory Z advances established practices.

4.1 Historical Background

After years of rising business turmoil, Theory Z was released. The social crisis in the 1960s disrupted the peace that followed World War II in the 1950s. At the same time, women and African-Americans campaigned for equality and respect in a society dominated by white men. At Nashville Woolworth lunch counters in 1960, black students were present. The Feminine Mystique, written by Betty Friedan, was released in 1963. Anti-Vietnam War demonstrations dominated 1968's Democratic Convention. Robert F. Kennedy and Martin Luther King Jr. both passed away in 1968. The 1970s were a time of economic hardship for American corporations while social upheaval persisted. The ideal

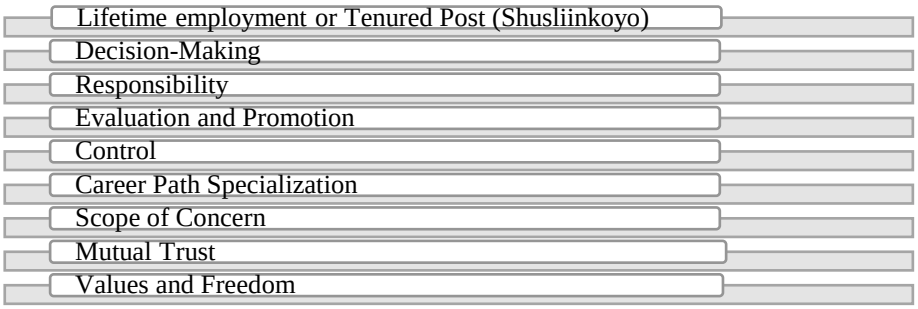
organization would be significant, hierarchical, and driven primarily by technical and financial principles.

As Europe and Japan recovered from the wreckage of World War II, consistency, skilled expertise, and assembly line mentality supported American corporations well. However, American management methods had started to lag by the 1970s. The 1973 oil embargo was a shock, and American businesses adjusted to the new global environment more slowly than their Japanese and European counterparts. The United States faced a gloomy economic future with stagnant productivity, inflation, rising unemployment, and high-interest rates, which lacked a sure cure. America was more exposed due to the 1979 oil embargo. A market controlled by services, knowledge, leisure, fast-changing, and globalization could not be managed by management systems designed for heavy industry. The Japanese industrial giant was considered the most significant danger to American companies by 1980. Motors, metals, and electronics all saw considerable market share gains from Japanese producers. It wasn't easy to accept that Japanese goods were of higher quality. Japan's production expanded four times faster than the United States and faster than any other nation.

4.2 Theory Z and Hypothesis Development

Table-1 lists the nine features of Theory Z. Although Japanese management (Theory J) was incredibly efficient during the 1980s, it cannot be expected to perform in its entirety in the United States. Ouchi developed Theory Z by fusing traditional American management (Theory A) with aspects of Japanese management that he thought would be successful in the United States. Ouchi's investigation of Japanese companies operating in America led to the creation of the Theory Z mix. It proved that the Japanese effectively adopted a different management style in the US and that American workers accepted it well. The following nine components of the Theory Z management concept focused on Ouchi's next search for evidence. Here, every component of theory “Z” is equally important to implement in any organization if any exceptionality may not occur.

Figure 1: The Elements of Theory 'Z'



Lifetime employment or Tenured Post (Shusliinkoyo): "Tenured Post" is the fundamental concept of this feature. Their length of employment with a company is referred to as their average tenure. Long-term benefit plans organizations because they enable employees to understand one another's goals, foster feelings of commitment, and build a long-term perspective, in contrast to the traditional American pattern of frequent job changes. This kind of post is known as '**Shusliinkoyo**' in Japan but a '**lifetime post**' in America. Employees are fully dedicated to their institution and the institution facilitates them for a lifetime.

Decision-Making (RINGI): The term "decision-making" refers to the conventional methods for resolving non-routine challenges. Decision-making is known as RINGI in Japan. Managers were the brains and decision-makers in American businesses, while workers were the task doers. The team participated in a coordinated effort to improve efficiency and quality by applying consensus-based decisions. Japanese companies took their time making decisions because they created forums for debate between employees and managers. However, the consensus-building that resulted from giving and taking permitted rapid implementation, resulting in choices being made faster than in American businesses. The management prefers employees' opinions from a down level to an upper level to decide.

Responsibility: In a meritocracy, the locus of responsibility is a crucial value that governs who is responsible and how awards are given. Individual accountability is ingrained in the American national spirit. Every unit participant in a Japanese company was in charge since the group routinely made decisions. It appeared impossible to be ignorant of who was in command of American corporations. Because American workers wouldn't understand the Japanese maxim "For you all to make it, each person must make it," Ouchi pushed American businesses to uphold self-responsibility.

Evaluation and Promotion: Even if the speed at which evaluations and promotions happen is self-explanatory, slowing these processes impacts Japanese businesses. In a Japanese firm, upgrades happen every ten years, but nobody drops behind. Employees focused on essential duties due to slow appraisal and advancement, which encouraged a long-term approach to the company.

Control: Qualitative vs. quantitative measures of evaluation and advancement are related to implicit vs. explicit control. The quantitative evaluation attitude refers to the preference of American management for the logical over the irrational, the objective over the subjective, and quantitative analysis over knowledge and experience. Through his department store research, Ouchi found that stores that mindlessly gave employees quantitative-based raises who then spent their time working for narrowly rewarded jobs had lower earnings. He also found that stores performed better when managers rated employees according to their knowledge and judgment since employees fulfilled the variety of tasks necessary to ensure the store's success.

Career Path Specialization: Specialization in one area or activity rather than switching between them frequently over a career is referred to as "career path specialization." According to Ouchi, an average American manager completed 1.4 functions during their career. For example, a bank advertised that the individual in charge of providing loans to forest manufacturers in the Pacific Northwest had 30 years of experience in the industry. This level of specialization has the drawback of making connections between individuals across functions, domestic and foreign offices, and between managers and staff in American firms distant and limited. Japanese managers, in contrast, regularly held numerous

positions and underwent international rotation, which led to vast networks of contacts and a thorough understanding of the company's advantages and disadvantages. The moderate specialization promoted by Theory "Z" would encourage loyalty to the company rather than to a particular department or function. It would also enhance domestic and international ties.

Scope of Concern*:* "Holistic concern," as used here, refers to how coworkers view each other and, more significantly, how managers consider their subordinates. When adopted in the US, Japanese businesses were interested in each employee's complete life. Employee happiness grew due to increased interest in all aspects of life. In theory Z firms, the equation considered spouses, families, and community involvement. Employees made more valuable contributions to their neighbors and families when they felt at ease and confident at work. The fact that Theory Z explained theoretical concepts with numerous examples from actual business situations made it exceptional for a book at the time. Ouchi showed that effective American management practices combined American and Japanese management ideas without being directly affected by Japanese management theories.

Mutual Trust: William Ouchi illustrates how mutual trust, integrity, and transparency become vital parts of a productive organization through examples. High-level executives in this situation serve as facilitators rather than decision-makers. If there is powerful mutual trust and understanding between workgroups, management, and the union, disagreements are reduced to a minimum, and employees demonstrate entire collaboration in achieving organizational goals.

Values and Freedom: Theory "Z" also addressed the importance of values. According to Ouchi, a clear, unequivocal representation of company ideology and ideals was required to inspire trust among employees and unleash the Theory "Z" management approach. Without defined goals, intimacy, and trust, transitioning to a "Z" company would be next to impossible. Workers in a "Type Z" workplace acted confident that their workplace and they had become engaged with the concept. Within the boundaries of safe jobs, workers of the "Z" institution worked individually and made their own choices. More employee mobility was the irrational outcome of Theory "Z."

4.3 Nature of Theory "Z" Employees

Employees who adhere to theory Z are self-disciplined, ready to share their knowledge, and committed to forming cooperative relationships with their coworkers. They think the company's higher management should acknowledge them. Throughout their careers, they continue to undergo training and pick up new skills, which boosts their productivity and increases their value to the company. Employees that adhere to Theory "Z" have a greater understanding of their position within an organization and how they can help it achieve its goals, and they are more engaged in their work. Theory "Z" employees can be relied on to produce their best work as long as they have faith in their employer's ability to support and care for them in their positions.

4.4 Theory Z is not Just a Blender of THEORY X and Theory Y

Between the 1950s and 1960s, Massachusetts Institute of Technology professor of management Douglas McGregor pushed the idea that a manager's disposition affected employees' motivation. McGregor established two ideas of motivation for employees in the book 1960, The Human Side of Enterprise, in which he described how managers perceive and address employee motivation. Theory X management and Theory Y management were the terms he used to describe these two competing motivational strategies. Each believes that the manager's responsibility is to organize resources, including people, in the most beneficial way for the firm. They do, however, share several attitudes and assumptions in common, even though they are otherwise entirely distinct. Some specialists say that theory 'Z' is the blender of theory X and Y. There are a few similarities between theory Z and Y, but theory X is an opposite concept.

5. Data Analysis and Findings

5.1 Demographics of the Respondents

Table-1 shows the demographics of the sample respondents. It shows that 83.43% respondents were male while 16.57% were female. Moreover, there were diverse age composition of the sample respondents. Majority of the respondents were within 31 to 40 years of age (58%). respondents of 51% of age were 4.23%.

These respondents are from different nature of banks. Respondents from the government banks were 6.05% while respondents from the private banks were 88.10% (Table-1). 73.70% respondents were mid-level employees. Mid-level employees are Assistant General Manager and Deputy General Manager while lower level employees include below assistant general manager and top-level employees includes General Manager (GM) and above. This study covers from lower level employees to the top-level employees as sample respondents.

Table 1: Demographics of the Sample Respondents

Gender	Male	83.43%
	Female	16.57%
Age	Below 30 years	10%
	31-40 years	58%
	41-50 years	28%
	Above 51 years	4.23%
Nature of Banks	Government Banks	6.05%
	Specialized Banks	2.42%
	Private Banks	88.10%
	Foreign Banks	3.43%
Level of the Employees	Lower Level	21.71%
	Mid-Level	73.70%
	Top Level	4.59%

5.2 Employee's Perception of the Applicability of Theory Z in the Banking System of Bangladesh

Lifetime Employment or Tenured Post: The study explained that the post of the employee being tenured and "bank management does not fire the employees." That means employees work for the bank as a whole. Lifetime post is known as "Shusliinkoyo" in Japan and "Tenured**"** in America**.** Bank employees will not leave the bank and will not be terminated. The research shows that 76% of employees said the termination was not taking part in their banks. However, the rest of the portion is about 24%, where about 21% of the employees said their colleagues were terminated. Further, the statement 'management supports the employees if they lose their proficiency' is also a part of the lifetime employment of employees. Banks need to be ready to get 100% feedback from employees and give them 100% in the odd time. In this research, about 16% believe that the banks they served will support them if they lose their proficiency

accidentally. 38% of participants are puzzled whether their bank management will support or not. About 46% of the participants do not think their banks will support them if they lose proficiency to work. While rest of them said bank management might not be helping them in unexpected scenarios.

Employee Engagement in Decision Making: It finds that 57.59% employees never been engaged in decision making while 39.09% employees engaged in decision making in different forms followed by 2.49% sometimes and 0.83% hardly been engaged. Hence, it finds that most of employees are not been engaged in decision making in any forms.

Bonding between the Employees and Management: The bondage between employees and the management is one of the essential features of theory "Z". There are several ways to build a solid relationship between the bank's administration and staff. Employee loyalty to the company is encouraged by the possibility of lifetime employment. To prevent layoffs under a challenging economic outlook, shareholders may forego dividends. Promotions can take longer. This research found that only about 26% bank employees believe there is a strong bonding between them and the management. Further, 54% of bank employees, think they have moderate bonding with management. The rest of 20% of participants answered that they have light or not remarkable bonding between them and management. So only 26% strong bonding between employees and management cannot fulfill the core principle of theory "Z".

Mutual Trust between the Employees and the Management: According to Ouchi, a successful organization must have transparency, integrity, and trust. Employees fully comply with accomplishing the organization's goals when there is trust and openness among them, their workgroups, their unions, and the administration. Only 28.57% of bank employees firmly believe that they have solid mutual trust with bank management. Moderate mutual trust is answered by 268 persons or 55.49% of bank employees. More than 16% of bank employees believe that there is only light or not remarkable mutual trust with bank management.

Opportunity to Engage in the Products and Services Design: This participation generates a complete sense of responsibility and increases enthusiasm in implementing decisions; Managers are acted as facilitators rather than decision-makers. In this research, 65% of participants answered that they never had an opportunity to design the products and services of the banks. Only 31.68% answered that they strongly influence the design of the products and services. Islam et al. (2011) stated that sustainability in service quality and their conformity is also important for such product design and services.

Opportunity to Build up Trade or Officer Unionism: It is said to be suitable to have an opportunity to build up trade or officer unionism among the bank employees. Another feature of theory "Z" is unionism or a platform that is mainly for employees." Here, about 78% of bank employees said that they had no opportunity to build up trade or officer unionism in their bank.

5.3 Factor Analysis; Application of Theory Z

The study conducts Factor Analysis Data Reduction model to extract the factor that are more applicable of theory Z in the banking industry of Bangladesh. A KMO and Bartlett test have been conducted for checking the level of sampling adequacy using SPSS. A KMO score higher than 0.5 and Bartlett's test significance level lower than 0.05 show that the data are significantly linked. Variable collinearity is the degree to which one variable relates to other variables. Values greater than 0.4 are considered acceptable (Mamun et al., 2022). The p-value (<.000) indicates the level of significance by 1% (Table-2).

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.714
Bartlett's Test of Sphericity	Approx. Chi-Square	514.01
	Df	55
	Sig. (P-Value)	<.000

5.3.1 Descriptive Statistics

The descriptive statistics of the data has been depicted in Table-3. It shows that the valid n = 425, maximum (4), minimum (1), standard deviation and central tendency of the data. Further, table-4 explains the correlation matrix of the factors of theory Z.

Table 3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
x1	495	1.00	2.00	1.1657	.37215
x4	496	1.00	4.00	2.0222	.43752
x6	485	1.00	4.00	3.6701	.64478
x7	492	1.00	4.00	1.8191	.85496
x8	487	1.00	4.00	2.3203	.74540
x12	489	1.00	4.00	2.4560	.94663
x16	471	1.00	4.00	1.0955	.40397
x17	483	1.00	4.00	3.3354	1.22192
x18	478	1.00	4.00	3.5921	1.00882
x19	470	1.00	4.00	2.1064	.64758
x23	483	1.00	4.00	2.9917	1.39499
Valid N (listwise)	425				

Table 4: Correlation Matrix

	x1	x4	x6	x7	x8	x12	x16	x17	x18	x19	x23
Correlationx1	1.000										
x4	.107	1.000									
x6	-.055	.013	1.000								
x7	.066	.121	.213	1.000							
x8	.027	-.004	.132	.483	1.000						
x12	.017	.024	.132	.351	.493	1.000					
x16	.016	-.010	-.062	.073	.019	.051	1.000				
x17	.029	.149	-.073	-.228	-.276	-.182	-.005	1.000			
x18	-.217	-.069	.078	.096	.128	.163	.030	.017	1.000		
x19	.023	.001	.012	.214	.250	.190	.058	-.129	.018	1.000	
x23	.018	.095	.318	.277	.303	.273	.052	-.020	.162	.116	1.000

5.3.2 Data Reduction Model

Out of 11 factors of theory Z, the SPSS extracted 4 factors by Principal Component Analysis (PCA) using factor analysis data reduction model. These are Knowledge about theory Z, bank management support to the employees and termination; Employee engagement in decision making; friendly employee management system and trust between management and employees and bonding between management and employees (Table-5). Table--- shows the model in explaining the application of theory Z in the banking sector of Bangladesh. Total variance explained by these four factors are depicted in table---. It finds that the average factor loading in employee engagement in decision making is 2.73 (out of 4) which is ranked at first followed by friendly employee management system and trust between management and employees ranked at second (factor loading 1.75 out of 4), knowledge about theory Z, bank management support to the employees and termination ranked at third (factor loading 1.62 out of 4) and bonding between management and employees ranked at fourth (factor loading 0.79 out of 4) (Table-5).

Table 5: Model – Application of Theory Z

	Factors	Average Factor Loading Score[2]	Rank
Factor-1	Knowledge about theory Z, bank management support to the employees and termination	1.62	3
Factor-2	Employee engagement in decision making	2.73	1
Factor-3	Friendly employee management system and trust between management and employees	1.75	2
Factor-4	Bonding between management and employees	0.79	4

Factor-1, factor-3 and factor-4 have negligible application in the banking sector of Bangladesh as their average factor score is less then 2.5. Moreover, the average factor loading score for the bonding between management and employees is less than 1 (0.79) which is very much insignificant application of theory Z in the banking sector of Bangladesh. Only factor-2, employee engagement in decision making particularly employee opinion in product

[2] Average factor loading score is the multiplication of rotated component score with the mean score of the variables.

decision has significant feature of theory Z which has application in the banking system of Bangladesh. Although, factor -2 average factor loading 2.73 out of 4 is more than 2.5 but less than 3.00 (out of 4), it cannot be concluded that the features of theory Z is applied in the banking sector because other features such as lifetime employment or tenured post, responsibility, evaluation and promotion, control, career path specialization, scope of concern mutual trust, and values and freedom are not applied. Hence, although some features are applied measly in the banking sector of Bangladesh, all features of theory Z are not applied in the banking system of Bangladesh.

Table 6: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.497	22.697	22.697	2.497	22.697	22.697	2.435	22.135	22.135
2	1.296	11.778	34.475	1.296	11.778	34.475	1.298	11.797	33.932
3	1.232	11.199	45.674	1.232	11.199	45.674	1.219	11.086	45.018
4	1.061	9.643	55.317	1.061	9.643	55.317	1.133	10.299	55.317
5	.926	8.417	63.734						
6	.845	7.685	71.419						
7	.822	7.470	78.889						
8	.677	6.152	85.042						
9	.618	5.620	90.662						
10	.588	5.348	96.010						
11	.439	3.990	100.000						

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 7: Rotated Component Matrix[(a)]

	Component			
	1	**2**	**3**	**4**
x1	.127	-.693	.229	.066
x4	.072	-.271	**.690**	-.021
x6	.257	.198	.189	-.655
x7	**.731**	-.047	.096	-.085
x8	**.788**	.029	-.104	-.055
x12	**.695**	.122	.007	-.001
x16	.172	.173	.201	**.725**
x17	-.429	.118	**.630**	.107
x18	.154	**.760**	.081	.041
x19	.481	-.090	-.115	.268
x23	.490	.239	.421	-.280

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
[a] Rotation converged in 4 iterations.

The highlighted bold numbers represent each principal components' major variables. The bold numbers are identified according to Factor Analysis magnitudes at 0.600.

5.4 Applicability of the Theory Z

Further, the study assesses the applicability of the features of theory Z in the banking sector of Bangladesh following the same methodology describe above. We use KMO and Bartlett's test for measuring sampling adequacy. It finds that the data used for this sectors is significant also ($p<.01$)(Table-8).

Table 8: KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.552
Bartlett's Test of Sphericity	Approx. Chi-Square	127.464
	df	10
	Sig.	.000

[a] Based-on correlations

The descriptive statistics of the study is shows in Table-9. It shows that response rate range between 1 to 4 and total 432 valid responses have been analysed. The standard deviation is minimum (Table-9).

Table 9: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
x9	458	1.00	4.00	1.8668	.75264
x10	487	1.00	4.00	1.2505	.67501
x11	471	1.00	4.00	1.0955	.40397
x21	476	1.00	4.00	1.7584	.60038
x22	477	1.00	4.00	1.2285	.59425
Valid N (listwise)	432				

Further, out of 5 factors of the theory Z, factor analysis data reduction model extracted 2. These are employees' support and dedication to the development and profitability of the bank, if the features theory Z have been applied in the banking sector of Bangladesh; and the other is employee will enhance their commitment if they have the opportunity to engage in decision making in the bank management. Table-10 shows the model for the applicability of theory Z in the banking sector of Bangladesh. It shows that average factor loading score for the Factor-2 is 1.31 followed by employee loyalty and dedication toward bank is 0.95. Although these scores very insignificant but there is a scope to apply the features of the theory Z in the banking sector of Bangladesh.

Table 10: Model – Applicability of Theory Z

	Factors	Average Factor Loading Score[3]	Rank
Factor-1	Employee loyalty and dedication toward bank, if the features of theory Z applied in the banks.	0.95	2
Factor-2	Employee effort to fulfil the target, if they engage in the decision making for bank management.	1.31	1

Total variance explained by the sample data has been shown in Table-11 and rotated component matrix is depicted in Table-12.

Table 11: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.549	30.975	30.975	1.549	30.975	30.975	1.497	29.948	29.948
2	1.230	24.596	55.572	1.230	24.596	55.572	1.281	25.624	55.572
3	.865	17.293	72.865						
4	.774	15.489	88.354						
5	.582	11.646	100.000						

Extraction Method: Principal Component Analysis.

[3] Average factor loading score is the multiplication of rotated component score with the mean score of the variables.

Table 12: Rotated Component Matrix[(a)]

	Component	
	1	**2**
x9	.366	.534
x10	**.812**	-.002
x11	**.811**	.013
x21	.066	**.743**
x22	-.204	.667

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
[a] Rotation converged in 3 iterations.

6. Discussion and Conclusion

This research is the first theoretical and quantitative work on theory “Z” in the banking sector of Bangladesh. Some features of theory Z such as friendly employee management system and trust between management and employees, and bonding between management and employees are already practicing in the banking system of Bangladesh. Although all of the features of theory Z are not fully applied but employees are ready to accept the features of theory Z such as lifetime employment, engagement in decision making, taking responsibility and accountability, execution of scientific evaluation and promotion, proper control, clear career path, mutual trust, values and freedom. Hence, there is considerable scope to implement theory Z in the management systems of banks of Bangladesh.

To apply Z theory in business or restructure a typical American corporation, there are 12 strategies (named type A company). The banks in Bangladesh can likewise use those tactics. The existence of doubters is necessary for theory Z to function. If any employee thinks that theory "Z" would not work, it should not be discouraged. They should be involved skeptics, and banks should keep forming a space of trustworthiness. The banks' second tactic is to audit their guiding principles. The banks will try to develop a strategy that shows how they communicate with their staff members and vice versa. Banks must determine "is" location—not their "should be" location. The third tactic is the management's obligation to specify the desired ethos and include management leaders. Here, management leaders must not frighten the leadership and must be open to hearing

all the management has to say, which is also supported by the earlier literature (e.g. Habib et al., 2020). Since managers tend to withhold more details when scared, management leaders shouldn't prevent them from speaking. The bank will need to develop a framework and an incentive as part of the fourth strategy. Make a space where they can trust that the rest of the team will come to their aid when someone is having a hard time. The bank firm will need to develop its interpersonal abilities, which is the sixth approach. The management will encourage everyone to communicate more effectively in this situation. They must develop managers' listening skills and teach them when to interrupt. The bank testing both the system and itself is the sixth tactic. Management will begin to doubt employees' ability to manage while implementing Theory "Z." The next strategy is to stabilize employment. Banks will have to challenge the occupation and give employees a variation of jobs within the bank. When a bank struggles, they don't push management to fire employees; instead, they cut back on hours. In exchange, it aids organizations in maintaining a low staff turnover rate, which requires less time to educate new hires. The eighth tactic is to diversify people's professional options. To keep personnel, provide them with exposure to various areas and departments. Communication of crucial information between departments within the bank is considerably simpler if everyone knows what every department is doing. The tenth tactic is implementing theory "Z" at the lower level. One must start at the top to implement Theory Z at a lower level. Banks must initially replace senior management and professional staff before altering lower-level employees. Lower-level workers are unlikely to adopt a strategy not used by senior management. The eleventh strategy is to find locations where employee input is welcomed in decision-making. Banks increase lower-level trust by involving customers in decision-making and rewarding successful employees. Employee communication about the bank's preference for teamwork over individualism would be encouraged. Finally, everyone should develop a sense of family.

"Theory Z" is a management process or method that deals with quality and organizational culture. It is a step forward from established procedures, encompassing American and Japanese corporate practices. The Japanese industry operates under assumptions about human behavior at odds with how organizational behavior has traditionally been regarded in the United States. This research examines whether theory "Z" is implementable in the banking sector in Bangladesh. Instability and lack of consistency in the bank's performance theory "Z" urge an excellent apple to replace the existing management system of the banks of Bangladesh. When a bank performs poorly, they do not urge management to fire employees; instead, they advise them to cut hours. Banks can increase lower-level trust by involving them in decision-making and rewarding them. It would encourage employees to speak up and communicate that the bank values teamwork over individualism. It is essential to research the implementation status of theory "Z," and carefulness must be ensured. Assume control, compliance, ethics, and governance of the banks in Bangladesh are to be confirmed. In that case, the traditional or unstructured management system should be replaced by a structured one like the theory "Z." This research successfully proves that there are several gaps in thinking, perception, competition, and trustworthiness between the bank's employees and the management system of banks in Bangladesh. This gap may cause a world of disbelief and disrespect between employees and management. Banks are economic powerhouses, and bank employees are power generators. Both should have been confined to a structured management system to ensure Bangladesh's stability and sound economy. Theory "Z" is the solution to the disliked management system (a large number of the participants answered) of the banks of Bangladesh. Further studies are needed on theory "Z" in Bangladesh, which will help find a concrete pathway to implement in the management system of the banks of Bangladesh. The output of this research is that theory "Z" is implementable in the management systems of the banks of Bangladesh. Bonding between bank employees and the management should be increased, and for compact bonding, the management's responsibilities and activities are the

primary concern. Bank employees and management may develop trustworthiness if both sides do their best for each other. Unethical and inhuman termination of employees must be prohibited. Employees need to have an opportunity to design the products and services because they are the sellers or facilitators. Opinions of the bank employees must be listened to and implemented as much as possible. The management should facilitate bank employees during their hard times.

References

Aydin, O. T. (2012). The impact of theory X, theory Y and theory Z on research performance: an empirical research from a Turkish University'. *International journal of advances in management and economics* [online], 1(5), 24-30. Available from<www.managementjournal .info/download1.php?f=050105.pdf >

Bittel, L. R. (1989). The McGraw-Hill 36-hour management course (p. 11). New York: McGraw- Hill

Daft, R.L. (2004). Theory z: opening the corporate door for participative management. *Academy of management executive*, 18(4), 117–122.

Habib, S. M. A. I., Islam, S. N., M.T. & Islam, M. (2020). "Leadership approaches, governance and emotional intelligence: The case of the banking industry of Bangladesh", *Research monograph,* 41.

Islam M. T. Y., Rahman, R., Anwar, L. & Hussain, M. K. (2011). Sustainability in service quality and customer conformity: Drivers of customer loyalty to bank. *Research monograph*, 44.

Islam, M. T. (2014). Green recruitment and selection process model: Evidence from the banking sector of Bangladesh. *Bank Parikrama*, XXXIX(1&2), March & June.

Islam, E., & Kalumuthu, K. R. (2020). Assumptions of theory Z: A tool for managing people at work. *The Asian journal of professional and business studies*, 1(1).

Islam, M.T. & Uddin, M.M. (2022). Determinants of board roles in the banking sector – Bangladesh perspective. *International Journal of Corporate Governance*, 13(2), 103-123.

Lunenburg, F. C. (2011). Goal-Setting theory of motivation. *International journal of management, business, and administration*, 15(1), 1-6.

Luthans F., Luthans B.C. & Luthans K. C. (2015). "An organizational behavior – An evidence-based approach" Thirteen Edition, Information Age Publishing Inc.

Mamun, A. A., Islam M. R., Alamgir, M., Islam, M. T., Ullah M. S. & Khatun, M. (2021). Operating governance in banks: the role of board of directors. *Research monograph*, 53.

Mamun, A. A., Islam, M.T., Yesmin, R. & Ali, A. (2022). Human resource management of banks 2024. *A review of HRM of banks.*

Mamun, A. A., Islam, M. T., Ali, A., Ezaz S. & Hossain, M.M. (2022). Employee selection in banks of Bangladesh: A mixed method analysis. *Research Monograph*, 57.

Massie, J., & Douglas, J. (1992). Managing: A contemporary introduction. Englewood Cliffs, NJ: Prentice Hall.

Ouchi, W.G. (1981). Theory Z: How American business can meet the Japanese Challenge. Reading, MA: Addison-Wesley.

Ouchi, W. G. & Price, R.L. (1978). Hierarchies, clans, and theory Z: A new perspective on organization development. *Organizational dynamics*, 7(2), 25-44.

Paul S. G. P.S. (1984). Theory Z and schools: What can we learn from Toyota? *NASSP Bulletin*. 68(472), 76–81.

Robbins, S. P. (1983). The theory Z Organization from a power-control perspective. *California management review.* 25(2).

Siddique, M.U., Alamgir, M., Islam, M. T., Mehedi, T. Uddin, M. M. & Robin, I.A. (2022). Board, chief executive officers and performance of banks in Bangladesh. *Research monograph 60*.

Uddin, M.M., Islam, M.T. & Faroque, M.O. (2022). "Effects of Political affiliation of boards on bank performance: a developing country perspective". *Journal of accounting in emerging economies*, 13(3), 566-588.

Wilkins, A. L. & Ouchi, W.G. (1984). Efficient cultures: exploring the relationship between culture and organizational performance. *Administrative science quarterly.*, 28(3), 468-481.

Appendix A: List of the Respondents' Banks

Sl.	Banks' Name
1.	AB Bank PLC.
2.	Al-Arafah Islami Bank PLC.
3.	Bangladesh Commerce Bank PLC.
4.	Bangladesh Development Bank
5.	Bank Asia PLC.
6.	BASIC Bank PLC.
7.	Bengal Commercial Bank PLC.
8.	BRAC Bank PLC.
9.	Citizens Bank PLC.
10.	City Bank PLC.
11.	Commercial Bank of Ceylon PLC (Sri Lanka)
12.	Community Bank Bangladesh PLC.
13.	Dhaka Bank PLC.
14.	Dutch-Bangla Bank PLC.
15.	Eastern Bank PLC.
16.	EXIM Bank PLC.
17.	First Security Islami Bank PLC.
18.	Global Islamic Bank PLC. (former NRB Global Bank)
19.	Habib Bank Limited (Pakistan)
20.	ICB Islamic Bank PLC.
21.	IFIC Bank PLC.
22.	Islami Bank Bangladesh PLC.
23.	Jamuna Bank PLC.
24.	Meghna Bank PLC.
25.	Mercantile Bank PLC.
26.	Midland Bank PLC.
27.	Modhumoti Bank PLC.
28.	Mutual Trust Bank PLC.
29.	National Bank PLC.
30.	National Credit & Commerce Bank PLC.
31.	NRB Bank PLC.
32.	NRB Commercial Bank PLC.
33.	One Bank PLC.
34.	Padma Bank PLC.
35.	Premier Bank PLC.

Sl.	Banks' Name
36.	Prime Bank PLC.
37.	Pubali Bank PLC.
38.	Shahjalal Islami Bank PLC.
39.	Shimanto Bank PLC.
40.	Social Islami Bank PLC.
41.	South Bangla Agriculture and Commerce Bank PLC.
42.	Southeast Bank PLC.
43.	Standard Bank PLC.
44.	Trust Bank PLC.
45.	Union Bank PLC.
46.	United Commercial Bank PLC.
47.	Uttara Bank PLC.

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 181-203)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20254

Bid-Ask Spread in Financial Market: Insights from Search Engine Query Data

- Mohd. Anisul Islam*
- Noyon Islam**

Abstract

This paper investigates the capabilities of query data for 'company name' to provide insights into the movement of bid-ask spread of stock, which is a basic component of transaction cost. The magnitude of bid-ask spread has an impact on measuring trading performance. Results from econometric techniques on a sample of 497 stocks reveal that the bid-ask spread of a stock is correlated with the search volume of the corresponding company name. Furthermore, we find that the stocks of more searched companies are likely to be traded at a lower bid-ask spread. However, if search is motivated by negative sentiment, the bid-ask spread will rise. This finding illustrates that the fluctuation of bid-ask spread can be anticipated by query data that will assist investors to make trading decisions prudently.

Keywords: Bid-Ask Spread, Query Data, Company Name, Negative Sentiment, Transaction Cost
JEL Classification: G11, G12, G24

1. Introduction

Bid-ask spread – the difference between the highest price buyers are willing to pay and the lowest price sellers are willing to accept- is one of the significant components of transaction costs and a fundamental measure of liquidity in the financial market. This simple measure captures complex market dynamics like volatility, information asymmetry, order processing cost, inventory cost, and other factors. Moreover, a higher spread, while compensating market makers for financial intermediation services, can dramatically reduce the desired return for any portfolio of investors. Since understanding of this spread has implications for market efficiency, price discovery, and overall cost of capital, both market makers and investors are concerned about the cross-section of the bid-ask spread

* Mohd. Anisul Islam is an Assistant Professor, Department of Finance, University of Dhaka, Bangladesh, Email: ai.fin@du.ac.bd; **Noyon Islam is a Lecturer, Department of Finance, University of Dhaka, Bangladesh, Email: noyon@du.ac.bd. ** The views expressed in this paper are the author's own. The authors gave thanks to Neha Gupta, module leader and teaching assistants at the Big Data Analytics Module, MSc Finance Course 2019-20, Warwick Business School, University of Warwick for their helpful suggestions.

of securities. Considering the proliferation of search engine-based information gathering, This study examines whether variations in search engine query data for a company's name can explain the bid-ask spread of its securities.

The bid-ask spread indicates the cost of any transaction service. The procedure, process, and performance of transaction services are discussed in the domain of market microstructure theory. Regarding financial intermediation, assets cannot be transferred from one party to another without mentioning the bid and ask price. Conventional market microstructure theory implies that this spread is primarily determined by liquidity, volatility, information asymmetry, order processing cost, and inventory cost, among other factors. Empirical evidence finds that price level, market activity, return variance, and competition among market makers explain the cross-sectional variation in bid-ask spread (Menyah and Paudyal, 1996). However, the digital revolution and proliferation of internet-based information gathering have introduced a new dimension of information flow and investor behavior, which remain underexplored in the context of market liquidity.

Most of the spread-determining factors, such as market activity, price level, return variance etc., are nowadays significantly influenced by the behavior of investors who often seek stock-related information using search engines to make decisions. The advent of technology has fundamentally transformed how investors acquire and process information about financial securities. Google searches, Bing queries, and other search engine activities are likely to provide unprecedented real-time insights into investor attention, information demand, and market sentiment. The behavioral data reflects investor attention and the process of gathering information that typically occurs before making trading decisions. As such, it may offer a useful way to anticipate market liquidity conditions. Therefore, we can suggest that analyzing search engine query data could provide valuable insights into changes in the bid-ask spread.

In this perspective, Investors nowadays utilize search engines for searching public information about companies to update their expectations about future outcomes from investment in a stock. Public announcements of events are an essential means of informing traders of information. Many investors calculate the

fundamental values of assets using this newly acquired information. But very few steps are taken to quantify the information and use the information to maximize return. Griffin et al (2011) quantify the effect of financial media on stock prices and measure the cross-country differences in stock price reactions to public announcements information in the financial media. They also find that public news outlets offer an enormous amount of information regarding shifts in company value. So, non-professional investors use Google for obtaining public information available in different websites. This makes Google the number one search engine. Hence, the Search Volume Index (SVI) released by search engines like Google is likely to reflect investors' attention and sentiment. Search volume data indicates interest and sentiment of investors since people usually search for the term that creates interest or draws attention for specific reasons.

This study intends to discern the relationship between bid-ask spread of stocks and the query data for company name, contributing to the growing evidence on digitally mediated investor behavior and market microstructure. We explore whether search intensity, reflected by the search volume index of Google, can explain variations in bid-ask spreads across different securities. We address the primary research question: does increased search activity predict changes in bid-ask spread? What is the channel through which search behavior affects market liquidity? Does this effect vary across different types of securities, like whether variation in market capitalization of securities intervenes this relationship between query data and bid-ask spread? Searching by company name returns both financial and non-financial information of the company which assists investor in making transaction decision. As higher searching of company name reduces information asymmetry and signals investor attention, it can result in reduced bid-ask spread. So negative relationship between query data and bid-ask spread is desirable.

The bid-ask prices serve as critical determinants of the equilibrium market price for a wide range of securities, thereby facilitating efficient financial intermediation. In the short run, both the pattern of transactions and the fluctuation in stock prices are influenced by these bid-ask quotes. Investors typically purchase securities at the ask price and sell them at the bid price. Market

makers, including brokers and dealers, play a pivotal role in setting the equilibrium market prices by considering the bid-ask spread. Their trading decisions are guided by market orders, which reflect the best available price at any given moment. By matching prices and executing trades, market makers can ascertain the bid-ask spread from the available data, which aggregates the current bids and asks within the financial market.

In anonymous market conditions, if a transaction occurs at the bid price, this can lead to a decrease in both the bid and ask prices, potentially discouraging the seller from further selling and instead motivating them to purchase more securities. Conversely, purchases at the ask price may trigger additional selling activities (HR Stoll, 2003). Research suggests a negative correlation between the bid-ask spread and trading activity of specific securities within competitive markets. However, increased price volatility may lead to a wider bid-ask spread, as volatile stocks typically embody greater risks of loss and correspondingly higher return potential. Studies examining the relationship between bid-ask spread and price levels have produced mixed findings; some researchers assert a positive correlation, while others argue for an inverse relationship (Aitken and Frino, 1996).

To address market anomalies attributed to investor behavior, Robert Shiller (2003) developed the theory of behavioral finance, which intersects economics, finance, and psychology. The advancement of technology has enabled broader access to information, allowing investor sentiment to be forecasted using trends in technology. For instance, the mood identified on social media platforms, such as Twitter, can potentially predict movements in the Dow Jones Industrial Average Index (DJIA) with considerable accuracy (Bollen et al., 2011). Additionally, during bearish market conditions, there is a noted increase in traffic on platforms like Wikipedia as investors seek detailed information regarding various companies (Moat et al., 2013).

Li et al. (2014) found a significant relationship between user engagement with the media and stock price movements, proposing a quantitative media strategy to forecast stock prices. Fang and Peress (2009) investigated the relationship between media coverage of firms and their predicted returns,

highlighting that firms with less media coverage tend to exhibit higher stock returns, especially among smaller firms. They also explored the effect of media coverage on mutual funds, revealing that mutual funds often gravitate towards stocks with extensive media coverage, although this inclination varies significantly across different mutual funds. Information regarding stock movements is disseminated through various media channels and social platforms, enabling investors to better comprehend price dynamics in competitive markets. For example, Atkins et al. (2018) demonstrated that stock price movements could be accurately predicted based on information from news sources, noting that the impact of official news announcements on the Dow Jones Industrial Average and NASDAQ typically manifests with a time lag of about 20 minutes, evaluated through Reuters Stock Market text data.

In terms of data analysis, considerable text data can be quantified to predict future market trends. Joseph et al. (2011) found that text data generated from online search intensity could be indicative of trading volume and stock returns. They suggested that more volatile equities, which are inherently difficult to arbitrage, tend to react more strongly to search frequency compared to less volatile stocks. Specifically, search volumes related to individual stocks demonstrate a positive relationship with both trading volumes and return volatility.

The Google search engine, widely recognized as a premier search tool, offers extensive information across various industries through its "Search Volume Index" (SVI) feature available via Google Trends. Da, Engelberg, and Gao (2011) posited that the SVI embodies a more precise measurement of investor attention compared to traditional measures. They also argued that Google Trends is indicative of "revealed attention," as queries regarding a stock in Google stem from an interest in it. The SVI consists of time-series data, allowing for observation of the frequency with which certain terms are searched. Moreover, Yang, Santillana, and Kou (2015) utilized Google Flu Trends to enhance influenza tracking methods, signifying the robustness and adaptability of Google’s data in capturing public sentiment.

Da et al. (2015) proposed a daily sentiment index designed to measure the financial concerns of American households through Google search query data. Ding and Hou (2015) explored GSV to assess investor sentiment, concluding that heightened investor attention correlates with reduced bid-ask spreads, thereby enhancing liquidity. They noted limitations, however, as the GSV for smaller firm tickers often returned zero values.

Swamy and Dharani (2019) contended that Google Search Volume (GSV) can capture both the directional and quantitative aspects of excess returns in the market. They found that a higher GSV correlates with higher excess returns, indicating the critical role of investor sentiment under these circumstances.

Investor sentiment is a nuanced reflection of anticipated future risks, which may not always align with factual data; however, it plays a significant role in influencing stock price movements. Search data linked to trading symbols serves as a reliable proxy for gaugeing investor sentiment (Z He et al., 2019; Mian and Sankaraguruswamy, 2012). The stock market is, to a certain extent, directed by investor sentiments, which in turn affects trading behaviors. Increased search volumes for specific stocks often signal heightened investor attention. When investor sentiment turns negative, a trend emerges where stocks are typically sold, and this tendency intensifies for riskier securities. Accordingly, Ana Brochado (2020) developed dual sentiment measures based on Google data—positive and negative indices. The findings indicated a correlation between stock market returns and trading volumes with these sentiment-based indices; notably, the positive index exerted a greater influence on stock returns compared to the negative index. Investor sentiment stems from factors such as noise trading and risk aversion, with the intensity of the Search Volume Index (SVI) correlating with security prices.

An elevated SVI coupled with increased transaction volumes reflects heightened trading activity and improved liquidity for specific stocks. Such conditions foster market efficiency and, consequently, lower bid-ask spreads. Therefore, it is likely to observe a lower bid-ask spread in conjunction with a higher SVI for a given stock. Joseph, Babajide Wintoki, and Zhang (2011) suggested that high SVI can predict anomalous stock returns. They advanced a

long-short investment strategy, advocating for shorting low-SVI stocks while going long on those with high SVI, rebalancing the portfolio weekly. Their research posits that analyzing search volume can provide actionable insights into the overall performance of financial markets, though this is contingent on the specific search terms used. High purchasing interest in certain stocks suggests positive market sentiment, predicting outperformance of these stocks. Conversely, declining trend indications can be observed when search terms lose popularity as market conditions deteriorate.

Preis et al. (2013) explored the utilization of generic finance-related search keywords or firm-specific terms to predict stock market fluctuations. Their goal was to develop a portfolio management strategy to outperform the stock market index via Google Search Data analysis. Over a span of seven years, they discovered that trading based on Google searches for specific keywords could outperform market indices by up to 310%. In contrast, Joseph et al. (2011) cautioned that high transaction costs associated with frequent portfolio rebalancing might negate the profitability of trading strategies based on search intensity. They acknowledged, however, that the volume of online searches is a reliable indicator of anomalous trading activity and abnormal stock returns. Similarly, Bijl et al. (2016) asserted that profitable trading strategies could yield abnormal returns, provided transaction costs are considered. Their analysis of S&P 500 data from 2008 to 2013, during the global financial crisis, revealed a counterintuitive finding whereby high Google Search Volume correlated with lower stock returns on a weekly basis, with subsequent reversals.

This analysis aims to enhance the existing literature in several keyways. First, it demonstrates how the act of searching for stock-related information on search engines can diminish information asymmetry, resulting in lower transaction costs. Second, it elucidates how search engine-provided insights can shape investor attention and sentiment, which subsequently impacts the bid-ask spread. Finally, accessing such insights from query data equips investors with a pre-trade estimation of transaction costs, aiding in the optimal placement of trade orders. The succeeding section will delve into the methodological framework and present the findings of this research.

The primary objective of this paper is to establish causal relationships between search behavior and spread dynamics while controlling for traditional spread determinants identified in prior literature. This study leverages comprehensive datasets combining high-frequency bid-ask spread data with search volume index data available from Google for five-year time horizons. It is anticipated that similar patterns will manifest in developing markets, including Bangladesh. Notably, the Bangladesh Securities and Exchange Commission (BSEC) has instituted a policy limiting daily stock price declines to no more than 3%. Such circuit breakers in developing economies like Bangladesh are expected to temper speculative activities among investors (MF Ahmed, 2013). Consequently, a negative correlation between the SVI and bid-ask spread is expected in the Bangladeshi context.

2. Methods and Results

2.1 Data

We use closing bid and ask prices on Monday of every week, of 497 US stocks out of 505 stocks of S&P 500 index as of March 1, 2020. This weekly dataset also includes transaction volume and return data for the period from January 1, 2015, to December 31, 2019. All series have been obtained from the CRSP database[1] which provides historical data of stock market. For query data in search engine, We use search data for 500 company names from ‘‘Google Trends’’. It is to be noted that we retrieved search volume data for the period from January 1, 2015, to December 31, 2019, by accessing the Google Trends website (http://www.google.com/trends) on March 7, 2020, using gtrendsR package on R studio. However, when we attempted to retrieve more recent query data for 497 stocks together from “Google Trends” using the same gtrendsR package, we could not retrieve recent data because recent updates to Google Trends have limited access to “Google Trends” data, particularly for bulk keyword queries. However, retrieval of several keywords from “Google Trends” using the same gtrendsR package is still functional.

[1] https://wrds-www.wharton.upenn.edu/

Weekly data in ‘‘Google Trends’’ mean index is computed by summing the search volume during that week and reported on every Sunday. No trading data are reported on weekend. To merge the query data with trading data, we forward the date of ‘‘Google Trends’’ data by one day. Specifically, how the query for company name made in ‘‘Google Trends’’ from Sunday to Saturday in every week influences the closing bid-ask spread quoted on Monday of following week will be examined. After necessary transformation, finally we use 112,319 observations of 497 companies for range of T= 9-236.

Weekly frequency of data is used to cover wider period as daily frequency data are available for shorter period. ‘‘Google Trends’’ computes “Search Volume Index (SVI)” in scale of 0-100 for specific terms by computing total searches which have been done for specific term relative to the total number of searches done on Google for specific time period – here we use the 497 company names. Either company name or stock ticker is usually used to explore information. The reasons for using company name as keyword are it generates large quantity of firm related information rather than stock related information and the problem of generic meaning of several ticker names (e.g. ticker for Ford and Caterpillar are “F” and “CAT” correspondingly) can be avoided. Since exact company names e.g. Apple Inc. – may return with poor SVI, we optimize the name of company by setting keyword to common abbreviations - e.g. Apple. Besides, if we compare the search index for Apple as technology company and Apple as generic name, no significant difference in SVI is seen (Appendix: Figure i). List of a portion of companies along with corresponding ticker and keyword has been provided in appendix.

2.2 Variables

In this study bid-ask spread is calculated by taking difference between ask and bid price relative to midpoint of bid and ask price. To follow the convention, this measure is expressed in basis point (BP) (0.01=1%=100BP). we use the SVI provided by “Google Trends” to capture the query data for company name. This index is already normalized with respect to total searches for 497 company names. To separate the incremental effect of query data reflected by SVI on bid-ask spread, we control for market capitalization, trading volume, and return

volatility. Market capitalization is measured by multiplying outstanding shares with price and trading volume reflects total number of shares sold on a day. Return volatility is measured based on squared return. Stocks have been categorized based on the type of market capitalization since it is an important characteristic which causes variation of spread among stocks. A table for category of market capitalization can be found in appendix. Descriptive statistics of the spread and SVI can be found in Table 1 and Table 2 respectively.

Table 1. Descriptive Statistics of Bid-ask Spread (in bp)

Category	Mean	Median	Q1	Q3	Minimum	Maximum
Mega-cap stocks	2.2591	1.8187	1.1065	2.7089	0.0553	37.7905
Large-cap stocks	2.2230	1.8168	1.2244	2.7045	0.0274	113.2909
Mid-cap stocks	4.0144	2.6835	1.7891	4.0891	0.0363	1030.71
Small-cap stocks	21.447	7.681	4.090	43.011	2.908	61.538

The central tendency and dispersion of bid-ask spread varies significantly across the type of stocks with mean spread ranging between 2.26bp and 21.45bp. Small-cap stocks are traded at higher bid-ask spread compared to large-cap stocks because of higher illiquidity and information asymmetry associated with small-cap stocks.

Table 2. Descriptive Statistics of SVI (in 0-100 scale)

Type	Mean	Median	Q1	Q3	Minimum	Maximum
Mega-cap stocks	56.35	57.00	45.00	67.00	7.00	100.00
Large-cap stocks	51.87	53.00	35.00	68.00	1.00	100.00
Mid-cap stocks	52.37	54.00	35.00	69.00	1.00	100.00
Small-cap stocks	54.57	55.00	42.00	66.25	12.00	100.00

Central tendency of SVI reflects that on an average company name of mega-cap and small-cap stocks are searched more compared to other stocks which implies that large and very small companies are searched more frequently. However, high dispersion of SVI can also be observed from the difference between minimum and maximum value.

2.3 Methods

To investigate how query data influence, the bid-ask spread, we estimate the following equation where bid-ask spread (Spread) is regressed against the search volume index (SVI), market capitalization (MarketCap), trading volume (Volume), and return volatility (Volatility). All variables are expressed in natural logarithm as it enhances statistical properties of the residuals and enables direct interpretation.

$$Spread_{it} = \beta_0 + \beta_1 SVI + \beta_2 MarketCap + \beta_3 Volume + \beta_3 Volatility + \eta_i + \upsilon_{it}, \text{.....(1)}$$

β_0 is intercept, β_1, $\beta_2, and\ \beta_3$ are estimated coefficients of search volume index, market capitalization, trading volume, and return volatility respectively. η_i captures unobservable heterogeneity and υ_{it} captures disturbance. we apply correlations and panel regression along with graphical analysis. The stationarity of the variables is assessed using Augmented Dickey–Fuller test (lag order 7 for weekly data) and the results shown in Table 3 confirm stationarity of the variables. Density distribution of variables can be observed from Figure 2. Normal distribution of the residuals is assumed.

Table 3. ADF Test Statistics

	Spread	**SVI**	**MarketCap**	**Volume**	**Volatility**
Test Statistic	-38.17	-24.678	-17.03	-22.325	-94.37
p-value	0.01	0.01	0.01	0.01	0.01

Panel specific regressions along with pooled regression is conducted for recognizing heterogeneity across the companies and omitted variable bias. Panel regressions include fixed-effect, random-effect, and first-differencing estimate. As it is difficult to assume absence of relationship between firms and explanatory variables, fixed-effect estimate is preferred over random-effect. Moreover, Hausman test (Chi^2 = 363, df = 4, p-value <0.001) confirms that fixed effect is more efficient. Additionally, first differencing estimate, which effectively deals with serial correlation problem, has been used. Correlations presented in figure 2 confirm that econometric models are free from multicollinearity problem as correlations between pair of explanatory variables are less than 0.50. Breusch-

Pagan test and Breusch-Godfrey/Wooldridge tests are used to test heteroskedasticity and serial correlation. Newey-West HAC standard errors and covariances are employed in the estimation as these standard errors are robust for both heteroskedasticity and serial correlation problem.

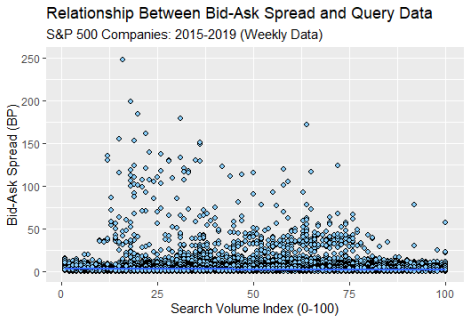
2.4 Results

Figure 1 presents visualization of names of the 100 companies which were searched most (SVI>=70) in Google during the study period. The font size of the words reflects the average of SVI. It can be immediately observed that companies name (i.e. mastercard and yum) were searched more relative to the companies (i.e. flir and ametek).

Figure 1: Word cloud for the company names of which weekly mean of SVI is at least 70. The font size of the company name is proportionate to the mean value of SVI. Larger font size indicates the company name, which is searched more often.



Figure 2: Scatterplot shows the interaction of search volume index (x-axis), and bid-ask spread in basis point (y-axis). Negative trend line indicates higher query data are associated with lower bid-ask spread.



Scatterplot in Figure-2 can be observed to approximate the relationship between bid-ask spread and SVI visually. Bid-ask spread tends to decrease as the relative number of query data for company name increases. Slightly negative trend line indicates that stocks of the more frequently searched companies are

likely to be traded in lower bid-ask spread. Though this negative trend line may not appear clear visually, it can be confirmed from Figure 3 by looking at the value of correlation between SVI and Spread (Pearson correlation coefficient r= -0.0282, df=112,317, p< 0.001). This correlation coefficient has been found statistically significant which implies that this relationship measured by sample data can be generalized for other samples. Positive correlation between SVI and volume implies higher attention reflected by SVI raises volume. Negative correlation between SVI and volatility suggests more searches generates more information which lessens volatility.

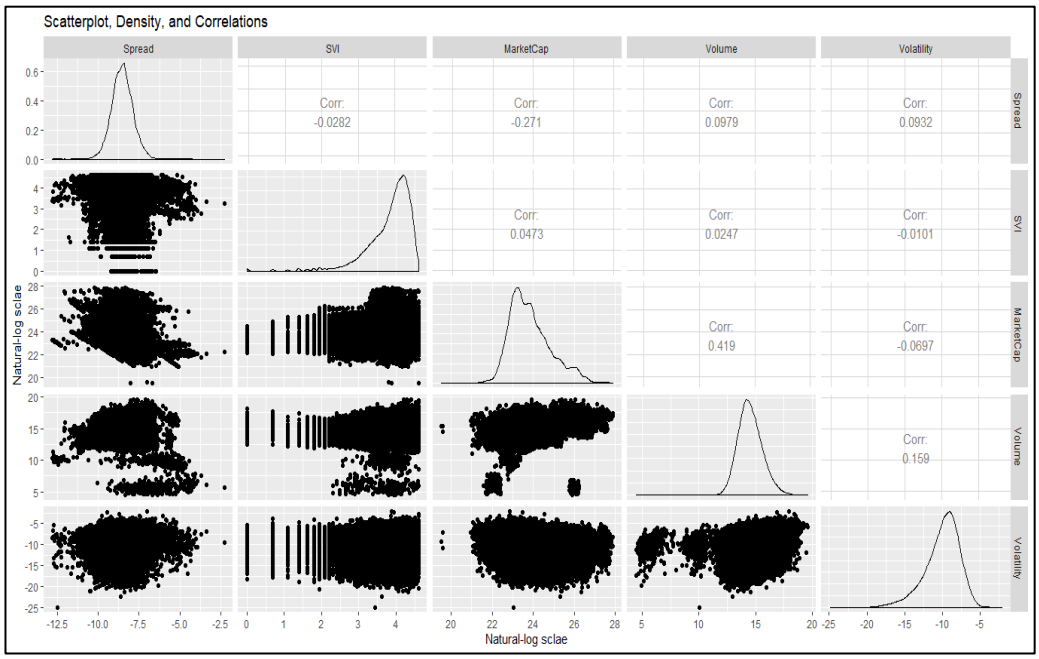


Figure-3 Left part exhibits the scatterplots of each pair of variables with log scale in both x-axis and y-axis. Right part displays the Pearson correlation coefficient between bid-ask spread and query data and other control variables. Density distribution of the variables is drawn on the diagonal which reflect left-skewed distribution of SVI. Negatively skewed distribution of SVI indicates that most of the companies are highly searched. All correlation coefficients are significant at 1% significance level.

The linkage between query data and bid-ask spread for one proxy of S&P 500 stocks - Microsoft Corporation can be analyzed from the Figure 4 where both variables have been plotted in correspondence with the date. In ending of the 2015, when the search volume index of Microsoft peaked, the bid-ask spread dropped. Conversely, when search volume index dropped before beginning of 2019, significant spiral of bid-ask spread happened. However, the significant correlation coefficient of 0.3645 between SVI and bid-ask spread testifies that two variables often move in same direction.

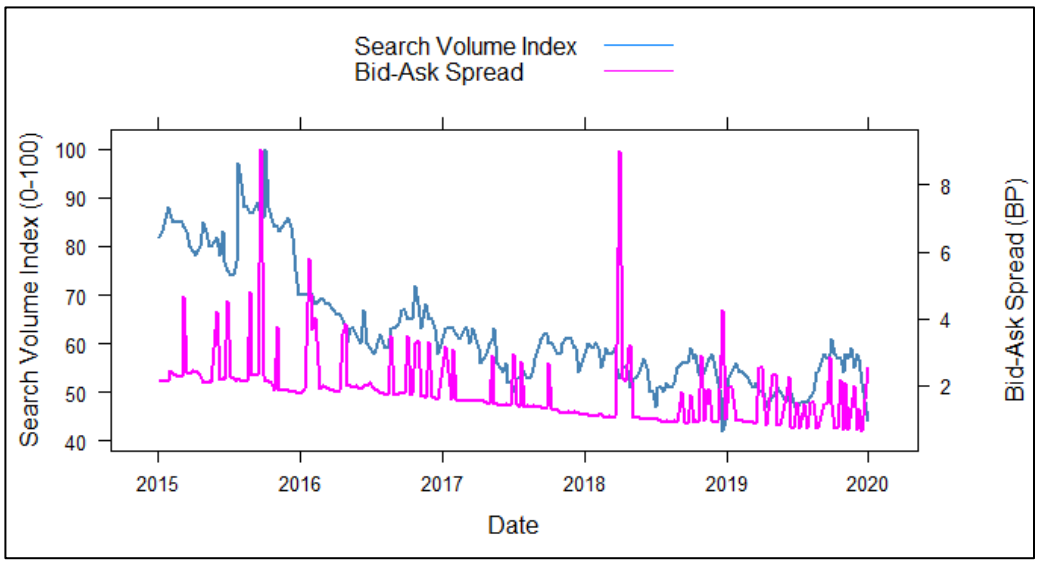


Figure-4. The relative number of queries for 'Microsoft' (Left Y axis) is plotted for the time period from 2015 to 2019. The bid-ask spread for Microsoft (Right Y axis) is shown for the same period. Noticeable co-movement of query data and spread over time can be observed.

Table-4 offers the coefficients along with standard error, estimated from the different models of panel regression. In addition, Table-5 exhibits the coefficients from fixed effect models based on the type of stocks.

Table 4. Bid-ask Spread and Query Data Panel Regression

Dependent variable: Bid-ask spread (Spread)	Pooling estimate	Fixed-effect estimate	Random-effect estimate	First-difference estimate
Search volume index (SVI)	-0.0185***	0.01345**	0.0077	0.0141*
	(0.0046)	(0.0064)	(0.0064)	(0.0084)
Market capitalization (MarketCap)	-0.2502***	-0.5135***	-0.4832***	-0.9730***
	(0.0066)	(0.0086)	(0.0081)	(0.0426)
Trading volume (Volume)	0.1413***	0.0221***	0.0340***	-0.0214***
	(0.0096)	(0.0044)	(0.0045)	(0.0041)
Return volatility (Volatility)	0.0081***	0.0058***	0.0053***	0.0021***
	(0.0012)	(0.0007)	(0.0007)	(0.0006)
Intercept	-4.4544***	N/A	2.5466***	0.0011
	(0.0902)		(0.2099)	(0.0019)
Observations	112,319	112,319	112,319	112,319
R2	0.1290	0.0758	0.0895	0.0049
Adjusted R^2	0.1290	0.0717	0.0894	0.0048

The number inside the parenthesis represents the Newey-West standard error. ***, **, and * indicate significance at 1%, 5%, and 10% significance level respectively.

3. Discussion and Conclusion

This study attempts to quantify the relationship between bid-ask spread of stocks and the query data for company name. The results in Table 4 and 5 suggest that regression model can explain considerable amount of variability in bid-ask spread with adjusted R^2 ranging between 7.17% and 12.90% except first-differencing estimate. The coefficient of query data measured by SVI has been found statistically significant in all regression models but random-effect estimate. Besides, when fixed-effect estimates are observed separately based on type of stocks in Table 5, it is evident that coefficient of query data is significant in determination of bid-ask spread of both large-cap and mid-cap stocks which in fact constitute the largest portion of whole sample.

The coefficient of the SVI is significantly negative in pooling regression which implies that higher level of attention reflected by SVI increases liquidity in the market which reduces bid-ask spread. These findings are consistent with findings of Ding and Hou (2015). In fixed-effect regression for large-cap stock,

similar findings suggest that low spread is caused by higher attention of investors measured by SVI. More search of company information reflected by SVI reduces information asymmetry and causes lower volatility. Bid-ask spread declines when volatility shrinks. Although coefficient of SVI shows negative sign across all type of stocks except mid-cap stocks, it is not statistically significant in case of mega-cap and small-cap stocks.

Table 5. Bid-ask Spread and Query Data Fixed-effect Regression by Stock Type

Dependent variable: Bid-ask spread (Spread)	**Mega-cap stocks**	**Large-cap stocks**	**Mid-cap stocks**	**Small-cap stocks**
Search volume index (SVI)	-0.0292	-0.0160**	0.0442***	-0.3557
	(0.0592)	(0.0080)	(0.0121)	(0.2820)
Market capitalization (MarketCap)	-0.3403***	-0.4700***	-0.5902***	-1.3292***
	(0.0669)	(0.0110)	(0.0235)	(0.4091)
Trading volume (Volume)	0.1942***	0.0193***	-0.0093	-0.0060
	(0.0297)	(0.0050)	(0.0092)	(0.0663)
Return volatility (Volatility)	-0.0022	0.0064***	0.0040***	0.0149
	(0.0042)	(0.0008)	(0.0015)	(0.0155)
Observations	4,533	84,652	23,038	96
R^2	0.0331	0.0450	0.0626	0.2100
Adjusted R^2	0.0256	0.0396	0.0534	0.1370

The number inside the parenthesis represents the Newey-West standard error. ***, **, and * indicate significance at 1%, 5%, and 10% significance level, respectively.

However, the positive coefficient of SVI in fixed-effect and first-difference regression for overall sample can be interpreted in following way. People search for more information of the companies when their sentiment - perception about future risks of companies, is high which can cause reduction in liquidity and spiral of volatility for the stock in market. This in turn results in higher bid-ask spread. This finding is further revealed in separate estimate for mid-cap stock. Apart from the SVI, coefficients of other control variables have been found statistically significant with expected sign. Stocks with higher market capitalization trade at lower spread for higher liquidity.

These findings are consistent with Preis, Reith and Stanley (2010) who assert that present attractiveness for trading stock is reflected by search volume but it does not reflect preference either for buying or selling transactions. If query data reflect optimism of people about the prospect and performance of the companies, higher search volume will reduce bid-ask spread. However, if query data rises for

concern over outlook of company, bid-ask spread will become higher for higher search volume.

Given the recent restrictions imposed by Google on retrieving more recent data using the R-based methodology (via the gtrendsR package), there is a compelling opportunity for future research in the same area. Such research can encompass analysis of texts that effectively indicate positive or negative interest for the company. Analysis of query data facilitates prediction for bid-ask spread movement in the financial market. The implications of this study extend beyond the academic interest. For market intermediaries, understanding the reflection of investor attention on bid-ask spread dynamics can suggest optimal pricing and risk management strategies. For regulators, the causal relation between information seeking behavior and market liquidity can guide policy decisions related to market structure and transparency requirements. For retail and institutional investors, awareness of how search behavior affects transaction costs can help in improving trading strategies.

References

Ahmed, M. F., & Ali, M. B. (2013). Efficiency in Bangladesh stock market behavior: empirical evidence. *Journal of Business Studies*, *34*(3), 79-103.

Aitken, M., & Frino, A. (1996). The determinants of market bid ask spreads on the australian stock exchange: Cross-sectional analysis. *Accounting & Finance*, *36*(1), 51-63. https://doi.org/10.1111/j.1467-629X.1996.tb00298.x

Baker, M., & Wurgler, J. (2007). Investor sentiment in the stock market. *Journal of economic perspectives*, *21*(2), 129-151. https://doi.org/ 10.1257/ jep.21.2.129

Bank, M., Larch, M., & Peter, G. (2011). Google search volume and its influence on liquidity and returns of German stocks. *Financial markets and portfolio management*, *25*, 239-264. https://doi.org/10.1007/s11408-011-0165-y

Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *The*

review of financial studies, *21*(2), 785-818. https://doi.org/ 10.1093/ rfs/hhm079

Bijl, Laurens, Glenn Kringhaug, Peter Molnár, and Eirik Sandvik. "Google searches and stock returns." *International Review of Financial Analysis* 45 (2016): 150-156. https://doi.org/10.1016/j.irfa.2016.03.015

Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of computational science*, *2*(1), 1-8. https://doi.org/ 10.1016/j.jocs.2010.12.007

Brochado, A. (2020). Google search based sentiment indexes. IIMB Management Review, 32(3), 325-335. https://doi.org/10.1016/j.iimb.2019.10.015

Copeland, T. E., & Galai, D. (1983). Information effects on the bid-ask spread. *the Journal of Finance*, *38*(5), 1457-1469. https://doi.org/ 10.1111/j.1540-6261.1983.tb03834.x

Da, Z., Engelberg, J., & Gao, P. (2011). In search of attention. *The journal of finance*, *66*(5), 1461-1499. https://doi.org/10.1111/j.1540-6261.2011. 01679.x

Da, Z., Engelberg, J., & Gao, P. (2015). The sum of all FEARS investor sentiment and asset prices. *The Review of Financial Studies*, *28*(1), 1-32. https://doi.org/10.1093/rfs/hhu072

Ding, R., & Hou, W. (2015). Retail investor attention and stock liquidity. *Journal of international financial markets, institutions and money*, *37*, 12-26. https://doi.org/10.1016/j.intfin.2015.04.001

Fang, L., & Peress, J. (2009). Media coverage and the cross-section of stock returns. *The journal of finance*, *64*(5), 2023-2052. https://doi.org/ 10.1111/ j.1540-6261.2009.01493.x

Fang, L., & Peress, J. (2009). Media coverage and the cross-section of stock returns. *The journal of finance*, *64*(5), 2023-2052. https://doi.org/10.1111/ j.1540-6261.2009.01493.x

Griffin, J. M., Hirschey, N. H., & Kelly, P. J. (2011). How important is the financial media in global markets?. *The Review of Financial Studies*, *24*(12), 3941-3992. http://dx.doi.org/10.2307/41302005

He, Z., He, L., & Wen, F. (2019). Risk compensation and market returns: The role of investor sentiment in the stock market. *Emerging Markets Finance and Trade*, *55*(3), 704-718. https://doi.org/10.1080/1540496X.2018.1460724

Huang, M. Y., Rojas, R. R., & Convery, P. D. (2020). Forecasting stock market movements using Google Trend searches. *Empirical Economics*, *59*, 2821-2839. https://doi.org/10.1007/s00181-019-01725-1

Joseph, K., Wintoki, M. B., & Zhang, Z. (2011). Forecasting abnormal stock returns and trading volume using investor sentiment: Evidence from online search. *International Journal of Forecasting*, *27*(4), 1116-1127. https://doi.org/10.1016/j.ijforecast.2010.11.001

Joseph, K., Wintoki, M. B., & Zhang, Z. (2011). Forecasting abnormal stock returns and trading volume using investor sentiment: Evidence from online search. *International Journal of Forecasting*, *27*(4), 1116-1127. https://doi.org/10.1016/j.ijforecast.2010.11.001

Joseph, K., Wintoki, M. B., & Zhang, Z. (2011). Forecasting abnormal stock returns and trading volume using investor sentiment: Evidence from online search. *International Journal of Forecasting*, *27*(4), 1116-1127. https://doi.org/10.1016/j.ijforecast.2010.11.001

Kostopoulos, D., Meyer, S., & Uhr, C. (2020). Google search volume and individual investor trading. Journal of Financial Markets, 49, 100544. https://doi.org/10.1016/j.finmar.2020.100544

Li, Q., Wang, T., Li, P., Liu, L., Gong, Q., & Chen, Y. (2014). The effect of news and public mood on stock movements. *Information Sciences*, *278*, 826-840. https://doi.org/10.1016/j.ins.2014.03.096

Menyah, K., & Paudyal, K. (1996). The determinants and dynamics of bid-ask spreads on the London Stock Exchange. *Journal of Financial Research*, *19*(3), 377-394. https://doi.org/10.1111/j.1475-6803.1996. tb00 220.x

Mian, G. M., & Sankaraguruswamy, S. (2012). Investor sentiment and stock market response to earnings news. *The Accounting Review*, *87*(4), 1357-1384. https://doi.org/10.2308/accr-50158

Moat, H. S., Curme, C., Avakian, A., Kenett, D. Y., Stanley, H. E., & Preis, T. (2013). Quantifying Wikipedia usage patterns before stock market moves. *Scientific reports*, *3*(1), 1801. https://doi.org/10.1038/srep01801

Preis, T., Moat, H. S., & Stanley, H. E. (2013). Quantifying trading behavior in financial markets using Google Trends. *Scientific reports*, *3*(1), 1-6. https://doi.org/10.1038/srep03578

Preis, T., Reith, D., & Stanley, H. E. (2010). Complex dynamics of our economic life on different scales: insights from search engine query data. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *368*(1933), 5707-5719. https://doi.org/10.1098/rsta.2010.0284

Shiller, R. J. (2003). From efficient markets theory to behavioral finance. *Journal of economic perspectives*, *17*(1), 83-104. https://doi.org/10.1257/089533003321164967

Stoll, H. R. (2003). Market microstructure. In *Handbook of the Economics of Finance* (Vol. 1, pp. 553-604). Elsevier. https://doi.org/10.1016/S1574-0102(03)01013-6

Swamy, V., & Dharani, M. (2019). Investor attention using the Google search volume index–impact on stock returns. *Review of Behavioral Finance*, *11*(1), 56-70. https://doi.org/10.1108/RBF-04-2018-0033

Yang, S., Santillana, M., & Kou, S. C. (2015). Accurate estimation of influenza epidemics using Google search data via ARGO. *Proceedings of the National Academy of Sciences*, *112*(47), 14473-14478. https://doi.org/10.1073/pnas.1515373112

Yang, S., Santillana, M., & Kou, S. C. (2015). Accurate estimation of influenza epidemics using Google search data via ARGO. *Proceedings of the National Academy of Sciences*, *112*(47), 14473-14478. https://doi.org/10.1073/pnas.1515373112

Appendices

Appendix: Figure i

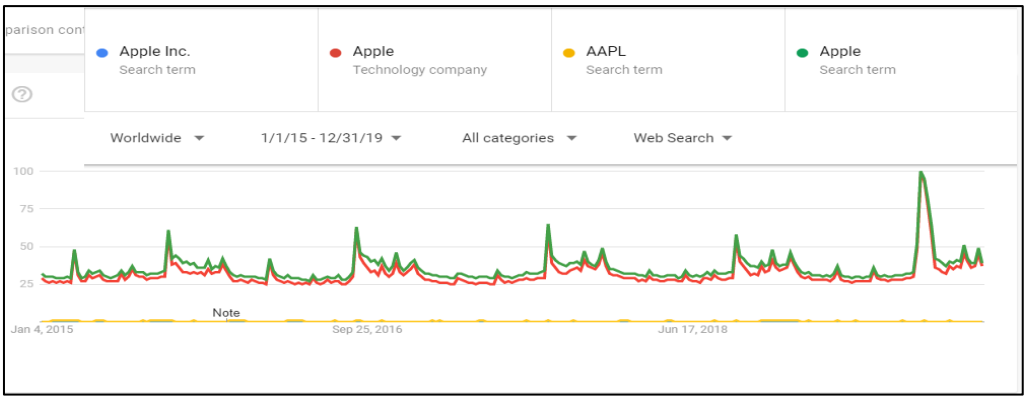


Figure i. The line chart for the relative number of queries for "Apple Inc.", "Apple", "AAPL", and "Apple" keywords for the time period from January 1, 2015, to December 31, 2019. It has been taken from Google Trends. Very poor search volume for exact company name and ticker name can be observed. Besides strong co-movement of query data for optimized keyword – Apple and query data for generic name – Apple can be noticed.

Appendix Table i. Type of stock based on the category of market capitalization

Type of Stock	Market Capitalization Range
Mega-cap	More than $200 billion
Large-cap	$10 billion to $200 billion
Mid-cap	$2 billion to $10 billion
Small-cap	$300 million to $2 billion
Micro-cap	$50 million to $300 million

Appendix Table ii. List of a portion of companies along with their ticker and keyword

Company	Ticker	Keyword
Microsoft Corporation	MSFT	"microsoft"
Apple Inc.	AAPL	"apple"
Amazon.com Inc.	AMZN	"amazon"
Facebook Inc. Class A	FB	"facebook"
Berkshire Hathaway Inc. Class B	BRK.B	"berkshire hathaway"
Alphabet Inc. Class A	GOOGL	"alphabet"
Alphabet Inc. Class C	GOOG	"google"
JPMorgan Chase & Co.	JPM	"jp morgan"
Johnson & Johnson	JNJ	"johnson and johnson"
Visa Inc. Class A	V	"visa"
Procter & Gamble Company	PG	"procter gamble"
Mastercard Incorporated Class A	MA	"mastercard"
AT&T Inc.	T	"at&t"
UnitedHealth Group Incorporated	UNH	"unitedhealth"
Intel Corporation	INTC	"intel"
Home Depot Inc.	HD	"home depot"
Bank of America Corp	BAC	"bank of america"
Verizon Communications Inc.	VZ	"verizon"
Exxon Mobil Corporation	XOM	"exxon mobil"
Walt Disney Company	DIS	"disney"
Coca-Cola Company	KO	"coca cola"
Merck & Co. Inc.	MRK	"merck"
Comcast Corporation Class A	CMCSA	"comcast"
Pfizer Inc.	PFE	"pfizer"
PepsiCo Inc.	PEP	"pepsico"
Chevron Corporation	CVX	"chevron"
Cisco Systems Inc.	CSCO	"cisco systems"
Adobe Inc.	ADBE	"adobe systems"
NVIDIA Corporation	NVDA	"nvidia"
Netflix Inc.	NFLX	"netflix"
Walmart Inc.	WMT	"wal mart"
Wells Fargo & Company	WFC	"wells fargo"
salesforce.com inc.	CRM	"salesforce"
Boeing Company	BA	"boeing"

Company	Ticker	Keyword
McDonald's Corporation	MCD	"mcdonalds"
Citigroup Inc.	C	"citigroup"
Abbott Laboratories	ABT	"abbott laboratories"
Bristol-Myers Squibb Company	BMY	"bristol myers"
Medtronic Plc	MDT	"medtronic"
Costco Wholesale Corporation	COST	"costco"
PayPal Holdings Inc	PYPL	"paypal"
Philip Morris International Inc.	PM	"philip morris"
AbbVie Inc.	ABBV	"abbvie"
NextEra Energy Inc.	NEE	"nextera energy"
Amgen Inc.	AMGN	"amgen"
Thermo Fisher Scientific Inc.	TMO	"thermo fisher"
Accenture Plc Class A	ACN	"accenture"
International Business Machines Corporation	IBM	"ibm"
Honeywell International Inc.	HON	"honeywell"
NIKE Inc. Class B	NKE	"nike"

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 204-231)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20255

Country Governance and Corporate Social Responsibility Reporting: Empirical Evidence from Developing Countries

- Md. Shahid Ullah*

Abstract

This study empirically investigates the under-researched relationship between country governance and Corporate Social Responsibility (CSR) Reporting in developing economies. Employing a large longitudinal dataset, the study demonstrate a significant positive association between country-level governance variables and the extent of CSR disclosure, affirming the critical role of national governance efficacy in driving corporate transparency. This analysis reveals that effective governance mechanisms, particularly those fostering accountability and regulatory quality, are pivotal in catalysing CSR reporting in contexts marked by stakeholder pressure deficits. By highlighting the interplay between country governance and CSR disclosure, this study offers crucial insights for policymakers and practitioners aiming to enhance corporate accountability and sustainable development in emerging markets.

Keywords: Country Governance**,** Corporate Social Responsibility (CSR)**,** CSR Reporting**,** Developing Countries
JEL Classification: M14, M41

1. Introduction

Global pressures arising from the COVID-19 pandemic, climate change, conflict, human rights issues, and corporate misconduct have increased global consciousness and demands for corporate environmental, social, and ethical accountability and disclosure across the globe (Kamal & Deegan, 2013; Reverte, 2009). Such pressures may come from private/market actors (Berthelot et al., 2003), the public /government (Talbot & Boiral, 2015), and the actors in the global marketplace. Governance takes care of the interests of the stakeholders rather than the stockholders only. The rights and responsibilities of stakeholders are at the centre of governance. By promoting transparency and accountability (Hossain & Alam, 2016), governance acts as a watchdog to engender socially

*Md. Shahid Ullah, Ph.D. is an Associate Professor, Bangladesh Institute of Bank Management (BIBM), Dhaka, Bangladesh, Email: shahid@bibm.org.bd. The views expressed in this paper are the author's own.

responsible behaviour from businesses (Freeman et al., 2010). Good governance fosters trust, accountability, and transparency, creating a responsible environment that promotes long-term investment, financial stability, and ethical business practices, ultimately driving sustainable growth and inclusive development. Governance promotes corporate social responsibility (CSR) and reporting thereof (Aguilera & Cuervo-Cazurra, 2004).

Developing countries often face inefficient markets, weak governance, poor law enforcement, widespread corruption, and limited influence from civil society (Rodríguez et al., 2014; Khanna & Palepu, 2010), and face hardships such as poverty, malnutrition, severe illnesses, lack of education, joblessness, corruption, environmental degradation, and susceptibility to natural disasters (Khavul & Bruton, 2013; Idemudia, 2009). As their problems are different from those of developed countries, their priorities are also different from those of developed countries. Despite numerous socioeconomic problems, developing countries[1] are going to represent 60% of the world economies[2] and 85% of the world population[3] by 2030. Some eleven4out of seventeen sustainable development goals (SDGs) are closely tied to the well-being of most people in developing nations, these countries provide a crucial setting for research. Therefore, examining governance through multilevel and multi-stakeholder perspectives is essential (Frynas & Yamahaki, 2016; Aguinis & Glavas, 2012) to promote accountability and transparency through CSR disclosures.

Despite increasing attention to how country governance influences CSR reporting, there remains a lack of research, particularly in developing countries. Although very few studies (e.g. Baldini et al., 2018; Ghoul et al., 2017) examined how country characteristics, particularly governance, influence CSED in

[1] Developing countries refer to emerging markets and economies, as defined in the International Monetary Fund's World Economic Outlook (IMF, 2016, pp. 145-7)

[2]http://www.oecd.org/dev/pgd/economydevelopingcountriessettoaccountfornearly60ofworldgdpby2030accordingtonewestimates.htm (accessed on January 12, 2018)

[3]http://www.un.org/ga/Istanbul+5/bg10.htm (accessed on Janauary12, 2018)

[4]'no poverty' (Goal 1), 'zero hunger' (Goal 2), 'good health and well-being' (Goal 3), 'quality education' (Goal 4), 'gender equality' (Goal 5), 'clean water and sanitation' (Goal 6), 'affordable and clean energy' (Goal 7), 'decent work and economic growth' (Goal 8), 'reduced inequalities' (Goal 10), 'climate action' (Goal 13), 'peace, justice and strong institutions' (Goal 16)

developed nations. However, to our knowledge, no empirical research has explored the impact of country governance on CSED in the emerging economies. Hence, this study empirically explores the overlooked link between country governance and the degree of CSED in developing nations.

We find a strong positive link between country governance and the extent of CSED. This highlights that effective country-level governance plays a crucial role in the success of global governance (Chen & Bouvain, 2009).

The study offers empirical evidence that country-level governance are effective in catalysing CSED in developing countries. The key implications of our work and contributions are related to the apparent lack of motivation and effective stakeholder pressure for the social and environmental causes in developing nations that make businesses accountable.

Following this introduction, we examine prior research and propose hypotheses (Section-2), detail the research design (Section-3), present and analyse findings (Sections-4 & 5), and conclude the paper (Section-6)

2. Literature Review and Development of Hypotheses

In this section, literature regarding the association between country governance and CSR reporting has been reviewed to understand the nature of the relationship and to develop hypotheses. Key country governance indicators include accountability, political stability, regulatory efficiency, corruption control, governance effectiveness, and adherence to the rule of law.

2.1 Voice and Accountability (VA) and CSR Reporting

Voice and accountability reflect the perceived extent of citizens' involvement in choosing their government, along with their rights to freedom of expression, association, and press. (Kaufmann et al., 2011, p. 222). Democratic governments and systems, and press freedom support social and environmental reporting (De Villiers & Marques, 2016) by compelling businesses to be accountable, responsible, and transparent (Newell & Frynas, 2007). Previous studies show that a society characterized by high voice and accountability increases corporate transparency expectations, thus pressuring firms towards responsible disclosure

(Zhao, 2022). Newell and Frynas (2007) emphasize that the **a**ccountability imposed by democratic systems fosters corporate responsibility and enhances stakeholders' engagement with CSR initiatives (Camilleri, 2016). Moreover, Simnett, Vanstraelen, and Chua (2009) underline that democratic governance instills greater confidence in the public regarding their rights, enhancing overall accountability in corporate practices (Chan et al., 2020). CSR reporting has a positive relationship with voice and accountability. (Hu & Scholtens, 2014), media and powerful lobby groups (Belal & Owen, 2007).

2.2 Political Stability and Absence of Violence (PV) and CSR Reporting

Political stability and absence of violence/terrorism reflect the perceived risk of government destabilization through unconstitutional or violent means, including political violence and terrorism (Kaufmann et al., 2011, p. 222). Political stability reduces risks, enabling companies to focus on long-term investments in CSR activities without the hindrance of political instability or violence. Research indicates that political stability creates an environment where CSR can thrive, allowing for a focus on sustainable corporate practices (Tien et al., 2019; Rashid, 2018). These conclusions are reinforced by the notion that stability nurtures a climate of trust between governments and businesses, catalyzing CSR activities (Zeng, 2019).

2.3 Governance Effectiveness (GE) and CSR Reporting

Government effectiveness reflects perceptions of public service quality, civil service independence from political influence, policy formulation and implementation quality, and the government's policy commitment credibility (Kaufmann et al., 2011, p. 222). Research indicates that when governments fail to provide effective public services, businesses may assume state roles, fill institutional voids, and disclose more CSR information (Amaeshi et al., 2016; Doh et al., 2017; Ghoul et al., 2017; Healy & Serafeim, 2016). Hence, the pressure to compensate for governmental shortcomings results in heightened CSR disclosures among firms operating in environments with less effective governance.

2.4 Regulatory Quality (RQ) and CSR Reporting

Regulatory quality reflects perceptions of the government's ability to develop and enforce policies that support private sector growth, along with respect for institutions governing economic and social interactions. (Kaufmann et al., 2011, p. 222). When governments effectively formulate and implement policies, firms are more likely to invest in CSR and disclose initiatives transparently (El-Bassiouny & El-Bassiouny, 2019). Regulatory frameworks are essential in ensuring corporate compliance with social and environmental norms. Research shows that legislation can significantly enhance CSR reporting among companies by establishing mandatory disclosure requirements and penalties for non-compliance (Ayamga et al., 2024). Therefore, effective regulatory quality not only promotes a competitive business environment but also incentivizes investment in CSR practices.

2.5 Rule of Law (RL) and CSR Reporting

The Rule of Law (RL) reflects perceptions of confidence in societal rules, adherence to them, and the quality of contract enforcement, property rights, policing, courts, and crime likelihood. (Kaufmann et al., 2011, p. 222). Research shows that where laws primarily protect powerful financial stakeholders, firms are less willing to disclose sensitive CSR information fearing backlash (Grabner-Kräuter et al., 2020). Businesses in regulated countries refrain from disclosing unnecessary information to prevent negative publicity and regulatory scrutiny. (Belal & Cooper, 2011; Kirsch, 2018). The rule of law is essential for ensuring equitable stakeholder engagement and fostering an environment conducive to CSR practices.

2.6 Control of Corruption (CC) and CSR Reporting

Control of Corruption is the public power used for personal benefits, including minor and major corruption, along with state capture by powerful elites and private entities (Kaufmann et al., 2011, p. 222). Corruption negatively impacts CSR reporting in emerging countries (Agyei-Mensah, 2017; Lopatta et al., 2017; Wu, 2014; Ioannou & Serafeim, 2012; Azmat & Coghill, 2005). Wu (2014) finds the widespread corruption in local authorities increases the

likelihood of irresponsible corporate social and environmental behaviour. In a study of Botswana and Ghana, Agyei-Mensah (2017) observes that firms in less corrupt countries disclose more forward-looking information. . Lopatta et al. (2017) show a negative relationship between CSR performance and corporate corruption risk. Similarly, Ioannou and Serafeim (2012) highlight a positive link between corruption control and CSR reporting.

Studies suggest that lower corruption levels facilitate higher standards of corporate governance, thereby nurturing a culture of CSR (Ali et al., 2023). Ioannou and Serafeim (2012) ascertain that effective corruption controls correlate positively with enhanced CSR disclosures, reinforcing the premise that companies operate more transparently when corruption is minimized (Ji et al., 2019). Additionally, corruption undermines the civil society's ability to hold businesses accountable, further emphasizing the need for stringent controls to promote responsible corporate behaviour.

Based on the literature review, the following hypotheses are proposed:

Hypothesis 1 (H1): A positive association exists between country governance and CSR reporting in developing countries.

Hypothesis 2 (H2): A positive association exists between voice and accountability (VA) and CSR reporting in developing countries.

Hypothesis 3 (H3): A positive association exists between political stability and absence of violence (PV) and CSR reporting in developing countries.

Hypothesis 4 (H4): A positive association exists between governance effectiveness (GE) and CSR reporting in developing countries.

Hypothesis 5 (H5): A positive association exists between regulatory quality (RQ) and CSR reporting in developing countries.

Hypothesis 6 (H6): A positive association exists between the rule of law (RL) and CSR reporting in developing countries.

Hypothesis 7 (H7): A positive association exists between control of corruption (CC) and CSR reporting in developing countries.

3. Research method

3.1 Data

The analysis uses data from various sources, including the Bloomberg ESG database, the World Bank's Worldwide Governance Indicators, and others. The corporate social and environmental disclosure score (average of Bloomberg's environmental and social scores), firm-specific control variables (ROA, firm size, leverage, market-to-book value) are sourced from Bloomberg ESG. Country-specific governance variables are from the World Bank's Worldwide Governance Indicators, while GDP per capita data is obtained from the World Bank website.

3.2 Bloomberg Environmental, Social, and Governance (ESG) Data

The average of the Environmental Disclosure Score (EDS) and social disclosure score (SDS) from the Bloomberg ESG database is used as a proxy for a company's CSR disclosure level. These scores reflect the volume of social and environmental data reported publicly, without assessing the company's performance. The variables are winsorized at the 1% and 99% levels. The Bloomberg ESG database is widely used in analyzing sustainability and social responsibility disclosures (Li et al., 2018; Husted & Sousa-Filho, 2017; Giannarakis, Konteos, & Sariannidis, 2014). Prior CSR research also uses ESG performance data (e.g., Asset4 and KLD) instead of disclosure scores (Luo et al., 2015; Cheng, Ioannou, & Serafeim, 2014; Ioannou & Serafeim, 2012). We choose the Bloomberg ESG database over ASSET4 or KLD (the most common) because the focus of the study is on the relationship between governance levels and CSR disclosure, rather than CSR performance or rating (see Ioannou & Serafeim, 2015).

The Bloomberg environmental, social, and governance (ESG) disclosure score, ranging from 0 to 100, measures transparency rather than performance. A higher score reflects more disclosed information. The Bloomberg ESG data includes 120 indicators covering areas such as energy, emissions, waste, climate change, pollution, supply chain, political contributions, discrimination, diversity,

community relations, human rights, women on boards, independent directors, executive compensation, and shareholder rights**.**

3.3 Worldwide Governance Indicators of the World Bank

The World Bank's country-level governance ratings have been adopted as a proxy for governance, as used in prior studies ((Kaufmann, Kraay, & Mastruzzi, 2010); (Seifert & Gonenc, 2018; e.g., Rachisan, Bota-Avram, & Grosanu, 2017).. The World Bank defines governance as "the traditions and institutions by which authority in a country is exercised, including (a) the process of selecting, monitoring, and replacing governments; (b) the government's capacity to formulate and implement effective policies; and (c) the respect for institutions governing economic and social interactions" (Kaufmann, Kraay, & Mastruzzi, 2010, p. 4).

These indicators are derived from hundreds of variables across over 200 countries and 31 data sources, reflecting governance perceptions from surveys, NGOs, business information providers, and public sector organizations worldwide since 1996, with annual updates. The values range from -2.5 (weak) to 2.5 (strong). In response to criticisms about perceptions-based data, Kaufmann et al. (2010) highlight its value in measuring governance and note:

> "Perceptions matter because agents base their actions on their perceptions, impression, and views. If citizens believe that the courts are inefficient or the police are corrupt, they are unlikely to avail themselves of their services. … Second, in many areas of governance, there are few alternatives to relying on perceptions data. For instance, this has been particularly the case for corruption, which almost by definition leaves no 'paper trail' that can be captured by purely objective measures" (Kaufmann, et. al., 2010, p. 18).

3.4 Sample

Panel A of Appendix Table 1 illustrates the sample selection process. After removing the missing values from the initial dataset of 18,918 firm-year observations, we got 10,597 firm-year observations. Panels B and C of Appendix

Table 1 show the number of observations by year and country, respectively. Panel B reveals an increasing trend in observations, from 1.90% in 2010 to 16.18% in 2018. However, the 2019 sample drops to 930 (8.77%) compared to 1,715 (16.18%) in 2018, likely due to incomplete data for that year, despite data for 2019 being collected in December 2017. Panel C shows that the sample covers 45 developing countries, with the majority from the BRICS nations: China, India, Brazil, South Africa, and Russia).

3.5 Measurements

3.5.1 Measurement of CSED Score

The Corporate Social and Environmental Disclosure (CSED) score is calculated as the average of Bloomberg's environmental and social disclosure scores, following prior studies (e.g., Ghoul, Guedhami, & Kim, 2017; Luo et al., 2015; Ioannou & Serafeim, 2012). The social disclosure score ranges from 0.1 for minimal disclosure to 100 for full disclosure of Bloomberg's data points, with workforce data weighted more heavily. It is industry-specific, assessing only relevant disclosures. Similarly, the environmental disclosure score ranges from 0.1 to 100, with higher weights for key data like greenhouse gas emissions. Both scores reflect the extent of public disclosure, not performance. The CSED score is normalised by dividing by 100, scaling it between 0 and 1.

3.5.2 Measurement of Country Governance Score (COUNTRY_GOV)

The country-level governance score (COUNTRY_GOV) has been calculated by averaging the six World Bank governance indicators for each specific country and year in accordance with prior studies (Seifert & Gonenc, 2018; e.g., Rachisan, Bota-Avram, & Grosanu, 2017).

3.6 Model Specification and Variable Description

Regression analysis is employed to explore the connection between CSED and country governance. To ensure the validity of the model,

multicollinearity using the correlation matrix and the variance inflation factor (VIF)[5] has been assessed. The regression model is as follows:

$$CSEDS_{it} = \alpha + \beta_1 COUNTRY_GOV_{jt} + \beta_2 ROA_{it} + \beta_3 FSIZE_{it} + \beta_4 MTB_{it} + \beta_5 LEV_{it} + \beta_6 LNGDP_{jt} + \beta_7 INDUSTRYDUMMIES + \beta_8 YEARDUM + \varepsilon_{it}$$

Where,

CSEDSit = Corporate social and environmental disclosure score of firm *i* at time *t*;

COUNTRY_GOVjt = Indicator of country-level governance for country *j* at time *t*;

ROAit = Ratio of earnings before interest and taxes to total assets for firm *j* at time *t*;

FSIZEit = Natural logarithm of total assets for firm *j* at time *t*;

MTBit = Ratio of a firm's market value of stock to its book value at time *t*;

LEVit = Ratio of total debt (book value) to total assets for firm *j* at time *t*;

LNGDPjt = Natural logarithm of per capita gross domestic product (GDP) at current prices for country *j* at time *t*.

4. Results

4.1 Descriptive Statistics

Table 1: Descriptive Statistics

Panel A: Descriptive statistics of dependent and independent variables								
Variable	**No of Obs.**	**Mean**	**Median**	**SD**	**Q_1**	**Q_3**	**Min**	**Max**
CSEDS	10597	0.22	0.17	0.13	0.13	0.27	0.02	0.81
COUNTRY_GOV	10597	-0.32	-0.42	0.35	-0.56	-0.22	-1.11	1.12
ROA	10597	0.08	0.07	0.07	0.03	0.11	-0.14	0.22
FSIZE	10597	21.23	21.25	1.66	20.10	22.38	17.80	24.64
MTB	10597	2.55	1.92	2.00	1.09	3.35	0.39	7.85
LEV	10597	0.52	0.53	0.19	0.38	0.67	0.15	0.93
LNGDP	10597	8.50	8.75	0.79	8.15	9.00	6.29	11.45

[5] None of the variables have a variance inflation factor (VIF) value in excess of 10 (Neter, Wasserman, & Kutner, 1983), suggesting that multicollinearity is not a problem in interpreting the regression results.

Table 1: Panel B: Governance Score and CSED Score by Year

Year	COUNTRY_GOV (Mean)	CSEDS (Mean)
2010	-0.16	0.13
2011	-0.26	0.16
2012	-0.29	0.17
2013	-0.43	0.17
2014	-0.33	0.18
2015	-0.36	0.19
2016	-0.35	0.20
2017	-0.30	0.21
2018	-0.30	0.21
2019	-0.26	0.26

Table 1: Panel C: Descriptive Statistics – CSEDS by Country

Countries	CSEDS		COUNTRY_GOV	
	Mean	SD	Mean	SD
Argentina	0.30	0.14	-0.32	0.07
Bangladesh	0.20	0.07	-0.85	0.05
Bermuda	0.19	0.12	1.10	0.03
Bosnia and Herzegovin	0.16	0.03	-0.28	0.09
Botswana	0.33	0.05	0.68	0.03
Brazil	0.41	0.17	0.00	0.09
Bulgaria	0.09	0.01	0.22	0.02
Chile	0.34	0.12	1.11	0.03
China	0.18	0.06	-0.51	0.05
Colombia	0.40	0.12	-0.26	0.07
Croatia	0.40	0.12	0.42	0.03
Egypt	0.17	0.02	-0.86	0.08
Hungary	0.45	0.19	0.66	0.14
India	0.15	0.13	-0.28	0.05
Indonesia	0.25	0.12	-0.33	0.11
Jordan	0.28	0.07	-0.06	0.06
Kazakhstan	0.09	0.02	-0.56	0.11
Kenya	0.38	0.04	-0.62	0.07
Kuwait	0.22	0.08	-0.12	0.10
Malaysia	0.23	0.12	0.34	0.08
Mauritius	0.24	0.08	0.84	0.01
Mexico	0.38	0.14	-0.19	0.06
Mongolia	0.29	0.05	-0.08	0.10
Morocco	0.25	0.01	-0.32	0.01
Nigeria	0.20	0.06	-1.07	0.04
Oman	0.31	0.06	0.17	0.04
Pakistan	0.18	0.11	-1.07	0.04

Countries	CSEDS		COUNTRY_GOV	
	Mean	SD	Mean	SD
Panama	0.18	0.12	0.13	0.05
Peru	0.28	0.08	-0.21	0.07
Philippines	0.28	0.14	-0.36	0.13
Poland	0.30	0.13	0.83	0.07
Qatar	0.17	0.16	0.55	0.07
Romania	0.38	0.16	0.15	0.06
Russia	0.29	0.13	-0.73	0.02
Saudi Arabia	0.26	0.13	-0.24	0.35
Serbia	0.43	0.04	-0.04	0.10
South Africa	0.35	0.14	0.23	0.05
Sri Lanka	0.30	0.13	-0.28	0.14
Thailand	0.33	0.18	-0.31	0.03
Turkey	0.31	0.13	-0.15	0.13
Ukraine	0.32	0.09	-0.71	0.12
United Arab Emirates	0.21	0.11	0.60	0.07
Uruguay	0.20	0.03	0.84	0.04
Vietnam	0.21	0.09	-0.47	0.06
Zambia	0.21	0.01	-0.29	0.06

Table-1 exhibits the the descriptive statistics. The CSED scores range from 0 to 100, but they are normalized to a scale between 0 and 1. Panel A summarizes the descriptive statistics for key dependent and independent variables based on 10,597 observations. The average CSED score (CSEDS) is 0.22, with a median of 0.17, indicating that disclosure levels in developing countries remain low. The scores vary between a minimum of 0.07 and a maximum of 0.81, with a standard deviation (SD) of 0.13, suggesting moderate variation among firms. The country-level governance score (COUNTRY_GOV) has an average of -0.33 and an SD of 0.35, reflecting significant differences in governance quality across nations. The negative governance score highlights weak governance structures in developing countries.

Return on assets (ROA) has a mean value of 0.08, with some firms recording negative figures. Firm size (FSIZE), measured as the natural logarithm of total assets, averages 21.20. The market-to-book ratio (MTB) demonstrates considerable variation, with a mean of 2.55 and an SD of 2.00. Leverage (LEV) has an average of 0.52, indicating that firms generally finance more than half of their assets through debt. The log of GDP per capita (LNGDP) has an average value of 8.50, ranging from 6.30 to 11.45.

Panel B outlines the annual trends in COUNTRY_GOV and CSEDS from 2010 to 2019. The governance score declines from -0.16 in 2010 to -0.437 in 2013 before partially recovering to -0.26 by 2019. Conversely, the mean CSEDS exhibits a steady increase, rising from 0.13 in 2010 to 0.26 in 2019, indicating an overall enhancement in corporate disclosure practices.

Panel C details country-wise variations in CSEDS and COUNTRY_GOV. CSED scores differ significantly, with Bulgaria and Kazakhstan recording the lowest values (0.09), while Hungary (0.45) and Serbia (0.43) show the highest levels of disclosure. COUNTRY_GOV also varies widely, with Nigeria and Pakistan scoring the lowest (-1.07), whereas Bermuda (1.10) and Chile (1.11) report the highest governance ratings.

Table 2: Correlation Matrix

Variables	CSEDS	COUNTRY_GOV	ROA	FSIZE	MTB	LEV	LNGDP
CSEDS	1						
COUNTRY_GOV	0.336***	1					
ROA	0.120***	0.081***	1				
FSIZE	0.405***	0.103***	-0.084***	1			
MTB	-0.009	-0.082***	0.342***	-0.168***	1		
LEV	-0.011	0.012	-0.268***	0.212***	-0.114***	1	
LNGDP	0.295	0.233***	-0.153***	0.415***	0.047***	-0.114***	1

Table-2 presents the correlation matrix among key variables, illustrating the strength and direction of their relationships. The CSEDS exhibits a significant positive correlation with country-level governance (COUNTRY_GOV) (r = 0.336, ***p < 0.01***), firm size (FSIZE) (r = 0.405), return on assets (ROA) (r = 0.120), and GDP per capita (LNGDP) (r = 0.295). Conversely, CSEDS has weak negative correlations with market-to-book ratio (MTB) (r = -0.009) and leverage (LEV) (r = -0.011). These relationships highlight the potential influence of firm- and country-level factors on corporate social and environmental disclosures.

4.2 Multivariate Regression Analysis

Table-3 presents the regression outcomes. CSEDS is used as the dependent variable. In Model 1, we observe a significant positive coefficient ($\beta = 0.0882$, $p<0.01$) for country-level governance, indicating that improved governance is

associated with higher CSED. Additionally, all control variables show significant and anticipated signs. Results imply that stronger governance contributes to greater CSED in developing countries. Thus, the hypothesis, which suggests a significant positive link between country governance and CSER, is supported.

Model-2 presents the regression results with CSEDS as the dependent variable, excluding Chinese firms from the sample, as they represent a large portion (around 49%) of the total sample. This test aims to assess the robustness of the results. In Model 2, the coefficient for country-level governance ($\beta = 0.018$, $p<0.01$) remains positive and significant, although smaller in magnitude compared to Model 1, suggesting that better governance still promotes higher corporate social and environmental disclosure (CSED). Furthermore, all control variables maintain their expected signs, with firm size (FSIZE) and GDP (LNGDP) showing strong positive correlations with CSED. These findings support our hypothesis that country governance significantly affects CSER, even when excluding China, demonstrating the robustness of our results across various samples.

Table 3: Regression results[6] using CSEDS as the dependent variable

	Model 1	**Model 2 (Excluding firms from China)**
VARIABLES	CSEDS	CSEDS
Constant	-0.3891***	-0.639***
	(-17.997)	(-19.000)
COUNTRY_GOV	0.0882***	0.018***
	(21.337)	(3.186)
ROA	0.2022***	0.095***
	(11.173)	(3.511)
FSIZE	0.0241***	0.026***
	(26.751)	(19.798)
MTB	0.002***	0.004***
	(3.160)	(3.959)
LEV	-0.0148**	-0.007
	(-2.270)	(-0.701)

[6] Our findings are unaffected by multicollinearity, as none of the variables exhibit a variance inflation factor (VIF) value in excess of 10 (Neter, Wasserman, & Kutner, 1983) weak correlation between the decision variables (see table 3).

	Model 1	Model 2 (Excluding firms from China)
LNGDP	0.0129***	0.041***
	(6.022)	(13.354)
Industry	Included	Included
Year	Included	Included
Adjusted R^2	0.372	0.456
F -Stat	41.48	33.67
Sig	0.000	0.000
Observations	10,599	5,420

4.3 Additional analysis

Table 4: Additional Regression Results for Social Disclosure and Environmental Disclosure

	Model 1		Model 2 (Excluding Firms from China)	
VARIABLES	SDS	EDS	SDS	EDS
Constant	-0.541***	-0.245***	-0.785***	-0.548***
	(-18.903)	(-13.206)	(-17.006)	(-18.600)
COUNTRY_GOV	0.081***	0.100***	0.017**	0.019***
	(17.293)	(24.150)	**(2.556)**	**(3.312)**
ROA	0.164***	0.199***	0.115***	0.093***
	(8.433)	(12.243)	(3.692)	(4.133)
FSIZE	0.029***	0.023***	0.028***	0.027***
	(28.954)	(27.347)	(18.912)	(22.007)
MTB	0.006***	-0.001	0.007***	0.001
	(9.218)	(-1.201)	(6.248)	(1.025)
LEVERAGE	-0.029***	-0.002	-0.012	0.002
	(-4.092)	(-0.346)	(-1.047)	(0.215)
LNGDP	0.017***	-0.003	0.042***	0.028***
	(7.083)	(-1.637)	(11.987)	(9.541)
Industry	Included	Included	Included	Included
Year	Included	Included	Included	Included
Adjusted R^2	0.353	0.278	34.20	29.11
F -Stat	38.25	27.39	0.000	0.000
Sig	0.000	0.000	0.444	0.388
Observations	10,597	10,597	5,420	5,420

Note: Robust t-statistics are shown in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table-4 presents Model-1, which examines the link between country-level governance (COUNTRY_GOV) and social disclosure score (SDS) and environmental disclosure score (EDS) across 10,597 firm-year observations. Results reveal a significant positive association between COUNTRY_GOV and both SDS ($\beta = 0.081$, $p < 0.01$) and EDS ($\beta = 0.100$, $p < 0.01$), suggesting that stronger governance mechanisms enhance corporate disclosure. Firm-specific variables, including ROA, FSIZE, and MTB, exhibit expected associations, while leverage (LEVERAGE) is negatively linked to SDS but not to EDS.

Model-2 (Table 4) refines this analysis by excluding firms from China (N = 5,420). The positive relationship between COUNTRY_GOV and SDS ($\beta = 0.017$, $p < 0.05$) and EDS ($\beta = 0.019$, $p < 0.01$) remains significant, reinforcing the robustness of our findings. The adjusted R^2 values suggest reasonable explanatory power, and all models control for industry and year effects. These results confirm that governance quality significantly influences corporate sustainability disclosures.

We have also analysed the impact of six country governance variables on CSED in developing nations, with the findings presented in Table 6. Our results indicate that voice and accountability (VA) has a significant positive coefficient ($\beta = 0.0458$, $p<0.01$), suggesting that greater citizen participation in electing their government, along with freedom of expression, association, and media, increases the likelihood of companies facing pressure to be accountable (Newell & Frynas, 2007), socially responsible, and more transparent in CSR disclosures. This aligns with previous research (De Villiers & Marques, 2016). Additionally, our findings reinforce the idea that democratic governance enhances citizens' sense of security and confidence in the legal system, law enforcement, and judiciary to uphold freedoms for all (Simnett et al., 2009)

Our findings also reveal a significant positive coefficient ($\beta = 2.059$, $p<0.01$) for political stability and absence of violence (PV), indicating that higher political stability and lower violence increase the likelihood of CSR disclosure by companies. Additionally, regulatory quality (RQ) shows a significant positive coefficient ($\beta = 0.0206$, $p<0.01$), suggesting that a government's ability to

develop and enforce effective policies and regulations supporting private sector growth enhances corporate engagement in CSR activities and their disclosure.

Moreover, our results align with the idea that high-quality government services and a strong commitment to policy formulation and implementation motivate companies to allocate resources toward socially responsible initiatives, anticipating long-term performance benefits. We also observe a significant positive coefficient ($\beta = 0.0284$, $p<0.05$) for control of corruption (CC), demonstrating that reducing corruption positively influences the extent of CSED. In contrast, our findings support the view that higher corruption levels lead to lower CSR disclosure, consistent with previous studies (e.g., Ioannou and Serafeim, 2012).

Conversely, we observe a significant negative coefficient ($\beta = -9.449$, $p<0.01$) for government effectiveness (GE), supporting the idea that when government services are less effective, businesses tend to take on additional responsibilities, address institutional gaps, and increase CSR disclosures (Doh et al., 2017; Ghoul, Guedhami, & Kim, 2017; Amaeshi et al., 2016; Healy & Serafeim, 2016). Likewise, the significant negative coefficient ($\beta = -0.0946$, $p<0.01$) for the rule of law (RL) suggests that legal frameworks primarily protect financial stakeholders rather than a broader range of stakeholders, leading firms to withhold certain disclosures to avoid scrutiny, negative publicity, or risk (Belal & Cooper, 2011). This finding aligns with previous research (e.g., Ioannou and Serafeim, 2012; Baldini et al., 2018).

Regarding control variables, our results indicate that firm size, ROA, market-to-book ratio, and GDP per capita have a positive and significant impact on CSR disclosures. However, leverage has a significant negative effect on the level of CSR disclosures. These findings are consistent with prior studies.

Table 5: Regression results7 using CSEDS as the dependent variables

Variables	CSEDS
Constant	-0.3909***
	(-8.227)
VA	0.0458***
	(16.998)
PV	0.0206***
	(4.501)
GE	-0.0995***
	(-11.394)
RQ	0.1395***
	(17.470)
RL	-0.0946***
	(-9.208)
CC	0.0284**
	(2.541)
ROA	0.0453***
	(2.594)
FSIZE	0.0232***
	(27.554)
MTB	0.0044***
	(8.093)
LEV	-0.0294***
	(-4.810)
LNGDP	0.0184***
	(4.619)
Industry	Included
Year	Included
Adjusted R2	0.464
F -Stat	58.34
Sig	0.000
Observations	10,599
Robust t-statistics in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

[7] Our findings remain unaffected by multicollinearity, as the variance inflation factor values (VIF) are less than 10 (Hair, Black, Babin and Anderson, 2009; Neter, Wasserman and Kutner, 1983).

5. Discussion

The results of our quantitative analysis indicate that there is a significant and positive impact of country governance on the CSER in developing countries. Moreover, our correlation analysis shows that the global governance strong positive relationship with the CSER. Our findings support the extant literature that document that "CSR developments are mainly driven by global developments, but shaped by context-specific factors" (Weyzig, 2006p. 69).

Our results also provide evidence that although all three levels of governance have positive and significant relationships with the environmental and social disclosure, the country-level governance is 'given' for all the firms, not a choice of a firm to adopt or not. As the country-level governance is weak and the environmental disclosure is explained more (compared to social disclosure) by the country-level governance, the environmental disclosures in developing countries are also low.

Regarding country-level governance, we observe that voice and accountability, political stability and absence of violence, regulatory quality, and control of corruption have significant positive impacts on CSR disclosure in developing countries. In contrast, governance effectiveness and rule of law are significantly and negatively associated with CSR disclosure. These findings suggest that factors such as freedom of expression, political stability, absence of violence, regulatory quality, policy support for the private sector, and control of corruption foster CSR disclosure in developing countries. The negative relationship between governance effectiveness and CSR disclosure supports the idea that when government services are less effective, businesses take on more responsibility, address institutional gaps, and disclose additional CSR information (supporting institutional theory) (Doh et al., 2017; Ghoul, Guedhami, & Kim, 2017; Healy & Serafeim, 2016). The significant negative link between rule of law and CSR disclosure can be explained by firms' reluctance to disclose any extra information, particularly negative details, due to concerns about bad publicity, poor performance, and the risk of legal action (Matuszak & Różańska, 2017; Belal & Cooper, 2011; Naeem & Welford, 2009).

6. Conclusion

The study empirically examines the relationship between country governance and corporate social and environmental disclosure (CSED) in developing countries, contributing to the growing body of literature on governance and corporate social responsibility (CSR) reporting. Our findings underscore the significant and positive influence of country governance on the extent of CSED, affirming the notion that governance structures at the national level play a critical role in shaping corporate disclosure practices. This supports the broader argument that effective governance mechanisms enhance transparency, accountability, and responsible corporate behaviour.

Our findings offer strong evidence that important governance indicators, such as voice and accountability, political stability, regulatory quality, and control of corruption, have a positive impact on CSR disclosures. These results emphasize the importance of democratic institutions, political stability, and regulatory efficiency in creating an environment that encourages companies to engage in responsible social and environmental reporting. However, the negative association between governance effectiveness and rule of law with CSR disclosure suggests that in weaker institutional environments, businesses may voluntarily step in to compensate for governance deficiencies, reinforcing the institutional voids perspective.

This study makes several contributions. It provides empirical evidence on the role of country governance in shaping CSR reporting in developing countries, an area that has received limited attention in prior research. Our results have significant policy implications, highlighting the necessity of strengthening governance frameworks to enhance corporate accountability and transparency in developing economies.

Despite the study's contributions, certain limitations should be acknowledged. While our analysis accounts for multiple governance indicators, other contextual factors such as cultural norms, media influence, and civil society activism may also play crucial roles in shaping CSR disclosure and warrant further investigation. Future research could explore these factors and examine

industry-specific variations in CSR reporting offer a deeper insight into corporate disclosure practices in developing countries.

In conclusion, our findings emphasize the critical role of country governance in promoting CSR disclosure, reinforcing the argument that effective governance structures contribute to increased corporate accountability and transparency. Strengthening governance mechanisms in developing countries is imperative to foster socially responsible business practices, ultimately supporting broader sustainable development goals and enhancing corporate contributions to societal well-being.

References

Aguilera, R. V. & Cuervo-Cazurra, A. (2004). Codes of Good Governance Worldwide: What Is the Trigger? *Organization Studies*, 25(3), 415–443.

Aguinis, H. & Glavas, A. (2012). What We Know and Don't Know About Corporate Social Responsibility: A Review and Research Agenda. *Journal of Management*, 38(4), 932–968.

Agyei-Mensah, B. K. (2017). The Relationship between Corporate Governance, Corruption and Forward-Looking Information Disclosure: A Comparative Study. *Corporate Governance: The International Journal of Business in Society*, 17(2), 284–304.

Agyemang, O. S., Fantini, G. & Frimpong, J. (2015). Does Country-Level Governance Enhance Ethical Behaviour of Firms? An African Perspective. *International Journal of Law*, 57(6), 586–611.

Amaeshi, K., Adegbite, E., Ogbechie, C., Idemudia, U., Kan, K. A. S., Issa, M. & Anakwue, O. I. J. (2016). Corporate Social Responsibility in SMEs: A Shift from Philanthropy to Institutional Works? *Journal of Business Ethics*, 138(2), 385–400.

Azmat, F. & Coghill, K. (2005). Good Governance and Market-Based Reforms: A Study of Bangladesh. *International Review of Administrative Sciences*, 71(4), 625–638.

Baldini, M., Maso, L. D., Liberatore, G., Mazzi, F. & Terzani, S. (2018). Role of Country - and Firm-Level Determinants in Environmental, Social, and Governance Disclosure. *Journal of Business Ethics*, 150(1), 79–98.

Barakat, F. S. Q. Q., Pérez, M. V. L. & Ariza, L. R. (2015). Corporate Social Responsibility Disclosure (CSRD) Determinants of Listed Companies in Palestine (PXE) and Jordan (ASE). *Review of Managerial Science*, 9(4), 681–702.

Belal, A. R. & Cooper, S. (2011). The Absence of Corporate Social Responsibility Reporting in Bangladesh. *Critical Perspectives on Accounting*, 22(7), 654–667.

Belal, A. R. & Owen, D. L. (2007). The Views of Corporate Managers on the Current State of, and Future Prospects for, Social Reporting in Bangladesh. *Accounting, Auditing & Accountability Journal*, 20(3), 472–494.

Berthelot, S., Cormier, D. & Magnan, M. (2003). Environmental Disclosure Research: Review and Synthesis. *Journal of Accounting Literature*, 22(1), 1–44.

Busse, M. & Gröning, S. (2009). Does Foreign Aid Improve Governance? *Economics Letters*, 104(2), 76–78.

Chen, S. & Bouvain, P. (2009). Is Corporate Responsibility Converging? A Comparison of Corporate Responsibility Reporting in the USA, UK, Australia and Germany. *Journal of Business Ethics*, 87(Supplement 1), 299–317.

Cheng, B., Ioannou, I. & Serafeim, G. (2014). Corporate Social Responsibility and Access to Finance. *Strategic Management Journal*, 35(1), 1–23.

Çule, M. & Fulton, M. E. (2012). Corporate Governance and Subjective Well-Being. *Applied Economics Letters*, 20, 364–367.

Doh, J., Rodrigues, S., Saka-Helmhout, A. & Makhija, M. (2017). International Business Responses to Institutional Voids. *Journal of International Business Studies*, 48(3), 293–307.

Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L. & De Colle, S. (2010). *Stakeholder Theory: The State of the Art*. Cambridge: Cambridge University Press.

Frynas, J. G. & Yamahaki, C. (2016). Corporate Social Responsibility: Review and Roadmap of Theoretical Perspectives. *Business Ethics: A European Review*, 25(3), 258–285.

Ghoul, S. El, Guedhami, O. & Kim, Y. (2017). Country-Level Institutions, Firm Value, and the Role of Corporate Social Responsibility Initiatives. *Journal of International Business Studies*, 48(3), 360–385.

Giannarakis, G., Konteos, G. & Sariannidis, N. (2014). Financial, Governance and Environmental Determinants of Corporate Social Responsible Disclosure. *Management Decision*, 52(10), 1928–1951.

Govindan, K., Kannan, D. & Shankar, K. M. (2014). Evaluating the Drivers of Corporate Social Responsibility in the Mining Industry with Multi-Criteria Approach: A Multi-Stakeholder Perspective. *Journal of Cleaner Production*, 84(1), 214–232.

Healy, P. M. & Serafeim, G. (2016). *Voluntary, Self-Regulatory and Mandatory Disclosure of Oil and Gas Company Payments to Foreign Governments*.

Hope, O. K. (2003). Firm-Level Disclosures and the Relative Roles of Culture and Legal Origin. *Journal of International Financial Management and Accounting*, 14(3), 218–248.

Hossain, M. M. & Alam, M. (2016). Corporate Social Reporting (CSR) and Stakeholder Accountability in Bangladesh: Perceptions of Less Economically Powerful Stakeholders. *International Journal of Accounting and Information Management*, 24(4), 415–442.

Hu, V. & Scholtens, B. (2014). Corporate Social Responsibility Policies of Commercial Banks in Developing Countries. *Sustainable Development*, 22(4), 276–288.

Husted, B. W. & Sousa-Filho, J. M. de. (2017). The Impact of Sustainability Governance, Country Stakeholder Orientation, and Country Risk on Environmental, Social, and Governance Performance. *Journal of Cleaner Production*, 155(1), 93–102.

Idemudia, U. (2009). Oil Extraction and Poverty Reduction in the Niger Delta: A Critical Examination of Partnership Initiatives. *Journal of Business Ethics*, 90(S1), 91–116.

IMF. (2016). *Too Slow for Too Long*. Washington, DC.

Ioannou, I. & Serafeim, G. (2012). What Drives Corporate Social Performance? The Role of Nation Level Institutions. *Journal of International Business Studies*, 43(9), 834–864.

Ioannou, I. & Serafeim, G. (2015). The Impact of Corporate Social Responsibility on Investment Recommendations: Analysts' Perceptions and Shifting Institutional Logics. *Strategic Management Journal*, 36(7), 1053–1081.

Jaggi, B. & Low, P. Y. (2000). Impact of Culture, Market Forces, and Legal System on Financial Disclosures. *The International Journal of Accounting*, 35(4), 495–519.

Kamal, Y. & Deegan, C. (2013). Corporate Social and Environment-Related Governance Disclosure Practices in the Textile and Garment Industry: Evidence from a Developing Country. *Australian Accounting Review*, 23(2), 117–134.

Kaufmann, D., Kraay, A. & Mastruzzi, M. (2010). *The Worldwide Governance Indicators: Methodology and Analytical Issues*.

Khanna, T. & Palepu, K. G. (2010). *Winning in Emerging Markets: A Road Map for Strategy and Execution*. Boston: Harvard Business School Press.

Khavul, S. & Bruton, G. D. (2013). Harnessing Innovation for Change: Sustainability and Poverty in Developing Countries. *Journal of Management Studies*, 50(2), 285–306.

Kirsch, A. (2018). The Gender Composition of Corporate Boards: A Review and Research Agenda. *The Leadership Quarterly*, 29(2), 346–364.

Kraay, A. & Tawara, N. (2010). *Can Disaggregated Indicators Identify Governance Reform Priorities?* Washington, DC. Retrieved January 1, 2019, from http://econ.worldbank.org.

Li, S., Fetscherin, M., Alon, I., Lattemann, C. & Yeh, K. (2010). Corporate Social Responsibility in Emerging Markets: The Importance of the Governance Environment. *Management International Review*, 50(5), 635–654.

Li, Y., Gong, M., Zhang, X.-Y. & Koh, L. (2018). The Impact of Environmental, Social, and Governance Disclosure on Firm Value: The Role of CEO Power. *The British Accounting Review*, 50(1), 60–75.

Lopatta, K., Jaeschke, R., Tchikov, M. & Lodhia, S. (2017). Corruption, Corporate Social Responsibility and Financial Constraints: International Firm-level Evidence. *European Management Review*, 14(1), 47–65.

Luo, X., Wang, H., Raithel, S. & Zheng, Q. (2015). Corporate Social Performance, Analyst Stock Reccomendations and Firm Future Returns. *Strategic Management Journal*, 36(1), 123–136.

Matuszak, L. & Różańska, E. (2017). CSR Disclosure in Polish-Listed Companies in the Light of Directive 2014/95/EU Requirements: Empirical Evidence. *Sustainability*, 9(12), 2304.

Momin, M. A. (2013). Social and Environmental NGOs' Perceptions of Corporate Social Disclosures: The Case of Bangladesh. *Accounting Forum*, 37(2), 150–161.

Mzembe, A. N. & Meaton, J. (2014). Driving Corporate Social Responsibility in the Malawian Mining Industry: A Stakeholder Perspective. *Corporate Social Responsibility and Environmental Management*, 21(4), 189–201.

Naeem, M. A. & Welford, R. (2009). A Comparative Study of Corporate Social Responsibility in Bangladesh and Pakistan. *Corporate Social Responsibility and Environmental Management*, 16(2), 108–122.

Neter, J., Wasserman, W. & Kutner, M. H. (1983). *Applied Linear Regression Models*. Homewood, IL: R.D. Irwin.

Newell, P. & Frynas, J. G. (2007). Beyond CSR? Business, Poverty and Social Justice: An Introduction. *Third World Quarterly*, 28(4), 669–681.

OECD. (2012). *Recommendation of the Council on Regulatory Policy and Governance*. Paris, France. Retrieved January 5, 2019, from www.oecd.org/regreform

Ortas, E., Álvarez, I., Jaussaud, J. & Garayar, A. (2015). The Impact of Institutional and Social Context on Corporate Environmental, Social and Governance Performance of Companies Committed to Voluntary Corporate Social Responsibility Initiatives. *Journal of Cleaner Production*, 108, 673–684.

Rachisan, P. R., Bota-Avram, C. & Grosanu, A. (2017). Investor Protection and Country-Level Governance: Crosscountry Empirical Panel Data Evidence. *Economic Research-Ekonomska Istrazivanja*, 30(1), 806–817.

Reverte, C. (2009). Determinants of Corporate Social Responsibility Disclosure Ratings by Spanish Listed Firms. *Journal of Business Ethics*, 88(2), 351–366.

Rodríguez, L. C., Montiel, I. & Ozuna, T. (2014). A Conceptualization of How Firms Engage in Corporate Responsibility Based on Country Risk. *Business & Society*, 53(5), 625–651.

Seifert, B. & Gonenc, H. (2018). The Effects of Country and Firm-Level Governance on Cash Management. *Journal of International Financial Markets, Institutions and Money*, 52, 1–16.

Simnett, R., Vanstraelen, A. & Chua, W. F. (2009). Assurance on Sustainability Reports: An International Comparison. *The accounting review*, 84(3), 937–967.

Talbot, D. & Boiral, O. (2015). Strategies for Climate Change and Impression Management: A Case Study Among Canada's Large Industrial Emitters. *Journal of Business Ethics*, 132(2), 329–346.

De Villiers, C. & Marques, A. (2016). Corporate Social Responsibility, Country-Level Predispositions, and the Consequences of Choosing a Level of Disclosure. *Accounting and Business Research*, 46(2), 167–195.

Wu, J. (2014). The Antecedents of Corporate Social and Environmental Irresponsibility. *Corporate Social Responsibility and Environmental Management*, 21(5), 286–300.

Appendix Table 1: Sample Summary Statistics

Panel A: Sample size

Number of firm-years observations	18,918
Less: Firm- years without necessary information (missing value)	8,321
Total firm-year observations	**10,597**

Panel B: Year-wise observations

Year	No. of observations	Percentage
2010	201	1.9
2011	654	6.17
2012	774	7.3
2013	693	6.54
2014	1,144	10.81
2015	1,374	12.96
2016	1,507	14.22
2017	1,605	15.14
2018	1,715	16.18
2019	930	8.77
Total	**10,597**	**100**

Panel C: Country-wise observations

Country	No. of observations	Percentage
Argentina	39	0.37
Bangladesh	9	0.08
Bermuda	21	0.2
Bosnia and Herzegovina	4	0.04
Botswana	6	0.06
Brazil	568	5.36
Bulgaria	2	0.02
Chile	129	1.22
China	5,177	48.86
Colombia	83	0.78
Croatia	20	0.19
Egypt	6	0.06
Hungary	24	0.23
India	2,141	20.2
Indonesia	175	1.65
Jordan	9	0.08
Kazakhstan	6	0.06
Kenya	6	0.05
Kuwait	9	0.08
Malaysia	298	2.81
Mauritius	9	0.08
Mexico	187	1.76
Mongolia	4	0.04

Country	**No. of observations**	**Percentage**
Morocco	2	0.02
Nigeria	15	0.14
Oman	8	0.08
Pakistan	152	1.43
Panama	9	0.08
Peru	38	0.36
Philippines	112	1.06
Poland	73	0.69
Qatar	10	0.09
Romania	5	0.05
Russia	240	2.26
Saudi Arabia	12	0.11
Serbia	4	0.04
South Africa	567	5.35
Sri Lanka	50	0.47
Thailand	171	1.61
Turkey	124	1.17
Ukraine	8	0.08
United Arab Emirates	45	0.42
Uruguay	6	0.06
Vietnam	11	0.1
Zambia	2	0.02
Total	**10,597**	**100**

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 232-255)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20256

Does Income Diversification Moderate Intellectual Capital–Performance Nexus? – An Empirical Analysis from Bangladesh

- Tabassum Chowdhury[*]
- S. M. Sohrab Uddin[**]

Abstract

Intellectual capital, as a knowledge-based resource, is essential for enhancing the performance of knowledge driven organization such as banks. Additionally, for the improvement of the commercial banks, they are now diversifying their income to non-banking activities. Thus, this study empirically analyses how income diversification contributes in shaping the link of intellectual capital to the performance of banks of Bangladesh by using an annual panel dataset of 30 banks from the period of 2013 to 2023. The empirical results from regression analysis show that the intellectual capital has a notable contribution in enhancing the bank performance. In addition, income diversity negatively influences the association between intellectual capital and its individual constituents, and bank's performance. Bank managers can think of efficient intellectual capital management to ensure the competitive advantage as well as focus more on core activities for the enhancement of the performance of banks.

Keywords: Bank Performance, Income Diversification, Intellectual Capital and Value-added Efficiency.
JEL Classification: O340, C390

1. Introduction

In the current technological era, the most important resources for maintaining a competitive edge in the growing knowledge-driven economy are information, knowledge, and technology. They are all regarded as dimensions of intellectual capital, also known as intangible assets, which are currently the focus of most businesses, including banks, because they have been identified to be effective instruments for maintaining business success (Asutay & Ubaidillah, 2024). The resource-based view opines that intellectual capital is a key driver for not only competitive edge but also a crucial component for generating company's value,

[*] Tabassum Chowdhury is an Assistant Professor, School of Business Administration, East Delta University, Chattogram, Bangladesh, Email: tabassum@eastdelta.edu.bd and [**]S. M. Sohrab Uddin is a Professor, Department of Finance, Faculty of Business Administration, University of Chittagong, Chattogram, Bangladesh, Email: sohrab@cu.ac.bd. The views expressed in this paper are the authors' own.

thereby guaranteeing better financial performance (Smriti and Das, 2018; Sannino et al., 2021).

From the advent of the knowledge driven economy, banks have been seen as incredibly creative and integrated organizations that make use of both technological and human resources (Nadeem et al., 2017). Banks are knowledge driven organization and it is crucial for banks to utilize the intangible resources. They should emphasis on the growth and improvement of intellectual capital through of human resources, product brands, information technology, and other assets so that it can offer better and quick services to the customers and attain greater performance and thereby meeting the needs of stakeholders (Meles et al., 2016; Tran and Vo, 2018, Ousama et al., 2020, Sannino et al., 2021). Thus, by offering best financial products and services and building strong relationship with clients, effective intellectual capital management affects the bank financial performance positively (Ul Rehman et al., 2024).

It is evident that one of the primary determinants of banking performance nowadays is intellectual capital (Rehman et al., 2022). To become successful, banks are now providing the best and extensive services to their client. That is why, banks have invested heavily in their personnel, operations, systems, and brands. In this instance, intellectual capital will help banks to become more successful and efficient by providing the greatest array of knowledge and information, thereby preserving the competitive advantage over time (Nguyen et al., 2023). Although, numerous literatures have explored to link the intellectual capital to banks performance across many industries and regions (Mollah & Rouf, 2022; Bayraktaroglu et al., 2019), the evidence is showing mixed trend and also inconclusive (Mohapatra et al., 2019; Ousama et al., 2019; Mondal and Gosh, 2012). According to several studies, intangible asset is positively linked to financial performance (Majumder et al., 2023; Le et al., 2022; Tiwari & Vidyarthi, 2018), whereas other findings, conversely, suggested that it has not that much effect on the performance (Dalwai et al., 2021).

The dynamic capabilities theory contends that company specific resources, business alternatives, and environmental conditions combinedly contribute for attaining the advantage over competitors and improving the financial conditions

in the long run (Teece and Pisano, 2003). This theory also highlights the necessity of looking at contingent elements that affect the correlation between organizational efficiency and intellectual capital. Additionally, research demonstrate that various strategic measures can be used to utilize intangible resources (Combs et al., 2011, Githaiga, 2023). Current literature also states that intellectual capital is strongly correlated with diversification. Githaiga et al. (2023) explained that banks having high intellectual capital are more focused on the expansion of goods and services and this will boost income because they have knowledgeable staff, advanced technological infrastructure, efficient internal procedures, along with essential market insight. Given this context, intellectual capital, income diversification, and bank performance are significantly correlated, which is not that much discussed in the prior empirical literature.

In Bangladesh, the literature related to intellectual capital is yet to draw (Faruq et al., 2023). The contribution of banking sector in Bangladesh is more dominant in the economy than that of the capital market (Das & Pati, 2025). As banks are service oriented organization, they are heavily dependent on intangible resources. Intellectual capital is needed for banks to become successful. To meet the continuous demand of the customers, they are offering innovative services to them. Moreover, following the global trend, Bangladesh has experienced an acceleration of banking by expanding the activities into non-traditional activities in recent years (Phan et al. 2023). In this perspective, it is needed to recognize how income diversification moderates the linkage of intellectual capital to the performance of the Bangladeshi banking sector.

Thus, the study adds value by incorporating income diversification, a moderator, on the connection of intellectual capital to the financial results of bank. In addition to that, it is one of few papers which explores the role of income diversity in linking intellectual capital or intangible asset to the financial conditions of banks from Bangladesh perspective.

There are four sections in the paper's later part. Section-2 highlights a review of the existing studies. Section-3 provides data and methods. Findings and relevant analyses are discussed in Section-4 and in Section-5, the paper is concluded with some policy implications and also directions for further research.

2. Review of Literature and Hypotheses

2.1 Intellectual Capital

Intellectual capital is explained as the knowledge, which is shifted to value (Edvinsson and Sullivan, 1996). Zéghal and Maaloul (2010) opined that it is the mixture of knowledge, expertise, information system, and rights on intellectual property, which are under the control of a company and that can be applied to generate and enhance company's value. The main constituents of intellectual capital have developed from the numerous explanations of intellectual capital. As explained by Pulic (1998), human capital and structural capital are the two main constituents. Furthermore, relational capital was suggested by Petty and Guthrie (2000) as an additional element.

Human capital reflects people's intuitive knowledge regarding workers' capacities, competencies, expertise, creativeness, and inventiveness (Kim and Lee, 2010). The most important aspect of intellectual capital, according to the literature presently available, is human capital, which demonstrates the capacities, expertise, information, and experience of personnel of the firm (Roslender & Fincham, 2004, Majumder et al., 2023). It also symbolizes the knowledge that can only be managed by the businesses, as it leaves the company along with employees (Sannino et al., 2021). As a result, organizations with the significant investment in the development of human capital becomes more successful (Githaiga, 2023). Structural capital, which includes organizational cultures, processes, structures, systems, practices, and records, is knowledge that a corporation creates and cannot remove (Pulic, 1998, 2004). Copyright, patents, creations, and policy can be the elements of it (Joshi et al., 2010). This capital is also crucial in the human capital framework (Asutay & Ubaidillah, 2024). Furthermore, according to Marti (2001), relational capital is the ability of a business to maintain an effective interaction with external factors for encouraging the creation of wealth by utilizing the other two capital. It indicates how an organization communicates and shares information with external stakeholders, including suppliers, consumers, investors, and shareholders (Johnston and Lane, 2018). A number of scholars afterwards substituted relational capital for customer capital (Ul Rehman et al., 2024; Cosma et al., 2019), emphasizing value

addition and ensuring connections with stakeholders in the long run (Ferraris et al., 2020; Helfat & Peteraf, 2015).

2.2 Intellectual Capital and Bank Performance

Numerous investigations are available to know how intellectual capital is connected to the performance of banks and have revealed notable conclusions (Le et al., 2022; Baima et al., 2020; Sharabati et al., 2010). In these studies, following the study of Pulic (2004), value-added intellectual coefficient or VAIC has been used to quantify the intellectual capital. Regardless of geographical location, intellectual capital significantly boosts company's profitability. In Indian context, intellectual capital enhances bank's performance as investigated by Vishnu and Kumar Gupta (2014). By using Skandia Navigator Model (SNM), Chinnasamy et al., (2024) proved that in India and Gulf Corporation Council (GCC) countries, financial performance was improved through intellectual capital. Furthermore, Lu et al. (2014) provide the same findings in Chinese companies. Majumder et al. (2023) examined 318 observations on banks and confirmed that intangible asset in Bangladesh has a considerable favorable influence on bank performance. Soewarno and Tjahjadi (2020) derived the similar strong correlation between intangible asset and bank profitability after evaluating the data on publicly listed banks in Indonesia. Similar result was reached by Xu and Liu (2021) in China, Maji and Saha (2024) in India, Sayed and Nefzi (2024) in Saudi Arabia as well as Kweh et al. (2019) in Malaysia. The following hypothesis is drawn in line with the above-mentioned works along with the research-based theory that validates the existence of intangible asset to achieve excellence in the banks' services:

H1. More intellectual capital will boost bank performance.

2.2.1 Components of Intellectual Capital and their Effect on Bank Performance

Financial condition and profitability are higher for banks that are attentive to the development and enhancement of intangible asset constituents (Sannino et al. 2021). According to Ozkan et al. (2017), VAIC and it's elements, capital employed efficacy, human capital efficacy, and structural capital efficacy, were used to investigate their influence on banks profitability. They found no notable

effect of structural capital efficiency on financial viability but human capital efficacy and capital employed efficiency are noticeably related to the profitability of bank. Ousama et al. (2020) inspected the financial data of 37 banks on countries under GCC and demonstrated the favorable result of human capital efficacy and capital employed efficacy on performance. Nonetheless, structural capital efficiency was not noticeably connected to bank performance. Ul Rehman et al. (2024) discovered that the efficiency of structural capital ensures a favorable impact on financial performance but other two efficiency values, that is, human capital and capital employed have no influence on profitability of banks in the southeast Asian region. Nadeem et al. (2017) followed the generalized method of moments **(**GMM) method and discovered all elements of VAIC had significant effects on the profitability in emerging economies. A similar investigation was executed in Indonesian industries by Soetanto and Liem (2019), who used the GMM approach in conjunction with dynamic panel regression analysis. According to their findings, structural capital efficacy and capital employed efficacy were crucial to the process of formation of value. Asutay and Ubaidillah (2024) illustrated that for Islamic banks, efficiency of human capital and capital employed were crucial for the higher performance. In the context of India, Mohapatra et al. (2019) presented the favorable influence of human capital efficiency but structural capital efficacy is adversely connected to the performance, and Maji and Saha (2024) confirmed that human capital and structural capital were crucial for banks. Conversely, Soewarno and Tjahjadi (2020) stated that human capital efficacy negatively connected to profitability of Indonesian banks although structural capital efficacy and capital employed efficacy had strong effects on it. Sayed and Nefzi (2024) also confirmed that for Saudi Arabia. Rehman et al. (2022) opined the notable role of human capital efficiency on the financial results of emerging economies banks. Le and Nguyen (2020) found that each of the elements of VAIC were positively connected to the performance of the Vietnamese banks

The aforementioned studies provide empirical support for the concept utilizing VAIC and the three components are inconsistent and require more investigation.

The hypotheses are formulated as follows;

H2. Human capital efficiency of bank is positively connected to profitability.

H3. Structural capital efficiency of bank will boost profitability.

H4. Capital employed efficiency of bank will enhance profitability.

2.3 Income Diversification on Bank Performance

Banking sector is looking for income diversification as a result of trade openness, competition, and the relaxation of bank regulations. Thus, banks involve in activities other than core banking activities such as trading, brokerage, and underwriting, which in turn boost the other income than interest income (Nguyen et al., 2023). The key point for income diversity in theoretical framework is that, according to current portfolio theory, it reduces risk and produces consistent operational income because of imperfect correlated income streams (Markowitz, 1952; Sharma & Anand, 2018). Research indicates that the non-banking activities reduce risk (Pennathur et al., 2012), and increase the profitability of banks (Paltrinieri et al., 2021; Doan et al., 2018; Meslier et al., 2014). Alternatively, studies show that income diversity lessens profitability and exposes banks to income instability (DeYoung & Roland, 2001; Delpachitra & Lester 2013). Given the contradictory findings from banks worldwide, more investigation is needed to provide insight on how income diversification is linked to bank performance for Bangladeshi banks.

H5. Income diversification significantly influences the bank profitability.

2.4 Income Diversification, as a Moderating Variable, on the Nexus between Intellectual Capital and Bank Performance

The empirical investigation about the role of intangible asset on the financial result of bank has not been comprehensive, nor has it resulted in a consensus among scholars regarding the conclusion to be drawn. According to the concept of dynamic capacities, higher performance and a competitive advantage cannot be achieved just by possessing intellectual capital resources (Eisenhardt & Martin, 2000). To strengthen and restructure their current resources and create

new, long-term competitive advantages, businesses require innovative tools. Examining moderating factors is necessary to understand the intricate connection between bank strategy and performance. According to the research conducted by Jeandry and Fajriyanti (2023), income diversity may affect the strength and direction of the linkage of intellectual capital to bank performance. Additionally, the proponents of strategic management advise organizations for diversification so that the resources and competencies will be utilized properly and in return, competitive edge will be earned (Githaiga, 2023; Merino et al., 2014). Also, diversification enables businesses to effectively arrange and use their resources (Ramanathan et al., 2016; Githaiga, 2023). Wahyuningtias and Kusumawardhani (2024) supported that the interaction of income diversity and intellection capital improved the performance. In order to cover the decline in interest income, banks need to relate the intangible resource to the non-banking activities in consideration of the difficulties connected to traditional activities (Githaiga, 2023). From this perspective, this study is intended to find the role of income diversity on the effect of intellectual capital on the financial result of the bank.

H6. Income diversification positively moderates the link of intellectual capital to bank performance.

3. Research Methods

3.1 Data and Sample

This study has concentrated on the secondary annual data from the year 2013 to 2023 of 30 banks, which covers 330 bank-year observations. Each data has been gathered from the audited annual report of the corresponding banks. Convenience sampling technique has been applied while collecting bank data.

3.2 Test of Normality, Heteroscedasticity and Multicellularity

In order to run the ordinary least squares (OLS) regression, test of normality of the data and heteroscedasticity is critical as it may affect the results (Abdelhaq et al., 2025). After applying the Shapiro-Wilk test, the p value is substantial at 1%, which ensures the absence of normality in the data set for both ROA and ROE. Moreover, the Breusch-Pagan test is conducted to check the

heteroscedasticity. For the dependent variable ROA, no heteroscedasticity is identified, but for variable ROE, there is the presence of heteroscedasticity. To minimize the effect the normality and heteroscedasticity, robust regression has been applied in the study as adopted by Abdelhaq et al., (2025). Moreover, regarding multicollinearity test, the Variance Inflation Factor (VIF) is conducted for the independent variables, which are smaller than 5. This in turn reveals that there is no multicollinearity among variables (Kim, 2019), as portrayed in Table-1.

Table 1. Values of VIF for independent variables

Variables	Size	CAR	IDIV	VAIC	INF	GDP	HCE	SCE	CEE
VIF	1.29	1.25	1.12	1.08	1.06	1.04	2.07	1.19	2.02

Source: Authors' calculation

3.3 Regression Models

The following main models in Panel A have been developed in linking the income diversity on the nexus of intellectual capital to bank's performance. Panel B represents the models for robustness. Following the earlier research of Nguyen et al. (2023) and Githaiga (2023), the interaction effect of VAIC and the components of VAIC and income diversification have been introduced.

Panel A:

Model 1:$$ROA_{it} = \beta_0 + \beta_1(Size)_{it} + \beta_2(CAR)_{it} + \beta_3(GDPgrowth)_t + \beta_4(INF)_t + \beta_5(VAIC)_{it} + \beta_6(IDIV)_{it} + \beta_7(VAIC * IDIV)_{it} + e_{it}$$

Model 1(a):$$ROA_{it} = \beta_0 + \beta_1(Size)_{it} + \beta_2(CAR)_{it} + \beta_3(GDPgrowth)_t + \beta_4(INF)_t + \beta_5(HCE)_{it} + \beta_6(SCE)_{it} + \beta_7(CEE)_{it} + \beta_8(IDIV)_{it} + \beta_9(HCE * IDIV)_{it} + \beta_{10}(SCE * IDIV)_{it} + \beta_{11}(CEE * IDIV)_{it} + e_{it}$$

Panel B:

Model 2: $$ROE_{it} = \beta_0 + \beta_1(Size)_{it} + \beta_2(CAR)_{it} + \beta_3(GDPgrowth)_t + \beta_4(INF)_t + \beta_5(VAIC)_{it} + \beta_6(IDIV)_{it} + \beta_7(VAIC * IDIV)_{it} + e_{it}$$

$$\text{Model 2(a)}: ROE_{it} = \beta_0 + \beta_1(Size)_{it} + \beta_2(CAR)_{it} + \beta_3(GDPgrowth)_t + \beta_4(INF)_t + \beta_5(HCE)_{it} + \beta_6(SCE)_{it} + \beta_7(CEE)_{it} + \beta_8(IDIV)_{it} + \beta_9(HCE * IDIV)_{it} + \beta_{10}(SCE * IDIV)_{it} + \beta_{11}(CEE * IDIV)_{it} + e_{it}$$

where,

To quantify the performance of the banks which are dependent variables, Return on Assets (ROA) has been used and for robustness, Return on Equity (ROE) has been included (Githaiga, 2023; Nguyen et al., 2023; Sannino et al. 2021).

Intellectual Capital

VAIC and the constituents namely human capital efficacy, structural capital effectiveness, and efficiency in capital employed are the proxy variables for assessing intellectual capital, as independent variables, adopted from Pulic (2000). The VAIC is designed by using Value Added (VA) of the intellectual capital. VA is found by subtracting operating expenses (OE) except personnel cost from Operating Income (OI) (Ul Rehman, 2024). The VA efficiency comprises three constituents that are capital employed efficacy, human capital efficacy, and structural capital efficacy. The calculations are adopted from Pulic, (1998), (2000), and Firer and Williams (2003):

$$VA = OI - OE$$

$$VAIC = \text{human capital efficiency} + \text{structural capital efficiency} + \text{capital employed efficiency}$$

Human capital efficacy, which measures the addition of value by the employment of human capital, is taken by dividing the VA by the total personnel cost (TPC).

$$\text{Human capital efficiency (HCE)} = VA/TPC$$

The next one is the structural capital efficiency and it demonstrates the extent to which Structural Capital (S) contributes to the formation of value for the organization. The SC is divided by VA. SC value is taken by subtracting TPC from VA.

$$Structural\ capital\ efficiency\ (SCE) = SC/VA$$

$$SC = VA - TPC$$

Then capital employed efficiency is taken and it displays the value generated for each amount spent in the tangible capital. It is found by dividing the VA by the net assets (Githaiga, 2023).

$$\text{Capital employed efficiency (CEE)} = \text{VA/ net asset}$$

Income Diversification

Income diversification (IDIV) has used as a moderator, which is estimated by dividing the non-interest income (NII) by operating income (OI), adopted from Chowdhury et al. (2024).

$$IDIV = NII / OI$$

3.4 Control Variables

Country and bank-level control variables are included in this study following Chiorazzo et al., (2008) and Sanya and Wolfe (2011). Bank size (SIZE) is assessed by taking the log value of total assets, to measure bank-level control variable to account for variations in bank due to size. In order to account for variations in bank capital, the capital adequacy ratio (CAR) is included (Lee et al., 2020; Moudud-Ul-Huq et al., 2018). gross domestic product (GDP) growth rate and inflation rate (INF), for macro-level controls, have been used as per Stiroh & Rumble (2006) and Chowdhury et al. (2024).

4. Results and Analysis

4.1 Descriptive Statistics

Table-2 summarizes the analysis on the selected variables. The performance of banks, calculated by ROA and ROE, has an average value of 0.013 and 0.192 with a variation of 0.0006 and 1.789. The mean value for VAIC is 3.420. Among the element, human capital efficacy, structural capital efficacy, and capital employed efficacy have mean, which are 2.769, 0.620, 0.300 respectively. It is

found that the mean value of human capital efficacy is the highest. On the other hand, IDIV has an average value of 0.61, implying a significant focus on income diversity.

Table 2: Descriptive Statistics

Variables	Observations	Mean	SD	Min	Max
ROA	330	0.013	0.006	0.003	0.023
ROE	330	0.192	1.789	-1.753	32.444
VAIC	330	3.420	1.326	-5.351	8.040
Human capital efficiency	330	2.769	1.244	-6.448	7.139
Structural capital efficiency	330	0.620	0.293	-1.844	2.634
Capital employed efficiency	330	0.030	0.012	-0.058	0.055
IDIV	330	0.614	0.729	-3.734	11.147
GDP	330	0.064	0.011	0.034	0.079
INF	330	0.065	0.013	0.055	0.099
SIZE	330	26.183	0.991	22.509	28.319
CAR	330	0.142	0.150	-0.228	1.964

Source: Authors' Calculation

4.2 Regression analysis

Model-1 represents how control variables influence the bank profitability measured by ROA and shown in Table-3. The findings portrayed a substantial negative influence of the size on performance. It is suggested that smaller banks perform better than the larger banks (Majumder et al., 2023; Gazi et al., 2024; Chowdhury & Salman, 2021). Moreover, capital adequacy ratio has a strong, significant at 1%, effect on the performance (Chowdhury & Salman, 2021). Other control variables have no notable influence on the profitability of Bangladeshi banks.

Model-2 depicts the influence of intangible asset portrayed by VAIC on bank's performance, ROA. The results showed a favorable linkage between intangible asset and bank profitability ($\beta = 0.0028$). As a result, the first hypothesis, H1 has been accepted. The results indicated that increased intellectual capital management capability helps banks establish sustainable operations, which in turn improves the financial performance. Similar result was found by Maji and Goswami (2016), Tiwari and Vidyarthi (2018), Nguyen et al., (2023), and Githaiga (2023). These studies confirmed that bank performance is highly influenced by intangible asset. On the other hand, among the control variables,

size and capital adequacy ratio have adverse impact on the profitability, which suggests that small sized bank with less capital adequacy performs better in the context of Bangladesh. More capital to mitigate the risk may reduce the profitably (Gazi et al., 2022).

Table 3: Regression Results

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
	ROA	ROA	ROA	ROA	ROA	ROA	ROA
Constant	0.0747*** (0.0098)	0.0484*** (0.0093)	0.0147** (0.0058)	0.0475*** (0.0094)	0.0182*** (0.0064)	0.0494*** (0.009)	0.0085 (0.0063)
Independent variable: VAIC and components							
VAIC		0.0028*** (0.0002)		0.003*** (0.0002)		0.0038*** (0.0003)	
HCE			0.0005** (0.0002)		0.0012*** (0.0003)		0.0028*** (0.0007)
SCE			0.0072*** (0.0007)		0.0004 (0.0009)		0.005*** (0.0013)
CEE			0.4893*** (0.0217)		0.4354*** (0.023)		0.5305*** (0.0589)
Moderating variable							
IDIV				-0.003*** (0.0007)	-0.004*** (0.0007)	-0.004*** (0.0007)	0.0079*** (0.002)
Interaction effect							
VAIC*IDIV						-0.002*** (0.0003)	
HCE*IDIV							-0.0021** (0.001)
SCE*IDIV							-0.008*** (0.0014)
CEE*IDIV							-0.0209 (0.0965)
Control variables							
SIZE	-0.003*** (0.0004)	-0.002*** (0.0003)	-0.001*** (0.0002)	-0.002*** (0.0003)	-0.001*** (0.0002)	-0.002*** (0.0003)	-0.001*** (0.0002)
CAR	0.0494*** (0.0031)	-0.0054** (0.0023)	-0.0010 (0.0014)	-0.007*** (0.0022)	-0.0033** (.00015)	-0.011*** (0.002)	-0.0016 (0.0015)
GDP	0.0173 (0.0289)	0.0064 (0.0276)	-0.0258 (0.0167)	-0.0097 (0.0265)	-0.0307* (0.0178)	-0.0332 (0.0248)	-0.044*** (0.0162)
INF	0.0142 (0.0246)	0.0195 (0.0237)	0.0230 (0.0143)	0.0119 (0.0228)	0.0269* (0.0151)	0.0297 (0.0214)	0.0267* (0.0137)
Observations	330	330	330	330	330	330	330
R-squared	0.5884	0.3547	0.7832	0.3866	0.7184	0.5063	0.7867

Notes: Standard errors are in parentheses. *** p<0.01, ** p<0.05 and * p<0.10
Source: Authors' calculation

Model-3 portrays the link of the constituents of intellectual capital to the performance of banks. Table-3 exhibits that human capital efficacy, structural capital efficacy, and capital employed efficacy have substantial impact on the performance of banks. It reveals that efficiency in the management of human capital, structural capital, and capital employed is the significant driver to enhance the performance of the banks. It is noticeable that banks of Bangladesh have utilized human capital and capital employed properly as significant factors to leverage the performance, which align with the evidence of Mollah and Rouf (2022), Smriti and Das (2018), and Maji and Goswami (2016). Not only that, organizational culture, system, and structure are also connected to the performance of the banks, which also aligns with the results of Hamdan (2018) and Xu and Liu (2020). Thus, hypothesis H2, H3, and H4 are accepted.

The results exhibited in Model 4 indicate the influence of the intellectual capital (VAIC), control variables, and income diversity on ROA. It is found that, with $\beta = -0.003$ and at 1% significant level, income diversification is adversely related to the financial performance. That means focusing on the activities other than core banking activities may in turn lead to vulnerability of banks. The results are validated by similar findings reported by Githaiga (2023), Duho et al., (2020), and Alhassan (2016), where it is evident that diversification diminishes the profitability. Moreover, VAIC is positively connected to the performance of banks.

The outputs on the interaction effect are represented in Model 6 and Model 7. It is revealed that income diversity negatively moderates the connection of intellectual capital indicated by VAIC on banks' profitability. Thus, focusing on the diversification of income may degrade the intellectual capital and bank performance association. This result is validated by Nguyen et al., (2023) and Githaiga (2023). Moreover, as reported in Model 7, income diversity also negatively moderates the linkage of human capital efficacy and structural capital efficacy to the performance of banks. The reason behind this could be the lack of capabilities and skills required in the organizational structures, systems, and human capital needed to diversify the income. Conversely, the linkage of capital employed efficacy and bank performance is not substantially moderated by

income diversity. This could be described by the reason that banks have to maintain minimum amount of capital to maintain the risk management requirement. Hence, income diversification strategy may not affect the linkage of capital employed efficacy and performance of banks in Bangladesh, as supported by the findings of Nguyen et al., (2023) and Githaiga (2023). The summary results are exhibited in Table-4.

Table 4: Summary decisions

Hypothesis	Decisions
H1. More intellectual capital will boost bank performance.	Supported with p<0.01
H2. Human capital efficiency of bank is positively connected to profitability.	Supported with p<0.05
H3. Structural capital efficiency of bank will boost profitability.	Supported with p<0.01
H4. Capital employed efficiency of bank will enhance profitability.	Supported with p<0.01
H5. Income diversification significantly influences the bank profitability.	Supported with p<0.01
H6. Income diversification positively moderates the link of intellectual capital to bank performance	Rejected

Source: Constructed by the authors.

4.2.1 Robustness of results

This study has applied another measurement of performance, ROE, to check the robustness of the result. According to Model 1 in Table A1, bank size and CAR are negatively connected to ROE. In addition, VAIC is positively linked to ROE. Similar results are found while applying the performance measurement ROA. Regarding the elements, capital employed efficacy and structural capital efficacy are substantially as well as positively linked to ROE, similar to the results found with ROA. However, unlike ROA, human capital efficiency is negatively connected to ROE in Model 3. The possible reason for the adverse connection could be the lack of efficiency in managing human capital, that is, proper competencies to generate profit (Soewarno & Tjahjadi, 2020). Like ROA, income diversification is negatively linked to ROE, which means less diversified banks perform better. Regarding the interaction effect, income diversity negatively moderates all the constituents of intellectual capital. The alternative

performance variable shows almost similar results shown in Table 3, which confirms the robustness of the result.

5. Conclusion and Policy Implications

The research reveals how income diversification contributes in linking the intellectual capital to the performance of the commercial banks of Bangladesh from 2013 to 2023. To begin with, intellectual capital will boost bank performance. The parts of this intangible asset, which includes human capital efficiency, structural capital efficiency, and capital employed efficiency, are also substantially as well as positively linked to the financial results of banks. Additionally, the findings discover that income diversity is adversely linked to bank performance. Finally, the results confirmed that, as a moderating variable, income diversity lessens the overall effect of this capital on how well banks perform. To be specific, income diversification negatively moderates the human capital efficacy and structural capital efficacy. However, no effect on capital employed efficacy is found.

Policymakers along with bank managers may benefit from the study. It is evident that intellectual capital offers competitive edge in their efforts for greater bank performance, as evidenced by the strong positive association between bank profitability and intellectual capital (Tiwari and Vidyarthi, 2018; Nguyen et al., 2023, and Githaiga 2023). Second, as income diversification negatively affects the performance, the diversity to non-banking activities may cause volatility on profitability. Moreover, legal expenses may be increased because of the different regulatory environment of managing non-traditional activities rather than the regular core activities (Allen & Jagtiani, 2000). Thus, banks should focus on their core activities and for diversification, they should research on proportion of different activities. Thirdly, the contribution of income diversification on human capital efficacy, structural capital efficiency, and bank performance indicates that management has to assess how non-banking operations affect the creations of value of bank using intangible asset efficiency. This paper will contribute to the existing resource-based view theory and modern portfolio theory by

incorporating income diversity on the efficacy of intangible asset and performance of banks in Bangladesh.

6. Limitations and Directions for Future Studies

This study has some drawbacks. It focusses on only the banking sector of Bangladesh. Future research can include cross-country analysis and other financial as well as non-financial sectors. Moreover, in this study, three elements of intellectual capital efficacy following VAIC method, such as human capital efficacy, structural capital efficacy, and capital employed efficacy are included. Future studies can incorporate other components of VAIC to connect them to the profitability of banks. This research has incorporated the accounting-based performance measurement. Therefore, other parametric and non-parametric measures of efficiency can be expanded for assessing the performance of banks.

References

Abdelhaq, R., Salem, A., Rabaia, D. J., Jardaneh, L., Nour, A. I., & Al-Sartawi, A. M. M. (2025). Corporate governance and intellectual capital efficiency: empirical evidence from Palestine. *International Journal of Intellectual Property Management*, *15*(2), 180-203.

Alhassan, A. L., & Asare, N. (2016). Intellectual capital and bank productivity in emerging markets: evidence from Ghana. *Management decision*, *54*(3), 589-609.

Allen, L., & Jagtiani, J. (2000). The risk effects of combining banking, securities, and insurance activities. *Journal of Economics and Business*, *52*(6), 485-497.

Asutay, M., & Ubaidillah. (2024). Examining the impact of intellectual capital performance on financial performance in Islamic banks. *Journal of the Knowledge Economy, 15*(1), 1231-1263.

Baima, G., Forliano, C., Santoro, G., & Vrontis, D. (2020). Intellectual capital and business model: A systematic literature review to explore their linkages. *Journal of Intellectual Capital, 22*(3), 653–679.

Bayraktaroglu, A. E., Calisir, F., & Baskak, M. (2019). Intellectual capital and firm performance: an extended VAIC model. *Journal of intellectual capital, 20*(3), 406-425.

Chiorazzo, V., Milani, C., & Salvini, F. (2008). Income diversification and bank

performance: Evidence from Italian banks. *Journal of financial services research*, *33*(3), 181-203.

Chinnasamy, G., Madbouly, A., Vinoth, S., & Chandran, P. (2024). Intellectual capital and bank's performance: a cross-national approach. *Journal of Financial Reporting and Accounting*, *22*(2), 366-391.

Chowdhury, M. A., & Salman, A. G. (2021). Bank-Specific and Macroeconomic Determinants of Profitability: Empirical Evidence from Bangladeshi Private Commercial Banks. *American Journal of Theoretical and Applied Business*, *7*(4), 72-80.

Chowdhury, T., Karim, R. A., Awanis, A., & Rownak, A. (2024). Does the Size of a Bank Moderate the Relationship Between Income, Asset Diversification, and Bank Stability?. *International Journal of Financial Studies*, *12*(4), 125.

Combs, J. G., Ketchen, Jr, D. J., Ireland, R. D., & Webb, J. W. (2011). The role of resource flexibility in leveraging strategic resources. *Journal of Management Studies*, *48*(5), 1098-1125.

Cosma, S., Grasso, A. G., Pattarin, F., & Pedrazzoli, A. (2019). The role of platforms in equity crowdfunding campaigns. In ADEIMF Conference Paper.

Das, S., & Pati, A. P. (2025). Bank market power drivers: comparative insights from India and Bangladesh. *South Asian Journal of Business Studies, 14*(2), 221-236.

Dalwai, T., Singh, D., & Ananda, S. (2021). Intellectual capital, bank stability and risk-taking: Evidence from Asian emerging markets. *Competitiveness Review: An International Business Journal, 32*(6), 995–1024.

Delpachitra, S., & Lester, L. (2013). Non-interest income: Are Australian banks moving away from their traditional businesses?. *Economic Papers: A journal of applied economics and policy*, *32*(2), 190-199.

DeYoung, R., & Roland, K. P. (2001). Product mix and earnings volatility at commercial banks: Evidence from a degree of total leverage model. *Journal of financial Intermediation*, *10*(1), 54-84.

Doan, A.T., Lin, K.L. and Doong, S.C. (2018). What drives bank efficiency? The interaction of bank income diversification and ownership. *International Review of Economics and Finance, 55*, 203-219.

Duho, K. C. T., Onumah, J. M., & Owodo, R. A. (2020). Bank diversification and performance in an emerging market. *International Journal of Managerial Finance*, *16*(1), 120-138.

Edvinsson, L., & Sullivan, P. (1996). Developing a model for managing intellectual capital. *European Management Journal, 14*(4), 356–364.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they?. *Strategic management journal*, *21*(10-11), 1105-1121.

Faruq, M. O., Akter, T., & Rahman, M. M. (2023). Does intellectual capital drive bank's performance in Bangladesh? Evidence from static and dynamic approach. *Heliyon*, *9*(7).

Firer, S., & Williams, S. M. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital, 4*(3), 348–360.

Ferraris, A., Santoro, G., & Pellicelli, A.C. (2020). Openness of public governments in smart cities: Removing the barriers for innovation and entrepreneurship. *International Entrepreneurship and Management Journal, 16*(4), 1259–1280.

Gazi, M. A. I., Nahiduzzaman, M., Harymawan, I., Masud, A. A., & Dhar, B. K. (2022). Impact of COVID-19 on financial performance and profitability of banking sector in special reference to private commercial banks: empirical evidence from Bangladesh. *Sustainability, 14*(10), 6260.

Gazi, M. A. I., Karim, R., Senathirajah, A. R. B. S., Ullah, A. M. M., Afrin, K. H., & Nahiduzzaman, M. (2024). Bank-specific and macroeconomic determinants of profitability of Islamic Shariah-based banks: Evidence from new economic horizon using panel data. *Economies*, *12*(3), 66.

Githaiga, P. N. (2023). Intellectual capital and bank performance: the moderating role of income diversification. *Asia-Pacific Journal of Business Administration, 15*(4), 509-526.

Hamdan, A. (2018). Intellectual capital and firm performance: Differentiating between accounting-based and market-based performance. *International Journal of Islamic and Middle Eastern Finance and Management*, *11*(1), 139-151.

Helfat, C.E., & Peteraf, M.A. (2015). Managerial cognitive capabilities and the micro foundations of dynamic capabilities. *Strategic Management Journal, 36*(6), 831–850.

Johnston, K. A., & Lane, A. B. (2018). Building relational capital: The contribution of episodic and relational community engagement. *Public Relations Review*, *44*(5), 633-644.

Joshi, M., & Cahill, D. (2010). Intellectual capital performance in the banking sector: An assessment of Australian owned banks. *Journal of Human Resource Costing & Accounting, 14*(2), 151–170.

Jeandry, G., & Fajriyanti, N. (2023). Financial performance as mediation is influenced by diversification and intellectual capital on sustainability performance. *International Journal of Research in Business & Social Science*, *12*(3).

Kim, J. H. (2019). Multicollinearity and misleading statistical results. *Korean journal of anesthesiology*, *72*(6), 558-569.

Kim, S., & Lee, H. (2010). Factors affecting employee knowledge acquisition and application capabilities. *Asia-Pacific Journal of Business Administration*, *2*(2), 133-152.

Kweh, Q. L., Ting, I. W. K., Hanh, L. T. M., & Zhang, C. (2019). Intellectual capital, governmental presence, and firm performance of publicly listed companies in Malaysia. *International Journal of Learning and Intellectual Capital*, *16*(2), 193-211.

Le, T. D., & Nguyen, D. T. (2020). Intellectual capital and bank profitability: New evidence from Vietnam. *Cogent Business & Management*, *7*(1), 1859666.

Lee, C. C., Chen, P. F., & Zeng, J. H. (2020). Bank income diversification, asset correlation and systemic risk. *South African Journal of Economics*, *88*(1), 71-89.

Le, T. D., Ho, T. N., Nguyen, T., & Ngo, T. (2022). Intellectual capital–bank efficiency nexus: Evidence from an emerging market. *Cogent Economics & Finance*, *10*(1), 1–18, 2127485.

Lu, W.-M., Wang, W.-K., & Kweh, Q. L. (2014). Intellectual capital and performance in the Chinese life insurance industry. *Omega*, *42*(1), 65–74.

Majumder, M. T. H., Ruma, I. J., & Akter, A. (2023). Does intellectual capital affect bank performance? Evidence from Bangladesh. *LBS Journal of Management & Research*, *21*(2), 171-185.

Maji, S. G., & Saha, R. (2024). Does intellectual capital influence banks' efficiency? Evidence from India using panel data tobit model. *Managerial Finance*, *50*(4), 697-717.

Maji, S. G., & Goswami, M. (2016). Intellectual capital and firm performance in emerging economies: the case of India. *Review of International Business and Strategy*, *26*(3), 410-430.

Markowitz, H. (1952). Portofolio selection. *Journal of finance, 7(1)*, 77-91.

Marti, J. M. V. (2001). ICBS – intellectual capital benchmarking system. *Journal of Intellectual Capital*, *2*(2), 148–165.

Meles, A., Porzio, C., Sampagnaro, G., & Verdoliva, V. (2016). The impact of the intellectual capital efficiency on commercial banks performance: Evidence from the US. *Journal of Multinational Financial Management, 36*, 64-74.

Merino, P. B., Grandval, S., Upson, J., & Vergnaud, S. (2014). Organizational slack and the capability life-cycle: The case of related diversification in a technological SME. *The International Journal of Entrepreneurship and Innovation, 15*(4), 239-250.

Meslier, C., Tacneng, R., & Tarazi, A. (2014). Is bank income diversification beneficial? Evidence from an emerging economy. *Journal of International Financial Markets, Institutions and Money, 31*, 97-126.

Mohapatra, S., Jena, S. K., Mitra, A., & Tiwari, A. K. (2019). Intellectual capital and firm performance: evidence from Indian banking sector. *Applied Economics, 51*(57), 6054-6067.

Mollah, M. A. S., & Rouf, M. A. (2022). The impact of intellectual capital on commercial banks' performance: evidence from Bangladesh. *Journal of Money and Business, 2*(1), 82-93.

Mondal, A., & Ghosh, S. K. (2012). Intellectual capital and financial performance of Indian banks. *Journal of intellectual capital, 13*(4), 515-530.

Moudud-Ul-Huq, S., Ashraf, B. N., Gupta, A. D., & Zheng, C. (2018). Does bank diversification heterogeneously affect performance and risk-taking in ASEAN emerging economies? *Research in International Business and Finance, 46*, 342-362.

Nguyen, D. T., Le, T. D., & Tran, S. H. (2023). The moderating role of income diversification on the relationship between intellectual capital and bank performance evidence from Viet Nam. *Cogent Business & Management, 10*(1), 1-19.

Nadeem, M., Gan, C. and Nguyen, C. (2017). Does intellectual capital efficiency improve firm performance in BRICS economies? A dynamic panel estimation. *Measuring Business Excellence, 21*(1), 65-85.

Ousama, A. A., Hammami, H., & Abdulkarim, M. (2020). The association between intellectual capital and financial performance in the Islamic banking industry: An analysis of the GCC banks. *International Journal of Islamic and Middle Eastern Finance and Management, 13*(1), 75-93.

Ozkan, N., Cakan, S., & Kayacan, M. (2017). Intellectual capital and financial performance: A study of the Turkish Banking Sector. *Borsa Istanbul Review, 17*(3), 190-198.

Paltrinieri, A., Dreassi, A., Rossi, S., & Khan, A. (2021). Risk-adjusted profitability and stability of Islamic and conventional banks: does revenue diversification matter?. *Global Finance Journal*, *50*, 100517.

Pennathur, A. K., Subrahmanyam, V., & Vishwasrao, S. (2012). Income diversification and risk: Does ownership matter? An empirical examination of Indian banks. *Journal of Banking & Finance*, *36*(8), 2203-2215.

Petty, R., & Guthrie, J. (2000). Intellectual capital literature review: Measurement, reporting and management. *Journal of Intellectual Capital*, *1*(2), 155–176.

Phan, T. T. H., Pham, A. H. T., Le, H. A., & Lam, T. B. N. (2023). The Impact of non-interest income on the performance of commercial banks in the ASEAN Region. *Journal of Risk and Financial Management*, *16*(1), 18.

Pulic, A. (1998). Measuring the performance of intellectual potential in knowledge economy. Paper presented at the 2nd McMaster World Congress on Measuring and Managing Intellectual Capital, Austria.

Pulic, A. (2000). VAIC™–an accounting tool for IC management. *International journal of technology management*, *20*(5-8), 702-714.

Pulic, A. (2004). Intellectual capital–does it create or destroy value?. *Measuring business excellence*, *8*(1), 62-68.

Ramanathan, R., Ramanathan, U., & Zhang, Y. (2016). Linking operations, marketing and environmental capabilities and diversification to hotel performance: A data envelopment analysis approach. *International Journal of Production Economics*, *176*, 111-122.

Rehman, A. U., Aslam, E., & Iqbal, A. (2022). Intellectual capital efficiency and bank performance: Evidence from islamic banks. *Borsa Istanbul Review*, *22*(1), 113-121.

Roslender, R., & Fincham, R. (2004). Intellectual capital accounting in the UK: a field study perspective. *Accounting, Auditing & Accountability Journal*, *17*(2), 178-209.

Sannino, G., Nicolò, G., & Zampone, G. (2021). The impact of intellectual capital on bank performance during and after the NPLs crisis: evidence from Italian banks. International *Journal of Applied Decision Sciences*, *14*(4), 419-442.

Sanya, S., & Wolfe, S. (2011). Can banks in emerging economies benefit from revenue diversification? *Journal of financial services research*, *40*, 79-101.

Sayed, O. A., & Nefzi, A. (2024). The Impact of Intellectual Capital on Sustainable Performance: Banking Sector in Saudi Arabia. *Sustainability*, *16*(11), 4528.

Sharabati, A. A., Jawad, S. N., & Bontis, N. (2010). Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision*, *48*(1), 105–131.

Sharma, S., & Anand, A. (2018). Income diversification and bank performance: evidence from BRICS nations. *International Journal of Productivity and Performance Management, 67*(9), 1625-1639.

Smriti, N., & Das, N. (2018). The impact of intellectual capital on firm performance: A study of Indian firms listed in COSPI. *Journal of Intellectual Capital, 19*(5), 935–964.

Soewarno, N., & Tjahjadi, B. (2020). Measures that matter: an empirical investigation of intellectual capital and financial performance of banking firms in Indonesia. *Journal of Intellectual Capital, 21*(6), 1085-1106.

Soetanto, T., & Liem, P. F. (2019). Intellectual capital in Indonesia: dynamic panel approach. *Journal of Asia Business Studies, 13*(2), 240-262.

Stiroh, K.J. and Rumble, A. (2006). The dark side of diversification: the case of US financial holding companies. *Journal of Banking and Finance, 30(*8), 2131-2161.

Tiwari, R., & Vidyarthi, H. (2018). Intellectual capital and corporate performance: a case of Indian banks. *Journal of Accounting in Emerging Economies, 8*(1), 84-105.

Tran, D. B., & Vo, D. H. (2018). Should bankers be concerned with Intellectual capital? A study of the Thai banking sector. *Journal of Intellectual Capital, 19*(5), 897-914.

Teece, D., & Pisano, G. (2003). The dynamic capabilities of firms (pp. 195-213).

Ul Rehman, W., Saltik, O., Degirmen, S., Ocak, M., & Shabbir, H. (2024). Dynamics of intellectual capital and financial performance in ASEAN banks. *Arab Gulf Journal of Scientific Research, 42*(4), 1426-1443.

Vishnu, S., & Kumar Gupta, V. (2014). Intellectual capital and performance of pharmaceutical firms in India. *Journal of intellectual capital, 15*(1), 83-99.

Wahyuningtias, E., & Kusumawardhani, R. (2024). The moderating effect of income diversification on intellectual capital and company performance: Case study of banking in Indonesia. *Jurnal Siasat Bisnis*, 103-115.

Xu, J., & Liu, F. (2021). Nexus between intellectual capital and financial performance: An investigation of Chinese manufacturing industry. *Journal of Business Economics and Management, 22*(1), 217-235.

Zéghal, D., & Maaloul, A. (2010). Analysing value added as an indicator of intellectual capital and its consequences on company performance. *Journal of Intellectual Capital, 11*(1), 39–60.

Appendix

Table A1: Regression Results Using ROE

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	ROE	ROE	ROE	ROE	ROE	ROE	ROE
Constant	0.367***	0.1533*	-0.1276*	0.1093	-0.0794	0.1069	-0.163**
	(0.0944)	(0.087)	(0.0748)	(0.0813)	(0.0755)	(0.0835)	(0.0771)
Independent variables: VAIC and components							
VAIC		0.02***		0.016***		0.015***	
		(0.002)		(0.0021)		(0.0027)	
HCE			-0.01***		-0.0034		0.0098
			(0.0026)		(0.0031)		(0.008)
SCE			0.21***		0.120***		0.274***
			(0.0096)		(0.0136)		(0.0191)
CEE			2.64***		2.0537***		4.0926***
			(0.2688)		(0.2706)		(0.7348)
Moderator							
IDIV				-0.12***	-0.073***	-0.12***	0.1568***
				(0.0062)	(0.0082)	(0.0067)	(0.0168)
Interaction effect							
VAIC*IDIV						0.003	
						(0.0031)	
HCE*IDIV							-0.028***
							(0.0107)
SCE*IDIV							-0.107***
							(0.0182)
CEE*IDIV							-2.5004**
							(1.2266)
Control variables							
SIZE	-0.01***	-0.0051	0.0017	0.0006	0.0038	0.0008	-0.0008
	(0.0035)	(0.0032)	(0.0027)	(0.003)	(0.0028)	(0.0031)	(0.0028)
CAR	-0.08***	-0.06***	-0.022	-0.11***	-0.05***	-0.11***	-0.037**
	(0.0229)	(0.021)	(0.0177)	(0.0189)	(0.0179)	(0.0189)	(0.0183)
GDP	0.1097	-0.0437	-0.2165	-0.3191	-0.3255	-0.3068	-0.426**
	(0.2786)	(0.2546)	(0.2035)	(0.2261)	(0.2047)	(0.2273)	(0.2017)
INF	0.2719	0.3262	0.2691	0.3879**	0.309*	0.3784*	0.3654**
	(0.2372)	(0.2179)	(0.1745)	(0.1939)	(0.1741)	(0.196)	(0.1703)
Observations	330	330	330	330	330	330	330
R-squared	0.0454	0.2116	0.6636	0.5978	00.6658	0.6092	0.763

Notes: Standard errors are in parentheses. *** p<0.01, ** p<0.05 and * p<0.10
Source: Authors' calculation

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 256-286)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20257

Evaluating the Effectiveness of Fiscal and Monetary Policy in the Bangladeshi Economy: A HANK-DSGE Analysis

- Sakib Bin Amin*
- Mainul Islam Chowdhury**
- Javed Hossain***

Abstract

This paper assesses the efficacy of fiscal and monetary policies in the context of the Bangladeshi economy, which is currently experiencing significant changes in the aftermath of its recent regime shift. The study employs a closed economy HANK-DSGE framework to analyze these policies. The results indicate that both fiscal and monetary measures stimulate growth through demand- and supply-side channels, though monetary policy exerts a stronger influence. We argue for an optimal, coordinated policy mix to reinvigorate the economy while containing inflationary pressures.

Keywords: HANK-DSGE Model, Fiscal Policy, Monetary Policy, Bangladeshi Economy.
JEL Classification: C32, C68, E52, E62

1. Introduction

Macroeconomic stabilization programs worldwide aim to achieve high, stable, and sustainable development. A wealth of literature outlines how fiscal and monetary policies can boost the economy and achieve macroeconomic stability (Younus, 2017; Leith & Von Thadden, 2008; El Husseiny, 2023). However, there remains ambiguity regarding the findings of the relative effectiveness of these policies on both the theoretical and empirical fronts. The ideological distinction between Keynesian and monetarist approaches can be used to understand the core of this ambiguity.

While monetarists emphasize the need for significant increases in the money supply to boost the economy, Keynesians raise concerns regarding the

* Sakib Bin Amin is a Professor, Department of Economics, North South University, Dhaka, Email: sakib.amin@northsouth.edu; **Mainul Islam Chowdhury, Ph.D., Associate Professor, Department of Economics, North South University, Dhaka, Email: mainul.chowdhury@ northsouth.edu, and ***Javed Hossain, Assistant Professor, Department of Economics, North South University, Dhaka, Email: javed.hossain01@northsouth.edu. The views expressed in this paper are the authors' own.

effectiveness of a higher monetary supply to stimulate the economy. They instead argue that governments should rely on fiscal policy to stimulate the economy because of the liquidity trap effect.

This debate becomes more prominent in Bangladesh, where the newly formed interim government is committed to boosting the economy by stabilizing the banking sector, reestablishing trust, instituting transparency and accountability, and combating inflation through monetary and fiscal policies. Sound economic research is expected to guide policymakers in finding the most optimal macroeconomic policies. A fundamental prerequisite for the effective conduct of macroeconomic policy is a rigorous understanding of the monetary and fiscal transmission mechanisms through which policy actions influence the aggregate economic performance (Kaplan, Moll, & Violante, 2018). During ousted prime minister Sheikh Hasina's regime (2009-2024), Bangladesh's economy was fragile, as shown by high inflation, diminishing foreign exchange reserves, mounting debt, ineffective tax collection, poor development project implementation, and inadequate financial sector governance. Therefore, repairing the fractures within the economy will require persistent and arduous efforts by the interim and the future elected governance over an extended period. However, the right strategies and sustained efforts can improve the economy.

Dynamic Stochastic General Equilibrium (DSGE) models have advanced significantly in recent years for macroeconomic policy research because policymakers find them particularly significant because they offer insights into trade prices and quantities while generating more comprehensive and sophisticated data relevant to the economy. The DSGE model also makes it easier to predict how market conditions, including new government policies or technological advancements, will alter the degree of welfare. Moreover, the New Keynesian (NK) model has gained momentum in monetary policy analysis throughout the past decade. This model is based on the Rational Expectations (REs) hypothesis and presumes a representative agent structure (Massaro, 2013).

A detailed household consumption and investment model is necessary to assess the relative strength of fiscal and monetary policy. There are growing concerns regarding the Representative Agent New Keynesian (RANK) model, as

the aggregate consumption response to a change in interest rates is driven entirely by the Euler equation of the representative household. Therefore, monetary policy in RANK models operates almost solely through intertemporal substitution for any plausible parameterization: indirect effects are minimal, and direct effects account for the macroeconomic impact of interest rate changes. Thus, to evaluate the efficacy of Bangladesh's macroeconomic policies across the significant macroeconomic variables, we create a Heterogeneous Agent New Keynesian (HANK) model.

Following Galí, López-Salido, & Vallés (2007), our model considers two different types of households: Ricardian and Non-Ricardian. While Non-Ricardian households do not have access to financial and capital markets, the Ricardian household has unlimited access to the capital and financial markets. Both households must pay taxes on their income. Both households are subjected to tax on their earnings. As in Rotemberg (1982), we employ the conventional New Keynesian model on the supply side, assuming that monopolistically competitive producers set prices in the face of nominal rigidities through quadratic price adjustment costs.

Model calibration is required before examining the model's performance to evaluate the empirical data. For example, Cooley (1995) calibrates the model by choosing parameter values consistent with long-run historical averages and microeconomic evidence. However, we have generally adopted three approaches in calibrating parameters for our DSGE model. Some parameters are picked from the existing DSGE literature for developing and developed countries. Some parameter values are chosen using the model's steady-state conditions. The Bangladesh Bureau of Statistics, Bangladesh Household Income and Expenditure Survey, Bangladesh Bank, and Bangladesh Economic Review directly consider the rest of the parameter values. All model parameters are calibrated at a quarterly frequency.

The main contribution of this paper is twofold. First, we develop a novel HANK-DSGE model tailored to the Bangladeshi economy, integrating heterogeneous household behavior into a micro-founded New Keynesian framework. Second, we calibrate the model to evaluate the performances of

monetary and fiscal policy towards Bangladesh's economy in a heterogeneous framework.

The paper is organized as follows. Section 2 reviews the literature. The DSGE model is presented in Section 3, which is followed by a discussion on the calibration of the parameters in Section 4. Section 5 discusses the results. Finally, conclusions and policy implications are presented in Section 6.

2. Literature Review

Senbeta (2011) examined the applicability of the New Keynesian DSGE model to low-income economies in Sub-Saharan Africa, excluding South Africa. The study reviewed developments, criticisms, and recent advancements in DSGE modeling, highlighting persistent challenges, particularly in incorporating structural specifications relevant to low-income economies. The findings underscore the necessity of modifying standard NK DSGE assumptions to address pressing issues such as labor market dynamics and unemployment.

Amiri, Sayadi, and Mamipour (2021) analyzed the impact of oil price shocks on macroeconomic variables in oil-exporting economies using a DSGE model calibrated for Iran. Their framework included households, firms, the central bank, and government sectors, integrating balance-of-payments and government budget constraints. The results indicate that increases in oil revenue expand the monetary base, leading to inflation, real exchange rate depreciation, and weakened competitiveness. The authors suggest that sovereign wealth funds could help stabilize the economy against external oil price shocks.

Nguyen (2021) investigated the sources of business cycle fluctuations in Vietnam using a small open-economy NK-DSGE model with habit formation, staggered pricing, and incomplete exchange rate pass-through. To improve the model’s accuracy in capturing international spillovers, additional foreign shocks were incorporated. Impulse response functions and historical decompositions revealed insights into Vietnam’s economic fluctuations, and the study recommends integrating the banking sector to better capture nominal frictions.

Zhang, Zhang, and Zhu (2021) explored the effects of the COVID-19 pandemic on China's economic sustainability, income inequality, and government debt using an NK DSGE framework. The study found that pandemic-induced demand and supply shocks hindered sustainable development and exacerbated social inequality. The authors recommend that monetary policy focus on price stability during demand-driven recessions and prioritize economic growth when labor demand declines. Targeted interventions that stimulate consumption are suggested to sustain economic activity.

Fornero (2010) examined fiscal and monetary policy interactions in the EU and US, evaluating the relevance of the Ricardian Equivalence Proposition in economies with liquidity-constrained consumers. Using a DSGE model estimated via vector autoregression, the study found that expansionary fiscal policy increases private consumption, contradicting the permanent income hypothesis, whereas monetary policy has limited effects on consumption. The findings suggest that incorporating capital dynamics and alternative tax regimes could refine policy implications.

Steinbach, Mathuloe, and Smit (2009) applied an open-economy NK DSGE model to South Africa, incorporating external habit formation, wage and price indexation, and staggered price-setting mechanisms. Bayesian estimation using data from 1990Q1 to 2007Q4 showed that the DSGE model outperformed Reuters consensus forecasts in predicting GDP growth over a seven-quarter horizon and provided more accurate medium- to long-term inflation forecasts.

Bukhari and Khan (2008) evaluated a small open-economy DSGE model representing Pakistan's economy, including price rigidity, habit formation, and monetary policy transmission mechanisms. Their analysis revealed that high inflation had minimal impact on domestic consumption, while a policy rate hike of 100–200 basis points effectively reduced inflation. Exchange rate pass-through to domestic prices was limited, and 24% of firms did not re-optimize prices, suggesting an average contract duration of roughly two quarters.

Bangara (2019) investigated the role of foreign exchange constraints in import-dependent, low-income economies using a four-sector NK DSGE model

calibrated to Malawi. The study found that increased imports, although vital for production, could reduce output and consumption while depreciating the currency. The severity of foreign exchange constraints influenced the magnitude of economic shocks, and contractionary monetary policy was found to stabilize output and consumption despite these constraints.

Kumar (2023) developed a closed-economy DSGE model to examine the effects of monetary policy on economic activity in India. Incorporating price rigidities and an inflation-targeting framework based on the Taylor rule, the simulations showed that positive productivity shocks enhance output, while expansionary monetary policy temporarily boosts output but does not sustain long-term growth.

While several studies have applied NK-DSGE models to emerging and low-income economies (e.g., Bukhari & Khan, 2008; Senbeta, 2011; Nguyen, 2021), little attention has been given to the relative effectiveness of fiscal and monetary policy in the context of Bangladesh. Moreover, existing models predominantly employ representative-agent frameworks, overlooking household heterogeneity. This paper addresses these gaps by analyzing fiscal–monetary policy effectiveness in Bangladesh using a heterogeneous-agent NK-DSGE model.

3. The Model

A heterogeneous agent New Keynesian DSGE framework is employed to analyze fluctuations in macroeconomic variables caused by fiscal and monetary policy shocks. The model incorporates heterogeneity by classifying households based on their access to financial markets and ownership of capital. Additionally, imperfect competition is included, allowing firms to produce differentiated goods using distinct labor and capital inputs. The effectiveness of various fiscal policies is assessed through government intervention within the model. A monetary authority is also incorporated to implement monetary policy. Finally, the general equilibrium framework is completed through the market-clearing condition.

3.1 The Household Problem

We consider two types of agents based on the framework presented by Galí, López-Salido, and Vallés (2007). A continuum of infinitely lived representative households is indexed by $j \in [0,1]$. A fraction (ω) of households, denoted as Ricardian (R), have unrestricted access to financial and capital markets. By contrast, the remaining $(1-\omega)$ fraction, referred to as Non-Ricardian (NR), are excluded from both markets. Ricardian households are subject to a lump-sum tax, τ. The respective households $j \in \{R, NR\}$ maximize their welfare through the following CRRA utility function[1]:

$$U(C_{j,t}, L_{j,t}) = E_t \sum_{t=0}^{\infty} \beta^t \left(\frac{C_{j,t}^{1-\sigma_j}}{1-\sigma_j} - \frac{L_{j,t}^{1+\phi_j}}{1+\phi_j} \right) \text{.....(1)}$$

where E denotes the expectation parameter β is the intertemporal discounting factor; C_j is the consumption of the household $j \in \{R, NR\}$. σ_j is the relative risk aversion coefficient. L_j is the quantity of labor supplied by household $j \in \{R, NR\}$ that creates negative utility for the household. ϕ_j is the inverse of Frisch elasticity due to labor supply. The following sections provide the budget constraints of the respective households with the necessary first-order conditions.

3.1.1 Ricardian Households, *R*

The representative Ricardian household chooses the level of consumption, labor supply, capital formation, and government-issued bond to maximize the utility function, equation (1), subject to the following budget constraint:

$$P_t C_{R,t} + P_t I_t + \frac{B_{t+1}}{R_{B,t}} = P_t W_t L_{R,t} + P_t R_t K_t + B_t + P_t \Pi_t - P_t \tau_t \text{ ..... (2)}$$

[1] This specification is referred to as the constant relative risk aversion (CRRA) utility function. Under this formulation, the marginal utility of consumption declines at a constant rate determined by the coefficient of relative risk aversion. The curvature of the utility function depends on the sign and magnitude of this coefficient: a positive value implies concavity and risk-averse behavior, a negative value implies convexity and risk-loving preferences, and a value of zero corresponds to risk neutrality. In parallel, the Frisch elasticity captures the responsiveness of labor supply to changes in wages, isolating the substitution effect while holding wealth constant.

At the beginning of the period t, the Ricardian household earns labor income $P_t W_t L_{R,t}$ where P_t is the price level, W_t is the real wage, and $L_{R,t}$ denotes the labor supply by the Ricardian household. Due to the ownership of capital, this type of household earns an income from capital holdings, $P_t R_t K_t$ where R_t denotes the real return to the capital. B_t is the quantity of the nominally riskless bond carried over from the period $t-1$. $R_{B,t}$ is the nominal return on this bond. $\frac{B_{t+1}}{R_{B,t}}$ measures the expenditure on the nominally riskless bond at period t , which will give a return $R_{B,t+1}$ at period $t+1$. Π_t is a dividend to the Ricardian household by the firm. It has to be mentioned that the representative household is paying a lump-sum tax, τ_t. Capital adjustment costs are introduced in the law of motion of capital following Christiano, Eichenbaum, and Evans (2005) as shown below

$$K_{t+1} = (1-\delta)K_t + I_t\left(1 - \frac{\chi}{2}\left(\frac{I_t}{I_{t-1}} - 1\right)^2\right) \dots\dots\dots\dots\dots\dots\dots (3)$$

Where $\delta \in (0,1)$ is the rate of depreciation, and $\chi > 0$ is an investment cost parameter. However, the cost of adjusting investments is described in a manner that meets the criteria outlined in Christiano, Eichenbaum, and Evans (2005). This convex cost faced by the representative household is included to avoid the excessive investment volatility due to interest rate differentials. Maximizing the Ricardian household's utility function with respect to the budget constraint (equation(2)) and law of motion of capital stock (equation (3)) provides the following conditions:

$$W_t = C_{R,t}^{\sigma_R} L_{R,t}^{\phi_R} \dots\dots\dots\dots\dots\dots\

$$\Rightarrow 1 = q_t\left(1 - \frac{\chi}{2}\left(\frac{I_t}{I_{t-1}} - 1\right)^2 - \chi\left(\frac{I_t}{I_{t-1}} - 1\right)\left(\frac{I_t}{I_{t-1}}\right)\right) + \beta\chi E_t\left(\frac{C_{R,t+1}}{C_{R,t}}\right)^{-\sigma_R} q_{t+1}\left(\frac{I_{t+1}}{I_t} - 1\right)\left(\frac{I_{t+1}}{I_t}\right)^2$$

$$1 = \beta R_{B,t} E_t\left(\frac{C_{R,t+1}}{C_{R,t}}\right)^{-\sigma_R}\left(\frac{P_t}{P_{t+1}}\right) \quad \text{.....(7)}$$

Here, Q_t plays the role of Tobin's Q showing the ratio between the installed capital's market value and the installed capital's replacement cost. Here, $q_t = \frac{Q_t}{P_t}$. Euler equations relate the expected marginal utility of consumption today with the expected marginal utility of consumption tomorrow, considering the effects of interest rate and time preferences.

3.1.2 Non-Ricardian Households, *NR*

Unlike the Ricardian households, the representative non-Ricardian household has access to neither the financial market nor the bond market. The budget constraint for the non-Ricardian household can be written as

$$C_{NR,t} = W_t L_{NR,t} \quad \text{.....(8)}$$

The non-Ricardian household maximizes its utility function specific to the type (equation (1)) within the aforementioned budget constraint. The first-order conditions, along with appropriate algebraic substitutions, yield

$$W_t = C_{NR,t}^{\sigma_{NR}} L_{NR,t}^{\phi_{NR}} \quad \text{.....(9)}$$

3.1.3 Aggregation

Aggregate consumption and labor can be calculated using the weighted average of the respective variables for each consumer type as follows:

$$C_t \equiv \omega C_{R,t} + (1-\omega) C_{NR,t} \quad \text{.....(10)}$$

$$L_t \equiv \omega L_{R,t} + (1-\omega) L_{NR,t} \quad \text{.....(11)}$$

Similarly, aggregate investment and capital stock are given by

$$I_t \equiv \omega I_{R,t}$$

$$K_t \equiv \omega K_{R,t}$$

3.2 The Firm Problems

One important novelty of the NK-DSGE model is that it incorporates imperfect competition in the framework by assuming a continuum of monopolistically competitive firms (indexed by j) producing differentiated intermediate goods. However, a final good-producing firm assembles all these intermediate goods to produce the final good in a perfectly competitive environment.

3.2.1 Final Good Producer

The perfectly competitive representative final good producer produces the final good by assembling a continuum of intermediate goods ($j \in [0,1]$) as per the following aggregator function (Dixit & Stiglitz, 1977):

$$Y_t = \left(\int_0^1 Y_{j,t}^{1-\frac{1}{\rho}} dj \right)^{\frac{\rho}{\rho-1}} \quad \text{.....(12)}$$

where $Y_{j,t}$the amount of intermediate is good j used as input for final good production, $\rho > 1$ is the elasticity of substitution among intermediate goods[2]. Taking the price of final good P_t and the price of intermediate good $P_{j,t}$ $\forall$ j as given, profit maximization problem yields the following demand for the intermediate good j

$$Y_{j,t} = \left(\frac{P_{j,t}}{P_t} \right)^{-\rho} Y_t \quad \text{.....(13)}$$

As the final good producing firm is perfectly competitive, the zero-profit condition provides the following general price index

$$P_t = \left(\int_0^1 P_{j,t}^{1-\rho} \, dj \right)^{\frac{1}{1-\rho}} \quad \text{.....(14)}$$

[2] It will be a Cobb-Douglas production function if the elasticity of substitution is equal to 1.

3.2.2 Intermediate Good Producers

A continuum of intermediate good producers is producing differentiated intermediate products employing capital and labor as follows.

$$Y_{j,t} = A_t K_{j,t}^{\alpha} L_{j,t}^{1-\alpha} \quad \text{.....(15)}$$

where $K_{j,t}$ and $L_{j,t}$ depict the demand for capital and labor by the intermediate good producer firm j. α measures the contribution of capital in the production process. A_t measures the productivity shock, which is common to all firms. Taking the factor prices as given, the cost minimization problem provides the relative factor demand as follows

$$\frac{K_{j,t}}{L_{j,t}} = \frac{\alpha}{1-\alpha}\frac{W_t}{R_t} \quad \text{.....(16)}$$

The constant returns to technology and common productivity shock make the marginal cost the same for all firms.

$$MC_t = \frac{1}{A_t}\left(\frac{R_t}{\alpha}\right)^{\alpha}\left(\frac{W_t}{1-\alpha}\right)^{1-\alpha} \quad \text{.....(17)}$$

However, the total factor productivity follows a $AR(1)$ process which is written in the logarithmic form

$$\log A_t = (1-\zeta_A)\log A + \zeta_A \log A_{t-1} + \epsilon_{A,t} \quad \text{.....(18)}$$

where $|\zeta_A| < 1$ is the autoregressive parameter confirming its stationary property. $\epsilon_{A,t}$ captures the productivity shock, which is assumed to be normally distributed, i.e., $\epsilon_{A,t} \sim N(0, \sigma_A)$.

3.2.3 Price Setting

Intermediate firms are assumed to adjust prices in a staggered manner, following the stochastic, time-dependent pricing rule introduced by Calvo (1983). Each firm resets its price with a probability $(1-\theta)$ each period. Hence, a fraction $(1-\theta)$ of producers reset their prices each period while the remaining fraction

θ of producers stick with the same price. A price resetting firm will solve the following problem in a period t:

$$E_t \sum_{\kappa=0}^{\infty} (\beta\theta)^{\kappa} \left(\tilde{P}_{j,t} Y_{j,t+\kappa} - MC_{j,t+\kappa} Y_{j,t+\kappa} \right)$$

subject to the following demand constraint

$$Y_{j,t+\kappa} = \left(\frac{\tilde{P}_{j,t}}{P_{t+\kappa}} \right)^{-\rho} Y_{t+\kappa}$$

After having the first order condition with respect to $\tilde{P}_{j,t}$, we can get

$$\tilde{P}_{j,t} = \frac{\rho}{\rho-1} E_t \sum_{\kappa=0}^{\infty} (\beta\theta)^{\kappa} MC_{j,t+\kappa} \quad \text{.....(19)}$$

where $\frac{\rho}{\rho-1}$ is the frictionless price markup in the steady state. However, the price index can be rewritten as

$$P_t = \left((1-\theta)\tilde{P}_t^{1-\rho} + \theta P_{t-1}^{1-\rho} \right)^{\frac{1}{1-\rho}} \quad \text{.....(20)}$$

An inflationary situation is generated due to the markup created by the product differentiation and price stickiness. Log-linearizing the above two equations provide the New Keynesian Phillips curve equation as follow

$$\hat{\pi}_t = \beta E_t \hat{\pi}_{t+1} + \frac{(1-\theta)(1-\beta\theta)}{\theta} (\widehat{MC}_t - \hat{P}_t)$$

3.3 Fiscal Policy

The government budget constraint is

$$\frac{B_{t+1}}{R_{B,t}} + P_t \tau_t = B_t + P_t G_t \quad \text{.....(21)}$$

The government is generating revenue through imposing a lump-sum tax and issuing government bonds. The expenditure side of the government budget constraint contains public expenditure (G_t), and return to the government issued bonds $\left(\frac{B_{t+1}}{R_{B,t}}\right)$. The exogenous fiscal policy variable τ_t follows $AR(1)$ process

$$log\ \tau_t = (1-\zeta_\tau) log\ \tau\ + \zeta_\tau log\ \tau_{t-1} + \epsilon_{\tau,t}\ \ .....(22)$$

where ζ_τ is the persistent autoregressive parameter associated with the respective fiscal policy shock $\epsilon_{\tau,t} \sim\ N(0, \sigma_\tau)$. Following the fiscal policy rule (Galí, López-Salido, & Vallés, 2007), lump-sum tax imposed on the Ricardian is set as follows

$$\tau_t = B_t^{\phi_B} G_t^{\phi_G} .....(23)$$

where ϕ_B and ϕ_G\$ represent the smoothing parameter.

3.4 Monetary Policy

The central bank is assumed to set the nominal interest rate according to a simple Taylor rule (Taylor, 1993), aiming to simultaneously stabilize inflation and the output gap. The targeted inflation rate, corresponding to a threshold level of output, serves as an anchor for implementing the monetary policy rule. Following this, the Taylor rule can be written as

$$\frac{R_{B,t}}{R_B} = \left(\frac{R_{B,t-1}}{R_B}\right)^{\phi_R} \left(\left(\frac{\pi_t}{\pi}\right)^{\phi_\pi} \left(\frac{Y_t}{Y}\right)^{\phi_Y}\right)^{1-\phi_R} M_t .....(24)$$

where ϕ_Y and ϕ_π measure the interest rate sensitivity in relation to output and inflation, respectively. $\phi_R > 0$ is the interest rate smoothing parameter, and to satisfy Taylor rule, we have to maintain that $\phi_R > 1$. M_t captures the monetary policy shock following an $AR(1)$ process:

$$log\ M_t = (1-\zeta_M) log\ M\ + \zeta_M log\ M_{t-1} + \epsilon_{M,t}\ \ .....(25)$$

where $|\zeta_M| < 1$ is the autoregressive parameter ensuring its stationary property, and M is the money supply at the steady state. The exogenous monetary policy shock is captured by $\epsilon_{M,t}$ which follows a normal distribution ($\epsilon_{M,t} \sim\ N(0, \sigma_M)$).

3.5 Market Clearing Condition

The definition of the national income accounting for a closed economy represents the goods market clearing condition as follows

$$Y_t = C_t + I_t + G_t .....(26)$$

The above equation ensures that all the macroeconomic variables and agents attain the point of stable equilibrium.

4. Data and Parameters

The economic variables used in the calibration of the are drawn from several sources- Bangladesh Bureau of Statistics, Bangladesh Bank, and Bangladesh Economic Review. Standard parameter values are employed in line with the macroeconomic literature.

We set discount factor β equal to 0.99. The rate of depreciation δ is set equal to 0.025 as per the standard literature. For Ricardian households, coefficient of relative risk aversion σ_R is 1.50, and inverse of Frisch elasticity of labor supply ϕ_R is 2.00 as per the calibrated result of Rotemberg and Woodford (1997), while $\sigma_{NR} = 3.00$ and $\phi_{NR} = 0.5$ for the non-Ricardian household. Investment sensitivity in relation to adjustment cost, χ is 2.00 following (Banerjee, Basu, & Ghate (2020).

According to the World Bank Global Findex data of 2021, which is also refenced in Bangladesh Bank Financial Inclusion Report, 38 percent of Bangladeshi adult population reported having an account at a financial institution, such as bank, microfinance institution, or credit union. Accordingly, the share of Ricardian household is set to $\omega = 0.38$.

Taking the size of Bangladeshi GDP reported in the Bangladesh Economic Review, and gross capital formation as a percentage of GDP (collected from the World Bank website), it is found that the contribution of capital to output, α is 0.3, which is supported by Rahman and Yusuf (2010). Gabriel, Levine, Pearlman, and Yang (2012) estimated the elasticity of substitution (ρ) between intermediate good using the data of the Indian economy. Their estimated value of ρ is 7.02. Smets and Wouters (2007) take the price stickiness parameter, θ value 0.75. Using the concept of Solow residual, we create a series for the total factor productivity. The estimated autoregressive parameter for the total factor productivity is $\zeta_A = 0.9$.

Fiscal policy rule parameters are drawn from Galí, López-Salido, and Vallés (2007) who estimate the dynamic responses of government spending and deficits using a vector autoregressive (VAR) method. We adopt their estimated values of $\phi_G = 0.10$ and $\phi_B = 0.33$. The autoregressive coefficient of tax revenue is estimated at $\zeta_\tau = 0.84$, based on quarterly data from the World Bank's *World Development Indicators* (2002Q1–2023Q1).

For monetary policy, Younus (2017) estimated the relevant coefficients of Taylor rule for the Bangladeshi economy. The estimated interest rate smoothing parameter ϕ_R is 0.89. The estimated sensitivity of interest in relation to inflation, ϕ_π is 1.77 which is 1.50 in the standard macroeconomic literature. The estimated sensitivity of interest rate in relation to GDP, ϕ_Y is 0.45, which is slightly lower than the standard value of 0.5. Using the money supply data over the period 2002Q1-2023Q1 (collected from Bangladesh Bank website), the estimated autoregressive parameter for the monetary policy shock is $\zeta_M = 0.97$.

Table 1: List of Parameters

Parameter	Value	Description
Households		
β	0.99	Discount factor
δ	0.025	Rate of depreciation
σ_R	1.50	Relative risk aversion coefficient of Ricardian household
σ_{NR}	3.00	Relative risk aversion coefficient of non-Ricardian household
ϕ_R	2.00	Inverse of Frisch elasticity of labor supply of Ricardian household
ϕ_{NR}	0.50	Inverse of Frisch elasticity of labor supply of non-Ricardian household
χ	2.00	Investment sensitivity in relation to adjustment cost
ω	0.38	Fraction of Ricardian households
Firms		
α	0.30	Share of capital to output
ρ	7.02	Elasticity of substitution between intermediate goods
θ	0.75	Price stickiness parameter
ζ_A	0.90	AR coefficient of the productivity shock
Fiscal Policy		
ϕ_B	0.33	Persistence of government debt
ϕ_G	0.10	Persistence of government expenditure
ζ_τ	0.84	AR coefficient of the tax revenue shock
Monetary Policy		

Parameter	Value	Description
ϕ_R	0.89	Interest rate smoothing parameter
ϕ_π	1.25	Interest rate sensitivity of inflation
ϕ_Y	0.3	Interest rate sensitivity of output
ζ_M	0.97	AR coefficient of the monetary policy shock

5. Results

After log-linearizing the key equations of the model, we simulate the economic variables considering two types of shock: fiscal policy shock, and monetary policy shock. We discuss the results of the impulse response shock to one standard deviation to the all types of shocks. Responses are simulated for 40 periods.

5.1 Fiscal Policy Shock

We introduce a fiscal policy shock in the form of a temporary tax cut, as illustrated in Figure 5, panel (c). The primary objective of this policy is to stimulate the goods market. The responses of Ricardian and non-Ricardian households, however, differ significantly due to their distinct consumption and saving behaviors.

The response of Ricardian households is relatively muted. Since they are forward-looking, Ricardian households internalize the intertemporal budget constraint: a tax cut today implies higher taxation in the future. As a result, they increase savings to offset the expected future tax burden, leading to only a modest increase in consumption (Figure-1, panel(c)). In contrast, non-Ricardian households exhibit a stronger consumption response. Because they neither pay taxes nor smooth consumption intertemporally, they do not anticipate future tax hikes. Their disposable income rises immediately after the shock, which translates into a larger increase in consumption.

Both types of households contribute to a positive impact on employment, which raises labor demand and real wages (Figure 4, panel (e)). Nevertheless, the adjustment mechanisms differ. For Ricardian households, the income effect from higher disposable income reduces their incentive to work, while the wealth effect—arising from anticipated future taxation—further dampens their labor

supply response. Non-Ricardian households, by contrast, increase their labor supply, as they do not anticipate future tax obligations. The increase in labor demand, driven by higher consumption and output, reinforces the rise in real wages. The impulse response of real wages following the fiscal policy shock is consistent with this mechanism.

Investment rises in response to the tax cut, as higher disposable income stimulates aggregate demand. Firms increase investment to expand capacity, although the magnitude of this response is moderate due to expectations of higher future taxation, which may crowd out investment over time. The initial surge in investment raises borrowing demand, resulting in a sharp increase in the real interest rate (Figure 4, panel (a)), which subsequently declines as firms adjust to the anticipated fiscal tightening. Capital accumulation follows a similar trajectory: the demand for capital increases, as reflected in higher real returns to capital (Figure 4, panel (c)), but the effect is limited by the temporary nature of the tax cut.

The combined increase in consumption, investment, and labor demand contributes to higher output. However, this expansion is short-lived, as the temporary nature of the policy limits its persistence. Inflation exhibits a parallel response. The increase in aggregate demand exerts upward pressure on prices, generating demand-pull inflation. This effect is particularly pronounced if supply constraints are present.

In summary, the fiscal policy shock produces heterogeneous effects across household types. While non-Ricardian households drive stronger short-run responses in consumption and labor supply, Ricardian households exhibit more muted adjustments due to intertemporal considerations. The overall effects on output, wages, and inflation are positive but transitory, reflecting the temporary nature of the tax cut.

5.2 Monetary Policy Shock

A monetary policy shock is introduced into the economy through an exogenous increase in the money supply, as illustrated in Figure-4, panel (d). Our analysis shows that a one standard deviation monetary expansion reduces the nominal interest rate, consistent with established theoretical predictions regarding the negative relationship between money supply and nominal interest rates (Figure-4, panel (b)). The decline in the real interest rate stimulates Ricardian consumption through the wealth effect: lower borrowing costs increase the present value of future wealth, thereby encouraging higher consumption (Figure- 1, panel (d)). In contrast, non-Ricardian households do not benefit from this wealth effect due to liquidity constraints. Instead, their initial consumption declines (Figure-1, panel (f)), driven by the immediate increase in inflation (Figure-5, panel (d)).

The wealth effect from monetary expansion also induces Ricardian households to reduce their labor supply, as higher effective wealth allows them to work less without reducing consumption. In this case, the intertemporal substitution effect dominates the income effect. Conversely, non-Ricardian households increase their labor supply, as the absence of intertemporal smoothing requires them to offset higher prices by supplying more labor. Figure-4, panel (f) demonstrates that the real wage declines initially, reflecting the early dominance of inflationary pressures.

Investment initially falls following the monetary expansion, reflecting the crowding-out effect of higher aggregate consumption. When the central bank increases the money supply, disposable income rises, which directly boosts consumption. Firms respond to this consumption surge primarily by increasing current output rather than expanding capital investment. However, as the real interest rate continues to decline, investment gradually recovers. Capital accumulation follows a similar pattern: demand for capital weakens at first, then increases as lower borrowing costs stimulate both consumption and investment. As a result, aggregate output rises (Figure 3, panel (f)), with the effect being larger and more immediate than that observed under fiscal expansion.

A comparison of the left and right columns of Figures 1–5 indicates that both expansionary fiscal and monetary policies play important roles in stimulating consumption, employment, investment, and output, thereby strengthening aggregate demand and aggregate supply in the Bangladeshi economy. However, the results also show that the effects of monetary policy are more pronounced than those of fiscal policy. This suggests that a coordinated policy mix, rather than reliance on a single instrument, would be more effective in promoting sustainable economic growth.

6. Conclusion

By developing a HANK-DSGE framework, we evaluate the impacts of fiscal policy and monetary policy shocks on the Bangladesh economy in this paper. Our model takes into consideration a monetary authority, the government, intermediate and final producers, and heterogeneous agents (both Ricardian and non-Ricardian). We calibrate the simulated responses of various macroeconomic variables to monetary, and fiscal policy shocks. The impulse response functions produced in response to various shocks are briefly examined. It is important to note that IRF displays the endogenous variables' anticipated future trajectory conditional on a shock of one standard deviation in Period-1.

Figure 1: Simulated Responses of Aggregate, Ricardian, and Non-Ricardian Consumption. The Left Column Reports the Effects of Fiscal Expansion, While the Right Column Reports the Effects of Monetary Expansion

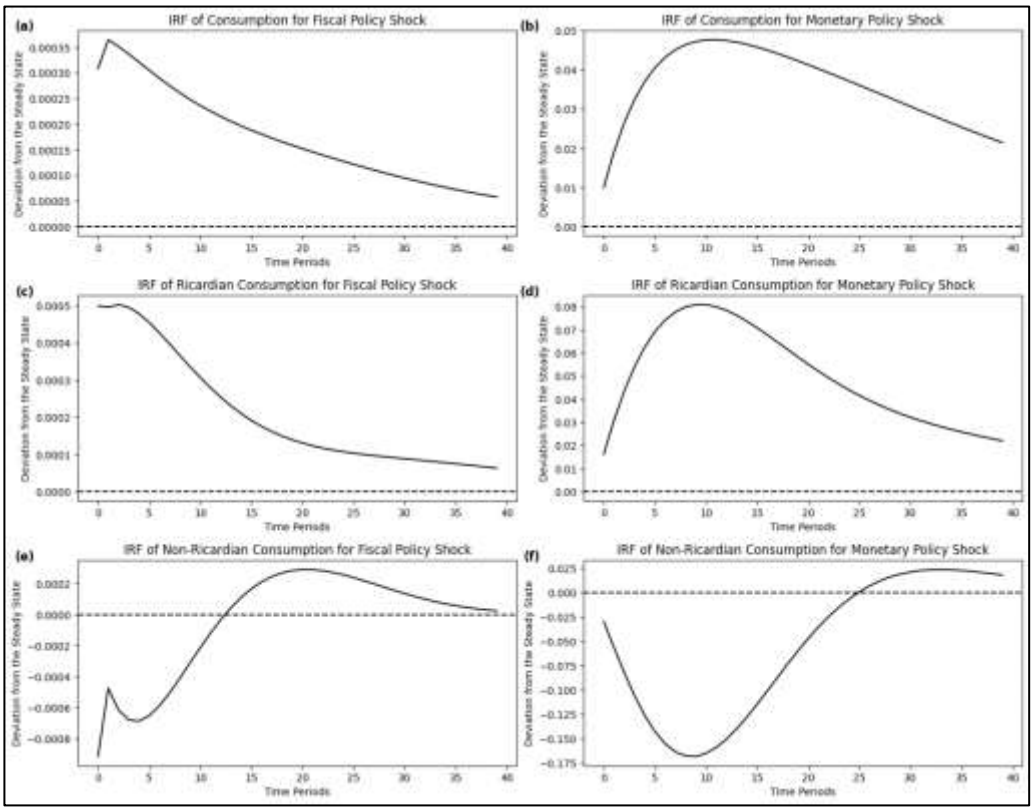


Figure 2: Simulated Responses of Aggregate, Ricardian, and Non-Ricardian Labor Supply. The Left Column Reports the Effects of Fiscal Expansion, While the Right Column Reports the Effects of Monetary Expansion

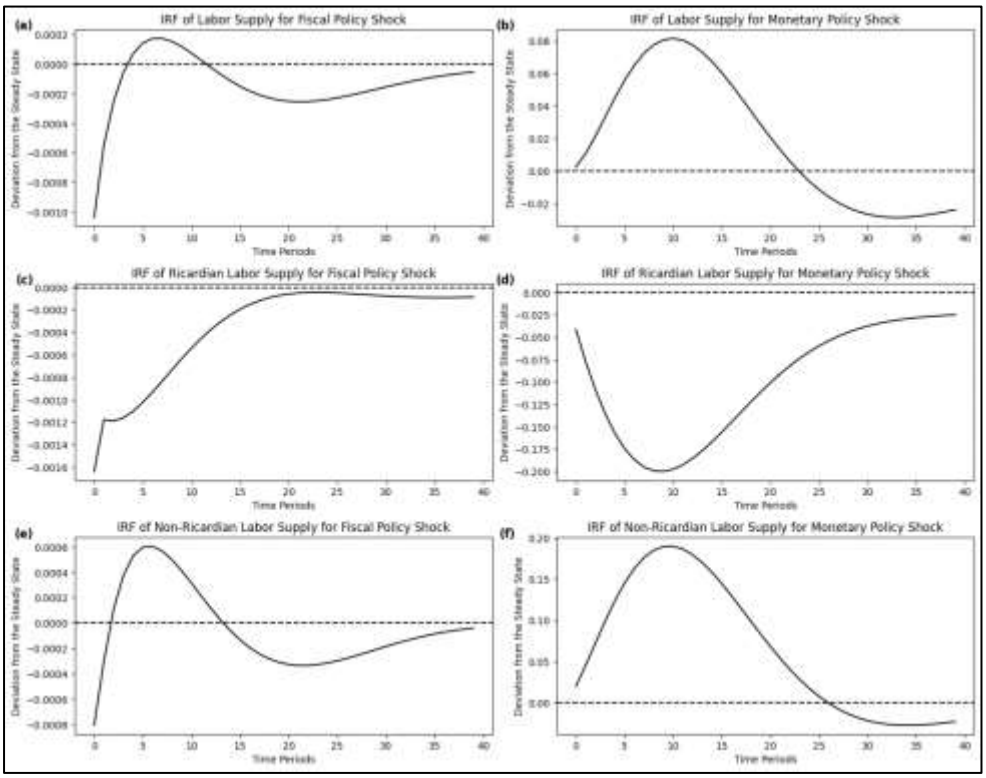


Figure 3: Simulated Responses of Investment, Capital, and Output. The Left Column Reports the Effects of Fiscal Expansion, While the Right Column Reports the Effects of Monetary Expansion

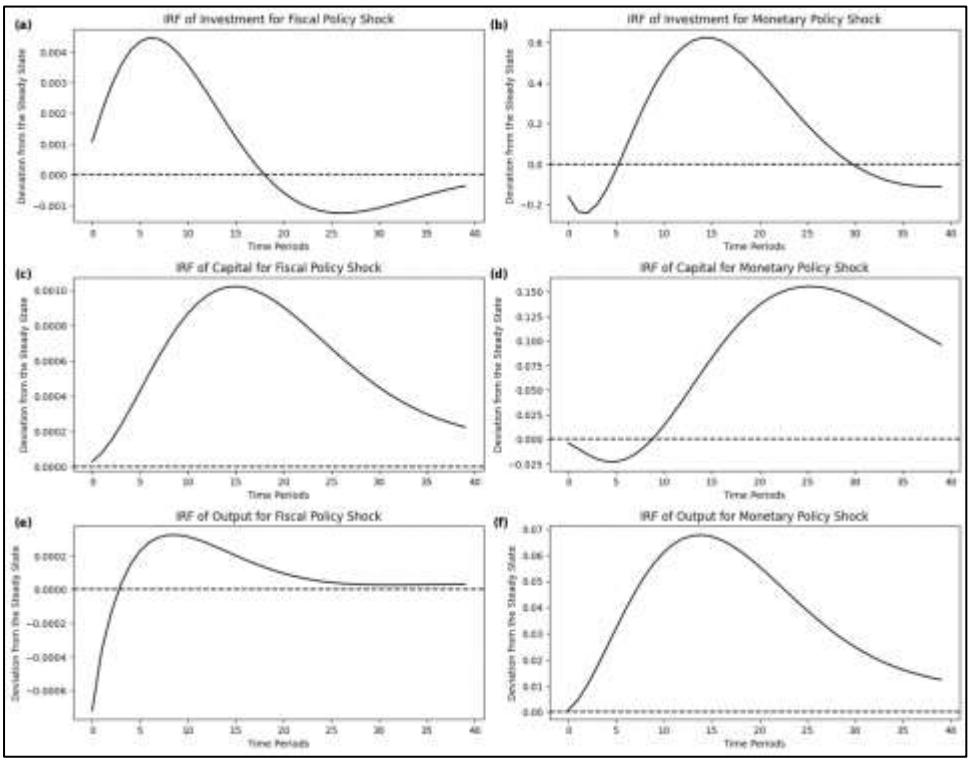


Figure 4: Simulated Responses of Real Interest Rate, Real Return to the Capital, and Real Wage. The Left Column Reports the Effects of Fiscal Expansion, While the Right Column Reports the Effects of Monetary Expansion

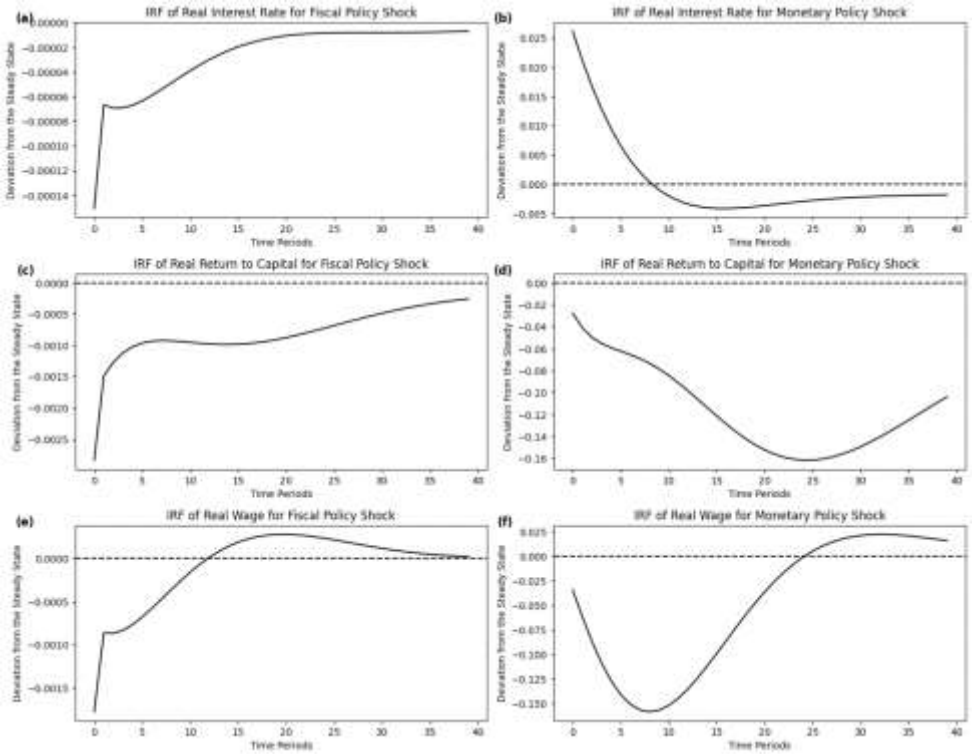
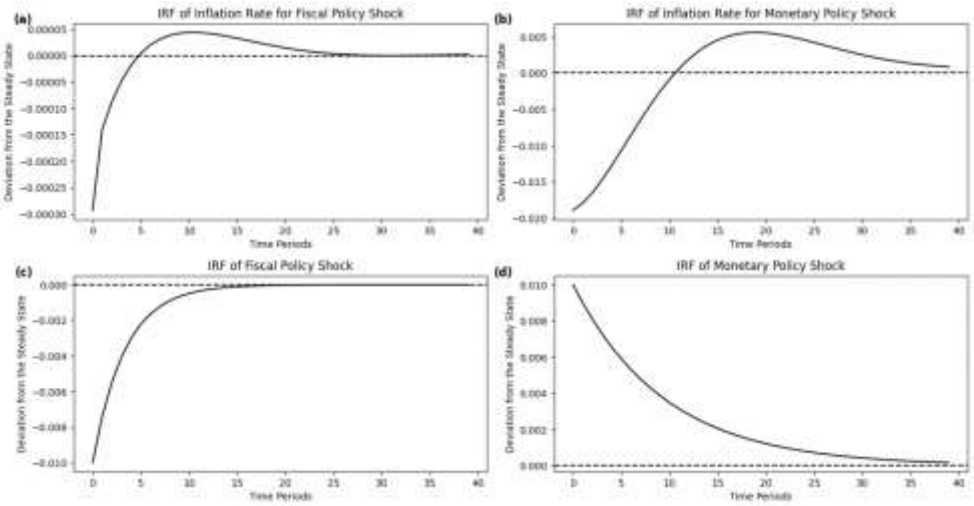


Figure 5: Simulated Responses of Inflation. The Left Column Reports the Effects of Fiscal Expansion, While the Right Column Reports the Effects of Monetary Expansion. Panel (c) Illustrates the Fiscal Policy Shock While Panel (d) Exhibits Monetary Policy Shock



Our findings carry several important policy implications. The analysis indicates that monetary and fiscal policy shocks produce similar responses in key macroeconomic variables, including aggregate consumption, investment, output, and inflation. However, the magnitude of quantitative changes is higher in monetary than fiscal policies. The sharpness of the initial response makes it more pronounced in terms of the immediate effects compared to fiscal policy. Fiscal expansion has significant effects, but these are more transient as the economy quickly returns to the steady state. The main indicators, such as output, inflation, interest rates, and investment, all show anticipated changes when seen through the prism of fiscal and monetary policy. Our policy prescriptions warrant using monetary policy over fiscal policy to stabilize Bangladesh's economy. In addition, we advise against concentrating on fiscal policy in any other setting, which is ultimately an unwise move.

One of the main limitations of the model is the closed economy framework. Hence, one possible avenue for extending the recent work is to reinvestigate the impact of shocks incorporating open economy considerations through the dynamism of the exchange rates. We further aim to estimate our HANK-DSGE model using a Bayesian framework.

References

Amiri, H., Sayadi, M., & Mamipour, S. (2021). Oil price shocks and macroeconomic outcomes: Fresh evidence from a scenario-based NK-DSGE analysis for oil-exporting countries. *Resources Policy*, 102262.

Banerjee, S., Basu, P., & Ghate, C. (2020). A monetary business cycle model for India. *Economic Inquiry, 58*(3), 1362-1386.

Bangara, B. C. (2019). A new Keynesian dsge model for low income economies with foreign exchange constraints. *Economic Research Southern Africa (ERSA) working paper, 795*, 25-36.

Bukhari, A. H., & Khan, S. U. (2008). A small open economy DSGE model for Pakistan. *The Pakistan Development Review*, 963-1008.

Calvo, G. A. (1983). Staggered prices in a utility-maximizing framework. *Journal of monetary Economics, 12*(3), 383-398.

Christiano, L. J., Eichenbaum, M., & Evans, C. L. (2005). Nominal rigidities and the dynamic effects of a shock to monetary policy. *Journal of political Economy, 113*(1), 1-45.

Cooley, T. F. (1995). *Frontiers of business cycle research.* Princeton University Press.

Dixit, A. K., & Stiglitz, J. E. (1977). Monopolistic competition and optimum product diversity. *The American economic review, 67*(3), 297-308.

El Husseiny, I. (2023). The relative effectiveness of fiscal and monetary policies in promoting Egypt's output growth: an empirical investigation using an ARDL approach. *Journal of Economic Structures, 12*, 4.

Fornero, J. A. (2010). Ricardian Equivalence Proposition in a NK DSGE Model for two Large Economies: The EU and the US. *Documentos de Trabajo (Banco Central de Chile)*, 1.

Gabriel, V., Levine, P., Pearlman, J., & Yang, B. (2012). An estimated DSGE model of the Indian economy.

Galí, J., López-Salido, J. D., & Vallés, J. (2007). Understanding the effects of government spending on consumption. *Journal of the european economic association, 5*(1), 227-270.

Kaplan, G., Moll, B., & Violante, G. L. (2018). Monetary policy according to HANK. *American Economic Review, 108*(3), 697-743.

Kumar, A. (2023). A basic two-sector new Keynesian DSGE model of the Indian economy. *Theoretical and Practical Research in Economic Fields (TPREF), 14*(27), 36-50.

Leith, C., & Von Thadden, L. (2008). Monetary and fiscal policy interactions in a New Keynesian model with capital accumulation and non-Ricardian consumers. *Journal of economic Theory, 140*, 279-313.

Massaro, D. (2013). Heterogeneous expectations in monetary DSGE models. *Journal of Economic Dynamics and Control, 37*(3), 680-692.

Nguyen, P. V. (2021). The Vietnamese business cycle in an estimated small open economy New Keynesian DSGE model. *Journal of Economic Studies, 48*(5), 1035-1063.

Rahman, J., & Yusuf, A. (2010). Economic growth in Bangladesh: experience and policy priorities. *Journal of Bangladesh Studies, 12*(1), 1-22.

Rotemberg, J. J. (1982). Sticky prices in the United States. *Journal of political economy, 90*(6), 1187-1211.

Rotemberg, J. J., & Woodford, M. (1997). An optimization-based econometric framework for the evaluation of monetary policy. *NBER macroeconomics annual, 12*, 297-346.

Senbeta, S. R. (2011). *How applicable are the new keynesian DSGE models to a typical low-income economy?*

Smets, F., & Wouters, R. (2007). Shocks and frictions in US business cycles: A Bayesian DSGE approach. *American economic review, 97*(3), 586-606.

Steinbach, M., Mathuloe, P., & Smit, B. (2009). An open economy New Keynesian DSGE model of the South African economy. *South African Journal of Economics, 77*(2), 207-227.

Taylor, J. B. (1993). Discretion versus policy rules in practice. *Carnegie-Rochester conference series on public policy, 39*, 195-214.

Younus, S. (2017). Responses of Inflation and Output to Shocks in Monetary policy: A case study with Bangladesh using the DSGE model. *Research Department Bangladesh Bank, 1701*.

Zhang, X., Zhang, Y., & Zhu, Y. (2021). COVID-19 pandemic, sustainability of macroeconomy, and choice of monetary policy targets: A NK-DSGE analysis based on China. *Sustainability, 13*(6), 3362.

Appendices

Appendix A: Steady State

Taking the variables without time subscripts and solving the equations provide the steady state solution. We start to calculate the steady state by normalizing $Y = 1$. We use $L = \frac{1}{3}$. Equation (4), (9), and (11) at the steady state provide

$$L_R = L_{NR} = L$$

As inflation is defined as $\pi_t = \frac{P_{t+1}}{P_t}$, inflation at the steady state should be $\pi = 1$. Equation (7) yields

$$R_B = \frac{1}{\beta}$$

Equation (6) at the steady state provides $q = 1$, which gives according to equation (5)

$$R = \frac{1}{\beta} - (1 - \delta)$$

The general price level is normalized at 1 (i.e., $P = 1$). With $E_t \sum_{\kappa=0}^{\infty} (\beta\theta)^{\kappa} = \frac{1}{1-\beta\theta}$, equation (19) at the steady state can be written as

$$MC = (1 - \beta\theta)(\frac{\rho - 1}{\rho})$$

The demand for capital at the steady state can be written and

$$K = \alpha(1 - \beta\theta)\left(\frac{\rho - 1}{\rho}\right)\frac{Y}{R}$$

The law of motion of capital at the steady state (equation (3)) provides

$$I = \delta K$$

The demand for labor at the steady state provide the steady stat6eb real wage

$$W = (1 - \alpha)(1 - \beta\theta)\left(\frac{\rho - 1}{\rho}\right)\frac{Y}{L}$$

The steady state level of non-Ricardian consumption is

$$C_{NR} = WL_{NR}$$

The steady state level of aggregate consumption is

$$C = Y - I - G$$

The steady state level of Ricardian consumption can be written as

$$C_R = \frac{1}{\omega}(C - (1-\omega)C_{NR})$$

The ratio of government expenditure to output is $\Lambda_G = \frac{G}{Y}$ which yields the steady state level of government expenditure.

A can be calibrated by using equation (15) at the steady state

$$A = \frac{Y}{K^{\alpha}L^{1-\alpha}}$$

Government debt is assumed to be zero at the steady state. Hence the government budget constraint yields

$$\tau = G$$

Appendix B: Log-Linearization

We log-linearize the model around the steady states as it is easy to get intuition from a linear model rather than a non-linear model. Uhlig's method is used to conduct the log-linearization process: a variable X_t is replaced by $X\exp(\hat{X}_t)$ where $\hat{X}_t = \log\left(\frac{X_t}{X}\right)$.

Log-linearizing the budget constraint fo9r the Ricardian household

$$PC_R(\hat{P}_t + \hat{C}_{R,t}) + PI(\hat{P}_t + \hat{I}_t) + \frac{B}{R_B}(\hat{B}_{t+1} - \hat{R}_{B,t}) = PWL_R(\hat{P}_t + \widehat{W}_t + \hat{L}_{R,t}) + PRK(\hat{P}_t + \hat{R}_t + \widehat{K}_t) + B\hat{B}_t - P\tau_R(\hat{P}_t + \hat{\tau}_t)$$

Log-linearizing the law of motion of capital is

$$K\widehat{K}_{t+1} = I\hat{I}_t + (1-\delta)K\widehat{K}_t$$

Log-linearizing labor supply condition for the Ricardian household is

$$\widehat{W}_t = \sigma_R \hat{C}_{R,t} + \phi_R \hat{L}_{R,t}$$

Log-linearized demand for capital is

$$\hat{q}_t = -\sigma_R\left(\hat{C}_{R,t+1} - \hat{C}_{R,t}\right) + \frac{R\hat{R}_{t+1} + (1-\delta)q\hat{q}_{t+1}}{R + (1-\delta)q}$$

Log-linearized demand for investment equation can be written as

$$\hat{q}_t = \chi\left(\hat{I}_t - \hat{I}_{t-1}\right) - \beta\chi(\hat{I}_{t+1} - \hat{I}_t)$$

Log-linearized Euler equation for bond is

$$\sigma_R\left(\hat{C}_{R,t+1} - \hat{C}_{R,t}\right) = \hat{R}_{B,t} - \hat{\pi}_{t+1}$$

Log-linearizing labor supply condition for the non-Ricardian household is

$$\widehat{W}_t = \sigma_{NR} \hat{C}_{NR,t} + \phi_{NR} \hat{L}_{NR,t}$$

Aggregate consumption and labor after log-linearization

$$C\hat{C}_t = \omega C_R \hat{C}_{R,t} + (1-\omega) C_{NR} \hat{C}_{NR,t}$$

$$L\hat{L}_t = \omega L_R \hat{L}_{R,t} + (1-\omega) L_{NR} \hat{L}_{NR,t}$$

Log-linearizing the production function around the steady state

$$\hat{Y}_t = \hat{A}_t + \alpha\widehat{K}_t + (1-\alpha)\hat{L}_t$$

Log-linearized version of the relative factor demand is

$$\widehat{K}_t - \hat{L}_t = \widehat{W}_t - \hat{R}_t$$

Log-linearizing the marginal cost yields

$$\widehat{MC}_t = \alpha\hat{R}_t + (1-\alpha)\widehat{W}_t - \hat{A}_t$$

Inflation after log-linearization

$$\hat{\pi}_t = \hat{P}_t - \hat{P}_{t-1}$$

Log-linearized NKPC equation is

$$\hat{\pi}_t = \beta E_t \hat{\pi}_{t+1} + \frac{(1-\theta)(1-\beta\theta)}{\theta}\left(\widehat{MC}_t - \hat{P}_t\right)$$

Log-linearized government budget constraint is

$$\frac{B}{R_B}\left(\hat{B}_{t+1} - \hat{R}_{B,t}\right) + P\tau\left(\hat{P}_t + \hat{\tau}_t\right) = B\hat{B}_t + PG\left(\hat{P}_t + \hat{G}_t\right)$$

Log-linearized fiscal policy rules provide

$$\hat{\tau}_t = \phi_B \hat{B}_t + \phi_G \hat{G}_t$$

Log-linearized Taylor rule equation is

$$\hat{R}_{B,t} = \phi_R \hat{R}_{B,t-1} + (1 - \phi_R)\left(\phi_\pi \hat{\pi}_t + \phi_Y \hat{Y}_t\right) + \widehat{M}_t$$

Market clearing condition after log-linearization

$$Y\hat{Y}_t = C\hat{C}_t + I\hat{I}_t + G\hat{G}_t$$

The economy absorbs the following shocks

$$\hat{A}_t = \zeta_A \hat{A}_{t-1} + \epsilon_{A,t}$$

$$\hat{\tau}_t = \zeta_\tau \hat{\tau}_{t-1} + \epsilon_{\tau,t}$$

$$\widehat{M}_t = \zeta_M \widehat{M}_{t-1} + \epsilon_{M,t}$$

List of the endogenous variables

$$\hat{X}_t \equiv [\hat{C}_{R,t}, \hat{C}_{NR,t}, \hat{C}_t, \hat{L}_{R,t}, \hat{L}_{NR,t}, \hat{L}_t, \hat{I}_t, \hat{K}_{t+1}, \hat{B}_{t+1}, \hat{q}_t, \hat{Y}_t, \hat{\tau}_t, \hat{P}_t, \hat{R}_{B,t}, \widehat{W}_t, \hat{R}_t, \widehat{MC}_t, \hat{\pi}_t, \hat{A}_t, \hat{\tau}_t, \widehat{M}_t]$$

The system consists of 21 equations for 21 endogenous variables. The economy absorbs 3 exogenous shocks

$$\epsilon_t = [\epsilon_{A,t}, \epsilon_{\tau,t}, \epsilon_{M,t}]$$

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 287-331)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20258

The Evil Act of Posing as an Angel: Can Financial Development Mitigate the Negative Effects of Corruption on Inward Foreign Direct Investment?

- Syed Nazrul Islam*

Abstract

Employing three distinct datasets of bilateral FDI positions and flows (UNCTAD, CDIS, and OECD) in a structural gravity approach, this paper examines the impact of financial development and corruption on inward FDI. Applying both OLS and PPML estimation techniques, this paper (with UNCTAD data) finds that the financial development of both host and home countries is a significant determinant of FDI. However, the estimates with CDIS and OECD data show that FDI in the host country is positively associated with home country financial development and, to some extent, negatively associated with that of the host country, which is mainly driven by the developed country groups. Corruption is a persistent problem for FDI; however, the interaction with a good financial sector works as an incentive for inward FDI. Control of corruption has a greater impact on FDI stocks in the developed country than in the developing country.

Keywords: Financial Development, Corruption, Foreign Direct Investment, Gravity Model.
JEL Classification: D25, F10, F21, G20, O50.

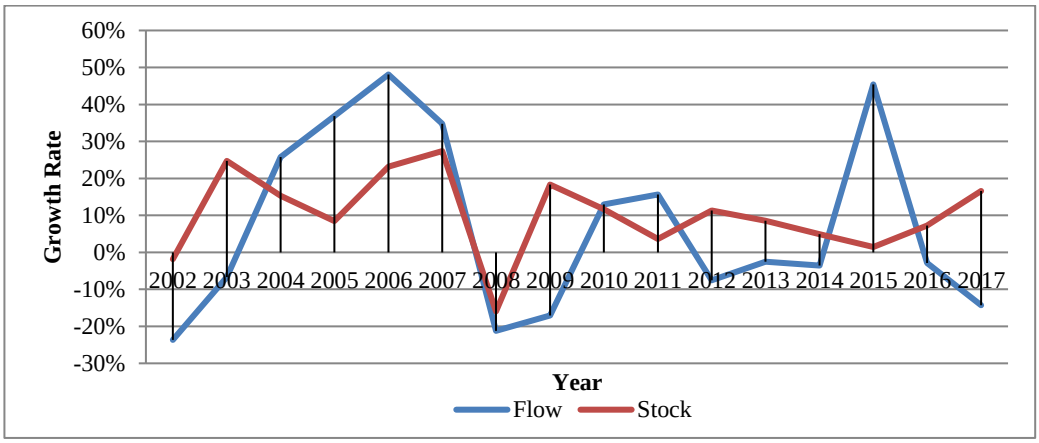
1. Introduction

Both developed and developing countries are actively seeking Foreign Direct Investment (FDI) as they believe that FDI will contribute to economic growth in various ways: creating new jobs, increasing capital accumulation, transferring better technologies and raising the total factor productivity. Existing literatures (e.g. Eicher, Helfman & Lenkoski.,2012; Blonigen & Piger, 2014) have established market size, cultural and physical factors, corporate taxes, and labor market endowments as several push and full factors for FDI. Recent studies also recognized financial development as also a determinant of FDI (di Giovani, 2005; Ang, 2008; Hyun & Kim, 2010; Desbordes & Wei, 2017; Donaubauer, NeuMayer &Nunnenkamp, 2019).

*Syed Nazrul Islam, Ph.D., is an Additional Director, Bangladesh Bank, Dhaka, Bangladesh, Email: snazruli@yahoo.com. The views expressed in this paper are the author's own.

World's FDI inflow strongly grew during 2004-2007 but experienced an abrupt decline in 2008 and 2009. Revived in 2010 and 2011, however, afterwards the flow declined continuously except in 2015. As a result the growth of the world FDI stock was slumped after 2008-2009 crises (see Figure-1). Tight external financing conditions after the global financial crisis have been partly the cause of this downward trend (UNCTAD, 2010). Therefore, external finance, financial development in particular, is also an important determinant of FDI. Moreover, the factors that determines the location choice of FDI activity systematically varies across developed and developing countries (Blonigen & Wang, 2004).

Figure 1: Growth of Word's Inward FDI Flows and Stocks (2002-2017)



Source: Authors Calculation based on World Investment Report 2020, UNCTAD.

Meanwhile, the relationship between corruption and FDI is complex. In general, corruption is harmful for FDI. However, the empirical evidence is mixed. While several studies confirmed the negative role of corruption on FDI (Al-Sadig,2009 ; Alemu, 2012), other studies, however, find that corruption works as an incentive (Egger & Winner, 2005;Hasan, Rahman & Iqbal, 2017; Marquez & Castillo, 2021; Jetin et al.,2024). Although the world's FDI flows slumped in recent years, however, the flow and stock remains stable in the developing countries (UNCTAD, 2018) that are perceived to be more corrupt than developed countries. This duality of corruption gives importance for extended study how

financial development turns out the role of corruption to be a "helping hand' for inward FDI.

The lack of availability of reliable data limits the scope of empirical studies, mainly in the fields of FDI and financial development. Although several studies examine the impact of financial development on FDI (e.g. Giovani, 2005; Ang, 2008; Hyun & Kim, 2010; Desbordes & Wei, 2017; Donaubauer, NeuMayer &Nunnenkamp, 2019), they mostly rely on the private credit to GDP as a proxy for the measurement of financial sector development. Financial development should reflect the size, activity, and efficiency of both financial institutions and markets (Beck, Demirguc-Kunt & Levine, 2000). Due to the lack of a reliable measure of financial development in a longitudinal context, the literature on financial development and FDI in a worldwide context is relatively limited. In addition, there is also a lack of availability of bilateral FDI data. There exist three sources-CDIS of IMF, UNCTAD, and OECD- which provide bilateral FDI data. However, the CDIS data covers only stocks starting from 2009, and UNCTAD gives both flows and stock data for the years 2001-2012 only. The OECD data, reported by OECD countries, covers both flows and stock. These databases have led us to examine the impact of financial development on FDI in a worldwide context. No previous paper has been found that studied the impact of financial development on FDI using the IMF's financial development and CDIS datasets.

While investigating the determinants of bilateral FDI, the "gravity equation" method usually presents an excellent fit of the data. The gravity model is very useful to incorporate the financial development of both host and home by its formulation. The application of structural or theory consistent gravity model (Anderson & Wincoop, 2003) in recent times allows and motivates us to study financial development's and corruption's impact on bilateral FDI.

Although several empirical studies (e.g. Giovani, 2005; Ang, 2008; Hyun & Kim, 2010) exist that examine the effects of financial development on FDI, however, those research suffers from inadequate measurement of FDI and limited scope (Desbordes & Wei, 2017). These studies addressed financial market development from one side of host or host. It makes unclear whether both host and home countries financial development have impact on FDI. To overcome this

issue, Desbordes and Wei (2017) and Donaubauer, NeuMayer &Nunnenkamp (2019) incorporates both host and home countries financial development in their model. They find that both host and home countries financial development are positively related to inward FDI in host countries.

However, Desbordes and Wei (2017) study is restricted to four years (2003-2006) which is failed to account the recent trends after the global financial crisis of 2008-2009. Even though Donaubauer, NeuMayer and Nunnenkamp (2019) covers a longer time period (2001-2012), however, also does not take into account the recent trends. Although Donaubauer, NeuMayer and Nunnenkamp (2019) use a composite index of financial market development measures, none of the existing literatures have used the IMF's financial development index in a worldwide context. Donaubauer, NeuMayer and Nunnenkamp (2019) examine the impact of financial development index by pooling samples to developing countries only, leave unexplored for the developed counterparts. The existing literature on corruption and FDI also leaves unexplored how corruption becomes an incentive for FDI interacting with financial development. The only exception is Krifa-Schindler et al. (2022), which studies the mediating role of financial development in the corruption-FDI nexus, utilizing GMM models.

This study, henceforth, tries to resolve these issues by utilizing different datasets which covers different time periods and recent trends in a gravity framework. This study also pooled the host country samples for developed and developing country groups to observe the heterogeneous effect of financial development (and corruption) on FDI.

2. Literature Review

Due to the lack of a universal model for FDI, the empirical studies on determinants of FDI include numerous variables focusing on a wide spectrum of economic theory. Recent research papers on FDI have placed a prominent role to the financial development among the institutional determinants of FDI flows. Using a dataset on structural reforms for 19 Latin American and 25 eastern European countries over 1989-2004, Campos & Kinoshita (2008) investigates the role of structural reforms -financial reforms, trade liberalization, and

privatization- as determinants of FDI inflows. Controlling for potential endogeneity of the reform variables and using System GMM estimator they find that financial liberalization attracts foreign capital flows.

Dutta & Roy (2011) examines the roles of financial development (proxies by private credit to GDP) on FDI in association with different measures of political risks. Using a panel of 97 countries, their results show that the relationship is non-linear. The impact of financial development on FDI becomes negative after a threshold level of financial development. However, political risk factors affect this relationship by affecting the threshold level. They conclude by saying that, an efficient financial infrastructure will achieve little in attracting FDI if the country is politically unstable.

Using FDI data for advanced and emerging economies, Dellis (2018) explores the role of 25 financial variables in attracting FDI flows. Applying system GMM estimation method they show that fostering an efficient financial sector contributes to increased flow FDI in host economy by the multinational corporations.

The bi-directional causality between financial reform and FDI flows is placed under scrutiny in several studies. Soumare & Tchana-Tchana (2015) use data on 29 emerging economies from 1994 - 2006 and exploit two indicators of stock market development (stock market capitalization to GDP and stock value traded as percent of GDP) and three indicators of banking sector development (private sector credit to GDP, liquid liabilities of financial system to GDP, and commercial bank assets to total banking assets) to empirically study the relationship between foreign direct investment and financial market development. Applying Panel Vector Auto Regression (VAR-2) techniques and Granger Causality tests they document strong bidirectional causality between FDI and stock market development indicators, but ambiguous and inconclusive relationship with banking sector development indicators. Otchere, Soumare &Yourougou (2016) also draw similar conclusion of strong evidence of bi-directional causality between a range of indicators capturing stock market development and FDI flows.

Kelly (2016) examines whether financial sector development enhance the relationship between FDI and economic growth in the context East African countries. He finds little evidence of long run relationship between FDI and economic growth. But, a positive relationship is observed when financial development is interacted with FDI. Alabi et. al (2018), however, finds a long run relationship between financial deepening indicators, FDI and output performance in Nigeria. That is, the development of financial system of the host country is an important precondition for FDI to have a positive impact on economic growth (Hermes & Lensink, 2003)

Islam et al. (2018) also finds positive relationship between financial deepening and FDI in the context of China using ARDL bound cointegration and VECM Granger causality test. This is the only study that uses the new "Broad-based Index of Financial Development" established by IMF (2016).

Application of gravity model in analyzing the determinants of FDI is popular in literature, but few studies consider financial determinants of bilateral FDI flows. In line with the Dunning's OLI framework, macroeconomic and financial variables play key roles in the FDI decisions of firms. To examine this notion, di Giovanni (2005) uses a panel dataset on cross border merger & acquisition (M&A) deals, as FDI, for the period of 1990-1999. Applying a gravity model framework and controlling for a large number of variables, di Giovanni (2005) finds that the size of financial markets, as measured by stock market capitalization to GDP, has a positive association with outward FDI of domestic firms.

Blundell-Wignall & Roulet (2017) estimate a gravity model for 54 country pairs for 1997-2012 to determine the financial determinants of bilateral FDI flows. They use proxy for the liberalization of the financial sectors by the Chinn-Ito index[1]. Controlling for size, distance, corruption, trade openness and country-pair fixed effects, they find evidence for the role of financial openness in the host country in stimulating bilateral capital flows.

[1] see Chin & Ito (2008, 2015)

By an important paper matched with our interest, Desbordes & Wei (2017) examines the effects of source country and destination country financial development (measured by private sector credit to GDP) on FDI. Their findings reveal that both source country and destination country financial development have a large positive influence on green-field, expansion, and mergers & acquisitions FDI. Theories on FDI confirm the importance of both source country and financial development. Firms' access to external finance depends on financial development and thereby, higher source country financial development should have a positive direct external finance effect on the volume of outward FDI (Klein, Peek & Rosengren, 2002). Similarly, higher destination country financial development may have a positive direct external finance effect on the volume of inward FDI. Firms may choose to use local sources for external finance if local financing conditions are favorable (Desai, Foley & Hines, 2004).

A more recent study by Donaubauera, Neumayerb & Nunnenkamp (2019) extends the work of Desbordes & Wei (2017) by employing broader set financial development measures, exploring whether the effects of source and host country financial development are conditional on each other and covering longer time period panel data (2001-2012). Employing a gravity-type model in a global sample of 43 source and 137 host countries on FDI stock data they also find positive, statistically significant effects of both source and host country financial market development on FDI.

In addition, recent studies also try to find the effect institutional and country specific factors on FDI. For example, corruption substantially and negatively affects FDI (Habib & Zurawicki, 2001, 2002; Chamisa, 2020) and therefore is a hurdle of economic growth (Hakimi & Hamdi, 2017). However, Blundell-Wignall & Roulet (2017) findings contradict with the usual notion about corruption on FDI. They find that corruption has an insignificant or even positive effect on FDI which also confirms the finding of Egger & Winner (2005) who said that corruption is a stimulus for FDI. Jetin et al. (2024), finds that corruption stimulates FDI at the world level, but deters FDI in East Asia, Southeast Asia, Australia and New Zealand. Very recently, Krifa-Schneider et al. (2022) studied the mediating role of financial development in FDI-corruption nexus for 80

countries over the 2003-2019 periods and finds a non-linear relationship between corruption and FDI.

Choi, Furceri & Yoon (2019) finds policy uncertainty in the host country substantially reduces FDI inflows, however, good institutional quality and better financial system mitigates this adverse impact. Another study by Chenaf-Nicet & Rougier (2016) reveals that macroeconomic instability (GDP instability, institutional quality) of both host and source country certainly affects FDI inflows. Studies also find that global competitiveness is important for developed and developing host economy for attracting FDI, but, human development appears to be an additional determinant in developing countries (Curtis, Rhodes & Griffin, 2013). Kox & Rojas-Romasgosa (2019) concludes, by applying a structural gravity approach, that preferential trade agreement is expected to increase inward FDI stocks approximately by 54% between the signatory countries.

3. Empirical Methodology and Data

3.1 Econometric Specifications

The general model takes the form as-

$$InFDI_{ijt} = \alpha_0+\beta_1 lnFINDEV_{it}+\beta_2 lnFINDEV_{jt}+\delta_1 InGV'_{it} + \delta_2 InGV'_{jt}+ \gamma GC'_{ij} +\varphi GP'_{ij}+\varepsilon_{ijt} \quad \ldots\ldots (1)$$

where, FDI_{ijt} is FDI from country *j* (home) to *i* (host), α_{it} and α_{jt} are directional fixed effects, $FINDEV_{it}$ and $FINDEV_{jt}$ are financial development of home (source) and host country respectively. GV'_{it} and GV'_{it} is vector of time variant home country and host country characteristics (gravity variable) respectively, GC'_{ij} is a vector time invariant bilateral characteristics (gravity constant), $GP'_{ij}$is a vector of other time variant gravity variables that affect FDI, and ε_{ijt} is the error term.

Intuitively the structural gravity model takes the following form that captures size of the economy, openness and a number of the variable following Kox & Rojas-Romasgosa (2019)-

$$InFDI_{ijt} = \alpha_0+\beta_1 lnFINDEVit+\beta_2 lnFINDEV_{jt}+\beta_3 POLSTAB_{it}+\beta_4 CCORRUPT_{it}+ \delta_1 InGDPPP_{it} +\delta_2 InGDPPP_{jt}+\delta_3 lnTRADOPEN_{it}+\delta_4 lnTAX_{it}+\delta_5 INFRASTR_{it}+ \gamma_1 InDIST_{ij} +\gamma_2 CONT_{ij} + \gamma_3 LANGUAGE_{ij} + \gamma_4 COLONIAL_{ij}+ \gamma_5 LANDLOCK_{ij} +\varphi_1 RTA_{ijt}+ \varphi_2 WAGEGAP_{ijt}+\varepsilon_{ijt} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(2)$$

where, FDI_{ijt} refers stock of FDI from country *j* to *i* at time *t*. POLSTAB, CORRUPT, TRADOPEN, TAX, and INFRASTR represent political stability, corruption level, trade openness, corporate tax rate, infrastructure quality of the host country respectively. RTA is the regional trade agreements (also includes free trade agreements) between home and host country and WAGEGAP measures the wage differentials or skill difference of labor of home and host country.

Following Olivero & Yotov (2012) and Feenstra (2016), the FDI gravity equation is-

$$InFDI_{ijt} = \alpha_{it} + \alpha_{jt} +\beta_1 lnFINDEV_{it}+ \beta_2 lnFINDEV_{jt}+ \beta_3 POLSTAB_{it}+ \beta_4 CCORRUPT_{it}+\delta_1 lnTRADOPEN_{it}+\delta_2 lnTAX_{it}+\delta_3 INFRASTR_{it} +\gamma_1 InDIST_{ij} +\gamma_2 CONT_{ij}+ \gamma_3 LANGUAGE_{ij} + \gamma_4 COLONIAL_{ij} + \gamma_5 LANDLOCK_{ij} +\varphi_1 RTA_{ijt}+\varphi_2 WAGEGAP_{ijt}+\varepsilon_{ijt} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Specification (3) includes a host country-time fixed effects and home country-time fixed effects that absorb the size variables. Finally, to deal with potential endogeneity and reverse causality country-pair fixed effects is included in the model (Head & Mayer, 2014; Yotov et al.,2016). An important feature of country-pair fixed effects is that it will absorb all time-invariant gravity covariates. Therefore, the structural gravity equation of FDI becomes-

$$InFDI_{ijt}=\alpha_{it}+\alpha_{jt} +\alpha_{ij}+ \beta_1 lnFINDEV_{it}+ \beta_2 lnFINDEV_{jt}+ \beta_3 POLSTAB_{it}+ \beta_4 CCORRUPT_{it}+\delta_1 lnTRADOPEN_{it}+\delta_2 TAX_{it}+\delta_3 INFRASTR_{it} + \varphi_1 RTA_{ijt} + \varphi_2 WAGE_{ijt}+\varepsilon_{ijt} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\

substantially helps to mitigate the adverse of corruption and the estimated structural gravity equation with the interaction term takes the form as-

$$InFDI_{ijt} = \alpha_{it} + \alpha_{jt} + \alpha_{ij} + \beta_1 InFINDEV_{it} + \beta_2 lnFINDEV_{jt} + \beta_3 POLSTAB_{it} + \beta_4 CCORRUPT_{it} + \beta_5 (CCORRUPT_{it} \text{ X } lnFINDEV_{it}) + \delta_1 lnTRADOPEN_{it} + \delta_2 lnTAX_{it} + \delta_3 INFRASTR_{it} + \varphi_1 RTA_{ijt} + \varphi_2 WAGEGAP_{ijt} + \varepsilon_{ijt} \ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Like trade data, bilateral FDI data also have zero figures. Therefore, to accounts for the heteroscedasticity and existence of the zero figures, the model is estimated by [equations (2)-(5)] applying the pseudo-poisson maximum likelihood (PPML) as suggested by Santos Silva & Tenreyro (2006). As an example, a PPML representation of equation (5) is-

$$FDI_{ijt} = \exp \alpha_{it} + \alpha_{jt} + \alpha_{ij} + \beta_1 lnFINDEV_{it} + \beta_2 lnFINDEV_{jt} + \beta_3 POLSTAB_{it} + \beta_4 CCORRUPT_{it} + \beta_7 (CCORRUPT_{it} \text{ X } lnFINDEV_{it}) + \delta_1 lnTRADOPEN_{it} + \varepsilon_{ijt} + \delta_2 lnTAX_{it} + \delta_3 INFRASTR_{it} + \varphi_1 RTA_{ijt} + \varphi_2 WAGEGAP_{ijt} \ldots\ldots\ldots\ldots\ldots\ldots (6)$$

3.2. Data

Empirical studies on FDI have always been a challenge due to data availability (Blonizen & Davies, 2004; Kox & Rojas-Romasgosa, 2019). Presence of the large number of missing, incomplete and suppression of FDI data due to confidentiality leads researchers to study FDI in cross sectional data with little time series dimension (Blonizen& Davis, 2004). On the other hand, data limitations hinder the application of gravity analysis to FDI data since gravity analysis has to be based on bilateral flows (Kox & Rojas-Romasgosa, 2019). Most data sources (e.g. UNCTAD, WDI of WB) provide FDI data on aggregate basis with the rest of the world which are unfit for gravity study. Only a few sources provide FDI bilateral data.

a. Coordinated Direct Investment Survey (CDIS) of IMF

CDIS is a statistical data collection effort of IMF that provides direct investment data by counterpart countries. CDIS presents detailed bilateral data on inward direct investment positions (stocks) and outward direct investment positions (stocks) in million US$ since 2009. The presentation of the CDIS data follows the directional principle in which data are organized according to the

direction of the direct investment relationships. One advantage of CDIS data is that it provides derived inward and outward direct investment positions by data mirroring which helps to reduce the data gaps and errors at counterpart economy level. CDIS also reports confidential data as "c". My CDIS full balanced panel dataset consists of 166 host and home countries over the period of 2009 to 2017.

b. UNCTAD FDI Bilateral Data

UNCTAD (2014) compiles a bilateral FDI statistics which provides FDI data for 206 countries over 2001-2012 covering inflows, outflows, inward stock and outward stock. The data is reported in million US$ including zero flows ("_") and missing data (".."). Following data procedure of Anderson, Larch and Yotov (2020), the paper complements inward stock and flow data by counterpart 'mirror' outward data. This mirroring procedure helps us to lessen data gaps and missing observations. My UNCTD full balanced panel dataset is consisted of 169 host and home countries with the period of 2001-2012.

c. OECD Bilateral FDI Data

One drawback of CDIS and UNCTAD data is that they do not cover long time periods. In this context a bilateral FDI dataset based on bilateral FDI information of OECD is constructed which covers the period from 2001 to 2017. The paper considers reported outward data of the reporting country (home) as inward data of the counterpart country (host). The OECD data provides FDI flows and stock flowing from the OECD countries to both OECD and non-OECD countries. According to OECD (2020), the OECD area accounted for 77% of the global FDI outflows in 2019[2]. Inclusion of China and Russia give a sharp rise in the global FDI outflows to 86%. In case of outward stock/positions the OECD countries including China and Russia accounted for 83% of the global outward stock. Therefore, the compiled OECD database is also a representative of the global FDI patterns. The OECD bilateral FDI data are reported in million US$. The OECD full database of bilateral FDI is consisted of 166 host countries and 38 home countries (including China and Russia). The outward FDI data for China is taken from the Statistical Bulletin of China's Outward Foreign Direct Investment (2017, 2010, and

[2]FDI in Figures, April 2020 issue, OECD.

2006) and the FDI data for Russia has been taken from the Bank of Russia (the Central Bank of Russian Federation).

3.2.1. Dealing with Missing Values

A major disadvantage of dyadic FDI data is the presence of the significant amount of missing data. The reasons of missing data could be because of non-reported or suppressed (Kox & Rojas-Romasgosa, 2019). The most preferable practice with missing data in FDI studies (e.g. Bevan, Estrin & Meyer, 2004;Kox & Rojas-Romasgosa, 2019, Donaubauer, Neumayer & Nunnenkamp, 2019; Dorakh, 2020; Zongo, 2020) is to replace by zero. The main estimations follow this procedure as it helps us to have a balanced panel.

However, missing observations in the dependent variable (FDI) tend to cluster in host countries that are poorer and dyads that are farther away from each other (Kerner, 2009). In the robustness measure, I follow the list wise deletion of observations in which dyads have no reported values of FDI in any year of the sample period (as followed by Welfans & Baier, 2018;Kox & Rojas-Romasgosa, 2019). A possible selection bias could arise; however, the bias could be smaller than the bias due to treat missing data as zero. This procedure reduces country pairs from 27,390 to 18,223 in CDIS dataset leaving the number of observations from 264,510 to 164,007. For the UNCTAD dataset, country pairs reduced from 28,392 to 7,688 leaving the number of observations from 340,704 to 92,256. Finally, for the OECD dataset, I now have 5,887 country pairs with 100,079 observations instead of 6,270 country pairs with 106,590 observations in the full sample.

3.2.2. Dealing with Negative FDI Values

Another problematic issue in analyzing FDI is the presence of zero and negative values. The following Table-1 shows the presence of negative values in the FDI databases:

Table 1: Negative FDI Data

	FDI Positions (Stock)			FDI Flows	
	CDIS	**UNCTAD**	**OECD**	**UNCTAD**	**OECD**
Full Sample	2.39%	0.41%	1.38%	2.25%	9.84%
Revised Sample	3.60%	1.50%	1.47%	8.30%	10.86%

In the OLS estimator of gravity model the dependent variable takes the logarithmic form. In this case, the OLS estimator is not acceptable as neither of the zero value nor the negative values have a log. Although, the PPML estimator can successfully handle zero values, but it does not work with negative observations if the conditional mean is negative. There are several solutions to handle the negative values:

1. dropping negative values
2. Setting Negative values equal to zero
3. Transforming Negative values to 1
4. Logarithmic Transformation of FDI (Busse & Hefeker, 2007; Azzimonti, 2019) which includes negative values by-

   $FDI^*_{ijt} = Ln[FDI_{ijt} + \sqrt{.}(1+FDI^2_{ijt})]$

5. Logarithmic Transformation of FDI (Blonigen & Davies, 2004) to accommodate negative values by-

   $FDI^*_{ijt} = (+/-)\ Ln|\ FDI_{ijt} * 1000000+1|$

However, dropping negative values could lead to larger bias and loosing consistency than setting to zero (Welfans & Baier, 2018). On the contrary, Dorakh (2020) showed that the estimation of FDI by treating negative values as 1 is stronger than treating as zero. Setting negative to zero would mean that there are no investment relationships between the home and host countries. The logarithmic transformation followed by Busse & Hefeker (2007) and Azzimonti (2019) would not be feasible as it generates further missing observations as well as difficulty associated with interpretation of FDI elasticity. Blonigen & Davies (2004), however, suggests logging the absolute value of FDI, and then reintroducing the original sign after transformation. This paper follows Dorakh (2020) suggestions.

The dependent variable is bilateral FDI stock as it is less volatile than bilateral FDI flows (de Sousa & Lochard, 2011; Donaubauer, Neumayer &Nunnenkamp, 2019) and provides a greater number of positive observations (Table-1).

The main explanatory variable is financial development. This paper utilizes different measures of financial development from IMF's financial development index database developed by Svirydzenka (2016). Table-2 provides the definition and sources of variables utilized in this study:

Table 2: Description of Variables and Sources

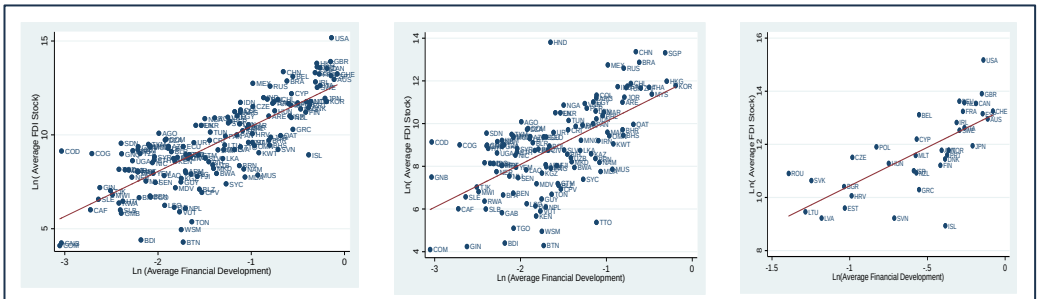
Variables	Description/ Construction	Sources
Foreign Direct Investment (FDI)	Bilateral FDI from country *j*(home) to country *i*(host). FDI is measured in both inward stocks and inflows.	CDIS, IMF
		UNCTAD Bilateral FDI Database
		OECD, Statistical Bulletin of China' OFDI, and Bank of Russia
Financial Development (FD/FI/FM) for host and home	Svirydzenka (2016) developed a financial development index for the IMF. FD is defined as a relative ranking of countries on the depth access and efficiency of their financial institutions and financial market. FD index is a composite measure of Financial Institution Index (FI) and Financial Market Index (FM).	Financial Development Index database, IMF
GDPPPP for host and home	GDP measured in current international dollars on PPP basis.	International Comparison Program (ICP), 2017, WB.
Political Stability (POLSTAB) in host	Political stability is measured by the political stability and absence of violence indicator of World Bank's Worldwide Governance Indicator (WGI) developed by Kaufman et al., 2010.	WGI 2019 update, WB
Control of Corruption (CCORRUPT) in host	The Control of corruption of WGI and The Freedom from Corruption (FFC) indicator developed by Heritage Foundation is treated as a measure of corruption.	WGI 2019 Update, WB; 2020 Index of Economic Freedom, Heritage Foundation.
Trade Openness (TRADEOPEN) in host	Trade Openness is measured by the sum of exports and imports as a ratio of GDP.	UNData
Corporate Tax (TAX) in host	TAX is defined by (1+ Corporate Tax Rate). The corporate tax data has been collected from different sources.	Centre for Business Taxation Database 2017, Habu (2017)
		Tax Foundation (2019)

Variables	Description/ Construction	Sources
Regional Trade Agreements (RTA) between host and home	RTA is comprised of Free Trade Agreements (FTA), Custom Union (CU), Economic Integration Union (EIA) and Partial Scope (PS).	Mario Larch's RTA database (Egger & Larch, 2008)
Infrastructure (INFRASTR) in host	Infrastructure is measured by the proxy of the average of fixed telephone subscription (per 100 people) and mobile cellular subscription (per 100 people)	WDI, WB
Wage Difference (WAGEGAP)	Constructed as a dummy by considering the negative of difference of real GDP per capita of host and home as 1, and 0 otherwise.	UNData
Distance (DIST)	Population weighted bilateral distance between exporter and importer in kilometer.	CEPII's Geodist database (Mayer & Zignago, 2011).
Contiguity (CONT)	A dummy for contiguity between exporter and importer.	
Common Language (LANGUAGE)	A dummy for common language between exporter and importer.	
Colony (COLONIAL)	A dummy for exporter and importer ever in colonial relationship.	
Landlocked (LANDLOCK)	A dummy for exporter and importer if they are landlocked.	
Other Variables used in robustness measures		
Gross Value Added Export (GVA-Exp) of host	Total value added export is the sum of Domestic Value Added (DVA) and Foreign Value Added (FVA).	UNCTAD-EORA GVC database (Casella et al., 2019)
Domestic Investment (GFCF_GDP) in host	Measured as the ratio of Gross Fixed Capital Formation (GFCF) to GDP.	WDI, WB and IFS, IMF.
Capital Account Openness (KAOPEN) in host and home	The degree of capital account openness is represented by the Chinn-Ito Index (KAOPEN).	The Chinn-Ito Financial Openness Index 2018 Update[Chinn& Ito(2006)]

3.3. Stylized Facts

It is observed that the mean value of FDI stocks and flows in all three datasets are positive. The presence of large number of missing or zero values as well as negative values fairly biased the mean values. In the following I present the stylized facts of the data.

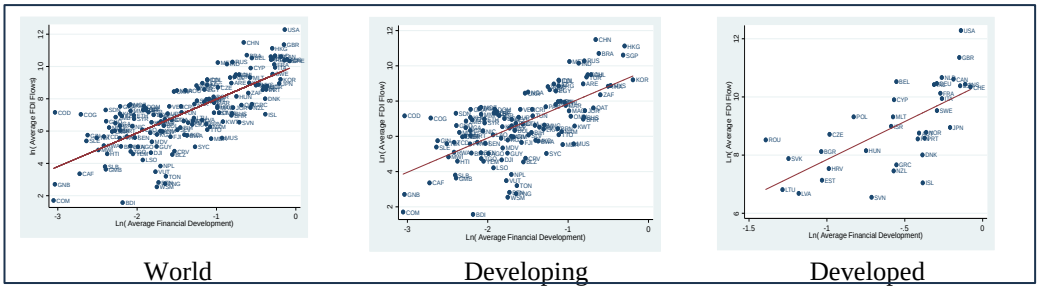
Figure 2: Inward FDI Stocks and Host Country Financial Development: 2001-2017



World Developing Developed

Source: Authors calculation based on World Investment Report, 2020 and IMF's FD data

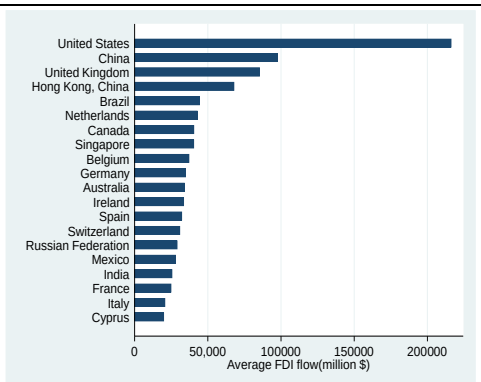
Figure 3: Inward FDI Flows and Host Country Financial Development: 2001-2017

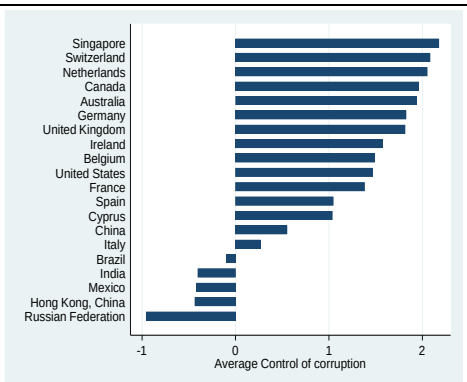


World Developing Developed

Source: Authors calculation from World Investment Report, 2020 and IMF's FD data

Figure 4: Inward FDI and control of corruption of to 20 host countries: 2001-2017





Top 20 FDI(Flow) host Countries | Control of Corruption of top 20 FDI host countries

Source: Authors calculation from World Investment Report, 2020 and WGI data

Figure-2 and Figure-3 represent stylized facts of our data. Figure-2 presents the inward FDI stocks and host country financial development averaged over 2001-2017. Figure-3 shows the same relationship but with FDI flow data. It is observed that there is an unconditional positive relationship between host country financial development and FDI stocks and flows. These positive relationships are relatively stronger for developing countries than the developed counterparts. In the same way, Desbordes and Wei (2017) presents that the relationship between outward FDI and home or source country financial development are stronger than that of the inward FDI and host country financial development.

Figure-4 compares average FDI flows to top 20 host countries over 2001-2017 (left panel) with their control of corruption level (right panel). The World Bank's WGI control of corruption values ranges from -2.50 (highly corrupted) to 2.50 (no corruption). Although the control of corruption level in China, Hong Kong SAR, China and Brazil are relative low, however, they ranked second, fourth and fifth in receiving FDI during the period of 2001-2017.

These stylized facts suggest that bilateral FDI is dependent on host (and home too) country financial development and other factors. Corruption seems weakly associated with the inward FDI, and, therefore, demands deep investigation.

4. Empirical Results

In order to get reliable estimate of FDI and financial development nexus, the paper first estimated the model with home and host fixed effect including time fixed effects. Next, country specific fixed effects with time to control for dynamic forces and both inward and outward multilateral resistances relating to FDI flows is introduced. Finally, pair fixed effects are employed to avoid endogeneity bias due to omitted variables and reverse causality.

An important issue still remains with the consistent estimation of the structural gravity model. The OLS fixed effects estimates do not account for heteroscedasticity and the existence of zeros. Zero FDI stocks or flows are very common in FDI data. The OLS estimate may mislead the results especially when large number missing observations are also treated as zeros. To get a consistent

estimate of the model, the pseudo-poisson maximum likelihood (PPML) is applied as suggested by Santos Silva & Tenreyro (2006) and it is preferable for several reasons. PPML accounts for the heteroscedasticity and existence of the zeros in FDI data.

The estimation of the theoretically constructed gravity model with MRTs is a challenge as they are not directly observable (Yotov et al.,2016). According to Feenstra (2016), introduction of directional fixed effects (home and host) fixed effects in cross sectional framework could be an easiest solution to capture MRT. However, Head and Mayer (2014) criticized that time-invariant directional fixed effects do not capture MRTs effectively and advocating using of host-time and home-time fixed effects. The inclusion of the host-time and home-time fixed effects absorb the size variables (e.g. GDP) from the structural gravity model as well as all other observable and unobservable country-specific characteristics which vary across these dimensions like national policies, institutions, and exchange rates (Yotov et al., 2016). The main explanatory variable, financial development and corruption are also time-variant, and there is a risk of elimination from the estimation. To overcome this risk of elimination from the estimation, time varying host-year and home-year fixed effects that vary every four years is employed (following Gylfason, Martinez-Zarzoso & Wukman,2015; Florensa et al., 2015; Martinez-Zarzoso and Marquez-Ramos, 2019; and Rodriguez-Crespo & Martinez-Zarzoso,2019). It can capture MRTs.

A persistent problem in empirical FDI gravity studies is endogeneity and reverse causality which results in biased estimates. Use of standard instruments is a method of dealing with endogeneity. However, due to lack of plausible instruments, researchers are now suggesting to include country-pair fixed effects (Head & Mayer, 2014; Yotov et al., 2016; Welfans & Baier, 2018; Donaubauer, Neumayer &Nunnenkamp, 2019). The dyad or pair fixed effects control for time invariant characteristics of all country pairs and time fixed effects. Finally, this paper estimates the model with host-year, home-year and pair fixed effects to capture both MRTs relating to FDI flows as well as endogeneity and heteroscedasticity.

According to Santos Silva & Tenreyro (2006), in PPML estimation the dependent variable will be in levels, not in logs. Explanatory variables, financial development, corporate tax, regional trade agreements, political risk, corruption, trade openness, wage and GDP, are lagged by one year. One period lag is hardly sufficient to tackle endogeneity bias, however, the problem would not be persistent when pair fixed effects is taken (Donaubauer, Neumayer &Nunnenkamp, 2019). Therefore, the PPML representations of the estimated specifications become-

(1) with host, home and year fixed effects-

$$FDI_{ijt}= \exp\ \alpha_i+\alpha_j+\alpha_t+\beta_1 lnFINDEVi_{,t-1}+\beta_2 lnFINDEV_{j,t-1}+\beta_3 POLSTAB_{i,t-1}+\beta_4 CCORRUPT_{i,t-1}+\delta_1 InGDPPP_{i,t-1}+\delta_2 InGDPPP_{j,t-1}+\delta_3 lnTRADOPEN_{i,t-1}+\delta_4 lnTAX_{i,t-1}+\varepsilon_{ijt}+\delta_5 lnINFRASTR_{i,t}+\gamma_1 InDIST_{ij}+\gamma_2 CONT_{ij}+\gamma_3 LANGUAGE_{ij}+\gamma_4 COLONIAL_{ij}+\gamma_5 LANDLOCK_{ij}+\varphi_1 RTA_{ij,t-1}+\varphi_2 WAGEGAP_{ij,t-1} \quad (7)$$

(2) with host-year and home-year fixed effects-

$$FDI_{ijt}= \exp\ \alpha_{it}+\alpha_{jt}+\beta_1 lnFINDEVi_{,t-1}+\beta_2 lnFINDEV_{j,t-1}+\beta_3 POLSTAB_{i,t-1}+\beta_4 CCORRUPT_{i,t-1}+\delta_1 InGDPPP_{i,t-1}+\delta_2 InGDPPP_{j,t-1}+\delta_3 lnTRADOPEN_{i,t-1}+\delta_4 lnTAX_{i,t-1}+\varepsilon_{ijt}+\delta_5 lnINFRASTR_{i,t}+\gamma_1 InDIST_{ij}+\gamma_2 CONT_{ij}+\gamma_3 LANGUAGE_{ij}+\gamma_4 COLONIAL_{ij}+\gamma_5 LANDLOCK_{ij}+\varphi_1 RTA_{ij,t-1}+\varphi_2 WAGEGAP_{ij,,t-1} \quad (8)$$

(3) with pair and year fixed effects-

$$FDI_{ijt}= \exp\ \alpha_{ij}+\alpha_t+\beta_1 lnFINDEVi_{,t-1}+\beta_2 lnFINDEV_{j,t-1}+\beta_3 POLSTAB_{i,t-1}+\beta_4 CCORRUPT_{i,t-1}+\delta_1 InGDPPP_{i,t-1}+\delta_2 InGDPPP_{j,t-1}+\delta_3 lnTRADOPEN_{i,t-1}+\delta_4 lnTAX_{i,t-1}+\varepsilon_{ijt}+\delta_5 lnINFRASTR_{i,t}+\varphi_1 RTA_{ij,t-1}+\varphi_2 WAGEGAP_{ij,\,t-1} \quad (9)$$

(4) with host-year, home-year and pair fixed effects-

$$FDI_{ijt} = \exp\ \alpha i_t + \alpha j_t + \alpha_{ij} + \beta_1 lnFINDEVi_{,t-1} + \beta_2 lnFINDEV_{j,t-1} + \beta_3 POLSTAB_{i,t-1} + \beta_4 CCORRUPT_{i,t-1} + \delta_1 InGDPPP_{i,t-1} + \delta_2 InGDPPP_{j,t-1} + \delta_3 lnTRADOPEN_{i,t-1} + \delta_4 lnTAX_{i,t-1} + \varepsilon_{ijt} + \delta_5 lnINFRASTR_{i,t} + \varphi_1 RTA_{ij,t-1} + \varphi_2 WAGEGAP_{ij,\ t-1} \ldots\ldots \quad (10)$$

The PPML estimation results are presented in Table-3 to Table-6. In Table-3, the paper employs host, home and year fixed effects and in Table-4, the host-year and home-year fixed effects. In these cases, it can assess the effect of time-invariant gravity parameters (distance, contiguity, language, landlocked) on FDI. In general, time-invariant parameters have expected sign and in most case the significance level. Consistent with the literature, both the host country and home country GDP have significant positive impact on FDI flows. Regional trade agreements also positively impact FDI. It, therefore, constructs the wage gap as a dummy variable that equals 1 if the host country's real GDP per capita is lower than the home country's, based on the assumption that relatively lower host-country wages may attract foreign investors. The results with OECD data reveal that the prediction is right as the sign of coefficient is positive and significant.

One of the main explanatory variables of interest is financial development. It is observed that the UNCTAD data gives the consistent and reliable estimations. For that reason researchers (Kox & Rojas-Romasgosa, 2019; Donaubauer, Neumayer &Nunnenkamp, 2019) prefer to use UNCTAD bilateral FDI data while studying FDI in a worldwide context. Considering the UNCTAD data as the benchmark for interpretation, it is observed that financial development has positive and significant effect on FDI. The results are consistent with the existing literature (Desbordes & Wei, 2017; Donaubauer, Neumayer &Nunnenkamp, 2019). The results are mixed with CDIS and OECD data. In case of CDIS data, the coefficient of financial development (FD and FI) for host country is significantly negative, but that of the home country is insignificant. However, in case of the OECD data, which covers long time span, the results indicate that the home or source country financial development is more important than that of the host country for FDI stocks in the host country. The mix results could be apparent that the three datasets cover different time periods. Nevertheless, in case of OECD database, the sample is comprised of only 38

home countries which could be a cause of divergence in the findings. According to World Investment Report, 2018 (UNCTAD, 2018), global FDI inflows fell by 2% in 2016 and further dropped by 23% in 2017. The reports also stated the net value of cross border mergers and acquisitions as well as announced Greenfield investment-an indicator of future trend-declined sharply in 2016 and 2017.

Another explanation could be that financial development helps Multinational Enterprises (MNEs) to source money from the host country for their external finance. As a result of financial development, MNEs see sourcing money from the host financial system as more profitable than borrowing from the home country. Sourcing finance from the host economy, however, contribute to the domestic investment in the host economy. Therefore, there could be a substitutability relationship between financial development and FDI in domestic investment[i].

Table 3: Gravity Estimation of Financial Development and FDI (PPML with Host, Home and Year FE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
Dependent Variable: fdi_stock									
$lnfd_host_{(t-1)}$	-0.372**			0.980***			-0.397		
	(0.181)			(0.176)			(0.296)		
$lnfd_home_{(t-1)}$	0.156			0.655***			1.095***		
	(0.332)			(0.231)			(0.372)		
$polstab_{(t-1)}$	0.0874*	0.113**	0.0776	-0.0543	-0.0659	-0.0365	0.0717	0.117	0.0463
	(0.0477)	(0.0452)	(0.0497)	(0.0479)	(0.0519)	(0.0487)	(0.0785)	(0.0787)	(0.0817)
$ccorruption_{(t-1)}$	0.174**	0.192**	0.167**	0.284***	0.281***	0.314***	0.279**	0.274**	0.271**
	(0.0793)	(0.0787)	(0.0792)	(0.0788)	(0.0834)	(0.0793)	(0.115)	(0.118)	(0.114)
$lngdp_host_{(t-1)}$	1.113***	1.164***	1.092***	0.788***	0.882***	0.968***	1.192***	1.291***	1.111***
	(0.265)	(0.253)	(0.270)	(0.271)	(0.279)	(0.279)	(0.281)	(0.273)	(0.290)
$lngdp_home_{(t-1)}$	1.051***	1.070***	1.090***	1.276**	1.345***	1.358***	3.873***	4.004***	3.887***
	(0.322)	(0.315)	(0.318)	(0.518)	(0.491)	(0.523)	(0.600)	(0.573)	(0.600)
$lntradeopen_{(t-1)}$	0.154	0.0185	0.189	0.0417	0.0565	-0.0295	0.348*	0.203	0.412**
	(0.155)	(0.152)	(0.160)	(0.175)	(0.166)	(0.177)	(0.187)	(0.181)	(0.197)
$lntax_{(t-1)}$	-0.200	-0.215	-0.0281	0.313	0.257	0.456	0.474	0.575	0.465
	(1.144)	(1.121)	(1.145)	(0.625)	(0.643)	(0.649)	(1.289)	(1.306)	(1.303)
Infastructure	0.0460	0.0841	-0.0123	-0.102	-0.0937	-0.0637	0.0123	0.0501	-0.00888
	(0.112)	(0.110)	(0.119)	(0.0722)	(0.0725)	(0.0736)	(0.0742)	(0.0713)	(0.0817)
lndistw	-0.524***	-0.524***	-0.523***	-0.604***	-0.604***	-0.604***	-0.392***	-0.389***	-0.390***

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
	(0.0737)	(0.0737)	(0.0739)	(0.0669)	(0.0670)	(0.0669)	(0.0977)	(0.0978)	(0.0977)
contig	0.308	0.308	0.308	0.255*	0.254*	0.253*	0.398*	0.398*	0.389*
	(0.197)	(0.197)	(0.198)	(0.149)	(0.150)	(0.150)	(0.210)	(0.210)	(0.209)
language	0.235	0.236	0.240	0.403***	0.403***	0.408***	0.280*	0.281*	0.291**
	(0.155)	(0.155)	(0.155)	(0.134)	(0.134)	(0.134)	(0.146)	(0.146)	(0.146)
colony	0.140	0.140	0.138	0.510***	0.511***	0.508***	0.310**	0.309**	0.322**
	(0.167)	(0.167)	(0.167)	(0.148)	(0.148)	(0.148)	(0.151)	(0.152)	(0.151)
landlocked	-0.0391	-0.0386	-0.0415	-0.00142	-0.000826	-0.00368	0.156	0.159	0.172
	(0.283)	(0.283)	(0.283)	(0.317)	(0.317)	(0.317)	(0.233)	(0.233)	(0.233)
$rta_{(t-1)}$	0.479***	0.480***	0.479***	0.542***	0.543***	0.541***	0.215	0.219	0.223
	(0.166)	(0.166)	(0.167)	(0.139)	(0.141)	(0.140)	(0.151)	(0.151)	(0.151)
$wagegap_{(t-1)}$	0.207	0.207	0.213	0.183	0.183	0.186	0.395**	0.395**	0.384**
	(0.178)	(0.178)	(0.178)	(0.138)	(0.138)	(0.138)	(0.166)	(0.166)	(0.166)
$lnfi_host_{(t-1)}$		-0.719***			0.897***			-0.891***	
		(0.201)			(0.253)			(0.309)	
$lnfi_home_{(t-1)}$		-0.123			0.531**			-0.349	
		(0.342)			(0.259)			(0.347)	
$lnfm_host_{(t-1)}$			0.00320			0.213**			0.0699
			(0.0248)			(0.0869)			(0.0758)
$lnfm_home_{(t-1)}$			0.0493			0.221**			1.027***
			(0.0845)			(0.105)			(0.188)
Constant	-16.25**	-17.60***	-16.17**	-14.04	-16.46*	-18.37**	-59.20***	-63.19***	-57.94***
	(6.516)	(6.299)	(6.463)	(9.061)	(9.018)	(9.176)	(9.485)	(9.136)	(9.434)
Host FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Home FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sample Years	2009-2017			2001-2012			2001-2017		
Observations	219,120	219,120	183,014	302,774	302,774	261,030	100,282	100,282	92,340
Pseudo R^2	0.900	0.900	0.897	0.897	0.897	0.893	0.847	0.847	0.846

Note: Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 4: Gravity Estimation of Financial Development and FDI (PPML with Host-Year and Home-Year FE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
Dependent Variable: fdi_stock									
lnfd_host$_{(t-1)}$	-0.169			0.623***			-0.412		
	(0.198)			(0.171)			(0.271)		
lnfd_home$_{(t-1)}$	0.357			0.264			0.937***		
	(0.327)			(0.233)			(0.331)		
polstab$_{(t-1)}$	0.0550	0.0881*	0.0520	-0.0667*	-0.0737*	-0.0618	0.0491	0.0642	0.0299
	(0.0508)	(0.0481)	(0.0528)	(0.0384)	(0.0394)	(0.0388)	(0.0864)	(0.0839)	(0.0898)
ccorruption$_{(t-1)}$	0.241***	0.255***	0.237***	0.289***	0.280***	0.310***	0.458***	0.443***	0.460***
	(0.0896)	(0.0873)	(0.0888)	(0.0853)	(0.0870)	(0.0847)	(0.122)	(0.125)	(0.123)
lngdp_host$_{(t-1)}$	0.668***	0.710***	0.645***	0.850***	0.839***	0.955***	0.189	0.200	0.124
	(0.219)	(0.224)	(0.219)	(0.198)	(0.201)	(0.207)	(0.252)	(0.251)	(0.256)
lngdp_home$_{(t-1)}$	0.585**	0.577**	0.622***	1.496***	1.437***	1.518***	2.569***	2.656***	2.669***
	(0.240)	(0.238)	(0.231)	(0.304)	(0.297)	(0.314)	(0.371)	(0.371)	(0.369)
lntradeopen$_{(t-1)}$	0.103	-0.0619	0.112	-0.118	-0.0410	-0.149	0.0479	-0.0663	0.109
	(0.133)	(0.120)	(0.131)	(0.147)	(0.152)	(0.150)	(0.169)	(0.169)	(0.181)
lntax$_{(t-1)}$	0.298	0.259	0.410	-0.0819	-0.0748	0.0451	1.677	1.777	1.684
	(1.250)	(1.228)	(1.232)	(0.702)	(0.702)	(0.715)	(1.336)	(1.341)	(1.335)
Infastructure	0.0173	0.0803	-0.00457	-0.0634	-0.0706	-0.0342	0.0772	0.114	0.0538
	(0.120)	(0.114)	(0.126)	(0.0865)	(0.0855)	(0.0873)	(0.0784)	(0.0757)	(0.0837)
lndistw	-0.524***	-0.524***	-0.523***	-0.604***	-0.603***	-0.604***	-0.390***	-0.388***	-0.387***
	(0.0738)	(0.0738)	(0.0740)	(0.0669)	(0.0670)	(0.0669)	(0.0975)	(0.0975)	(0.0977)
contig	0.309	0.308	0.308	0.255*	0.255*	0.254*	0.402*	0.403*	0.393*
	(0.197)	(0.197)	(0.198)	(0.149)	(0.149)	(0.150)	(0.210)	(0.210)	(0.209)
language	0.236	0.236	0.240	0.403***	0.403***	0.408***	0.278*	0.278*	0.289**
	(0.155)	(0.155)	(0.155)	(0.134)	(0.134)	(0.134)	(0.146)	(0.146)	(0.146)
colony	0.140	0.140	0.138	0.510***	0.511***	0.507***	0.311**	0.311**	0.323**
	(0.167)	(0.167)	(0.167)	(0.148)	(0.148)	(0.148)	(0.151)	(0.151)	(0.151)
landlocked	-0.0393	-0.0389	-0.0416	-0.00231	-0.00169	-0.00424	0.173	0.175	0.190
	(0.283)	(0.283)	(0.283)	(0.316)	(0.316)	(0.317)	(0.233)	(0.233)	(0.233)
rta$_{(t-1)}$	0.478***	0.479***	0.479***	0.543***	0.545***	0.543***	0.217	0.220	0.227
	(0.167)	(0.167)	(0.168)	(0.139)	(0.141)	(0.140)	(0.152)	(0.152)	(0.151)
wagegap$_{(t-1)}$	0.206	0.207	0.213	0.184	0.184	0.187	0.401**	0.400**	0.390**
	(0.179)	(0.179)	(0.179)	(0.138)	(0.138)	(0.138)	(0.166)	(0.166)	(0.166)
lnfi_host$_{(t-1)}$		-0.701***			0.890***			-0.711**	
		(0.254)			(0.249)			(0.322)	
lnfi_home$_{(t-1)}$		-0.0166			0.557**			-0.269	
		(0.383)			(0.258)			(0.385)	
lnfm_host$_{(t-1)}$			0.0249			0.100			0.00516
			(0.0287)			(0.0805)			(0.0574)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
lnfm_home$_{(t-1)}$			0.0992			0.0540			0.786***
			(0.129)			(0.103)			(0.145)
Constant	-3.506	-4.557**	-3.617	-18.35***	-17.16***	-20.57***	-27.60***	-29.55***	-27.84***
	(2.289)	(2.324)	(2.292)	(3.059)	(3.407)	(3.061)	(3.412)	(3.647)	(3.289)
Host-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Home-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sample Years	2009-2017			2001-2012			2001-2017		
Observations	219,120	219,120	183,014	300,788	300,788	260,257	100,282	100,282	92,340
Pseudo R^2	0.900	0.900	0.897	0.896	0.896	0.893	0.846	0.846	0.845

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Gravity Estimation of Financial Development and FDI (PPML with Pair FE and Year FE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
Dependent Variable: fdi_stock									
lnfd_host$_{(t-1)}$	-0.262			0.973***			-0.250		
	(0.163)			(0.167)			(0.289)		
lnfd_home$_{(t-1)}$	0.139			0.655***			1.060***		
	(0.327)			(0.190)			(0.358)		
polstab$_{(t-1)}$	0.0737	0.101**	0.0674	-0.0297	-0.0424	-0.0139	0.0441	0.0857	0.0285
	(0.0461)	(0.0436)	(0.0474)	(0.0447)	(0.0461)	(0.0461)	(0.0718)	(0.0736)	(0.0751)
ccorruption$_{(t-1)}$	0.137*	0.156**	0.133*	0.279***	0.276***	0.313***	0.126	0.144	0.126
	(0.0788)	(0.0760)	(0.0785)	(0.0763)	(0.0790)	(0.0786)	(0.0968)	(0.0958)	(0.0952)
lngdp_host$_{(t-1)}$	1.019***	1.068***	1.000***	0.755***	0.833***	0.934***	0.973***	1.052***	0.893***
	(0.221)	(0.210)	(0.224)	(0.215)	(0.217)	(0.224)	(0.239)	(0.234)	(0.247)
lngdp_home$_{(t-1)}$	1.062***	1.074***	1.103***	1.279***	1.388***	1.349***	3.867***	3.977***	3.881***
	(0.288)	(0.279)	(0.287)	(0.423)	(0.381)	(0.433)	(0.601)	(0.579)	(0.600)
lntradeopen$_{(t-1)}$	0.0579	-0.0687	0.0790	-0.0113	0.00344	-0.0723	0.163	0.0490	0.189
	(0.133)	(0.128)	(0.135)	(0.168)	(0.166)	(0.170)	(0.153)	(0.152)	(0.163)
lntax$_{(t-1)}$	0.0927	0.0359	0.229	0.451	0.366	0.587	-0.0328	0.0719	-0.0371
	(1.078)	(1.051)	(1.074)	(0.632)	(0.645)	(0.657)	(1.236)	(1.240)	(1.249)
Infrastructure	0.0468	0.0982	0.00607	-0.103*	-0.0985	-0.0643	0.0537	0.0804	0.0348
	(0.108)	(0.105)	(0.110)	(0.0626)	(0.0607)	(0.0638)	(0.0803)	(0.0744)	(0.0894)
rta$_{(t-1)}$	0.0233	0.0394	0.0187	-0.266**	-0.227**	-0.275**	-0.185	-0.163	-0.186*
	(0.0539)	(0.0532)	(0.0539)	(0.122)	(0.109)	(0.126)	(0.114)	(0.124)	(0.111)
wagegap$_{(t-1)}$	-0.0808	-0.0732	-0.0878	-0.0210	-0.0221	-0.0130	-0.0112	-0.00885	-0.00376
	(0.195)	(0.190)	(0.195)	(0.0650)	(0.0668)	(0.0661)	(0.0762)	(0.0796)	(0.0758)
lnfi_host$_{(t-1)}$		-0.629***			0.961***			-0.688**	
		(0.178)			(0.226)			(0.288)	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
lnfi_home$_{(t-1)}$		-0.215			0.561**			-0.317	
		(0.324)			(0.238)			(0.346)	
lnfm_host$_{(t-1)}$			0.0112			0.202***			0.0692
			(0.0235)			(0. 0769)			(0.0613)
lnfm_home$_{(t-1)}$			0.0576			0.223**			0.967***
			(0.0872)			(0.0875)			(0.184)
Constant	-18.14***	-19.45***	-18.19***	-17.14***	-19.85***	-21.27***	-57.95***	-61.31***	-56.79***
	(5.365)	(5.135)	(5.305)	(6.656)	(6.429)	(6.777)	(8.698)	(8.492)	(8.685)
Pair FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sample Year	2009-2017			2001-2012			2001-2017		
Observations	78,192	78,192	74,350	69,789	69,789	68,180	60,184	60,184	58,208
Pseudo R^2	0.987	0.987	0.987	0.973	0.973	0.973	0.951	0.951	0.951

Note: Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 6: Gravity Estimation of Financial Development and FDI (PPML with Host-Year, Home-Year and Pair FE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
Dependent Variable: fdi_stock									
lnfd_host$_{(t-1)}$	-0.112			0.631***			-0.337		
	(0.182)			(0.163)			(0.263)		
lnfd_home$_{(t-1)}$	0.315			0.271			0.830***		
	(0.331)			(0.195)			(0.321)		
polstab$_{(t-1)}$	0.0486	0.0816*	0.0478	-0.0537	-0.0602	-0.0498	0.0484	0.0593	0.0341
	(0.0491)	(0.0465)	(0.0508)	(0.0391)	(0.0383)	(0.0392)	(0.0815)	(0.0802)	(0.0847)
ccorruption$_{(t-1)}$	0.210**	0.223***	0.208**	0.277***	0.265***	0.300***	0.321***	0.326***	0.324***
	(0.0880)	(0.0842)	(0.0874)	(0.0862)	(0.0826)	(0.0866)	(0.103)	(0.103)	(0.103)
lngdp_host$_{(t-1)}$	0.628***	0.663***	0.603***	0.858***	0.818***	0.972***	0.0875	0.0878	0.0294
	(0.185)	(0.192)	(0.187)	(0.190)	(0.180)	(0.203)	(0.257)	(0.258)	(0.262)
lngdp_home$_{(t-1)}$	0.677***	0.663***	0.712***	1.585***	1.541***	1.600***	2.659***	2.751***	2.754***
	(0.231)	(0.227)	(0.225)	(0.299)	(0.273)	(0.312)	(0.373)	(0.379)	(0.370)
lntradeopen$_{(t-1)}$	0.0536	-0.104	0.0543	-0.140	-0.0714	-0.164	-0.0745	-0.161	-0.0313
	(0.125)	(0.114)	(0.122)	(0.135)	(0.141)	(0.141)	(0.143)	(0.143)	(0.156)
lntax$_{(t-1)}$	0.553	0.486	0.630	-0.0199	-0.00858	0.111	1.255	1.348	1.226
	(1.199)	(1.175)	(1.185)	(0.669)	(0.665)	(0.684)	(1.269)	(1.254)	(1.269)
lnfrastructure	0.0401	0.110	0.0304	-0.0690	-0.0787	-0.0391	0.108	0.138*	0.0852
	(0.112)	(0.109)	(0.115)	(0.0711)	(0.0665)	(0.0717)	(0.0801)	(0.0748)	(0.0864)
rta$_{(t-1)}$	-0.00076	0.0178	0.000148	-0.248**	-0.207**	-0.249**	-0.196*	-0.185	-0.195*
	(0.0530)	(0.0524)	(0.0534)	(0.118)	(0.101)	(0.117)	(0.113)	(0.124)	(0.109)
wagegap$_{(t-1)}$	-0.103	-0.0944	-0.105	-0.0240	-0.0250	-0.0184	-0.00551	-0.00728	0.00123
	(0.211)	(0.207)	(0.211)	(0.0636)	(0.0669)	(0.0661)	(0.0815)	(0.0828)	(0.0812)
lnfi_host$_{(t-1)}$		-0.617***			0.979***			-0.574*	
		(0.230)			(0.237)			(0.303)	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR.	**CDIS Data**			**UNCTAD Data**			**OECD Data**		
lnfi_home$_{(t-1)}$		-0.112			0.603**			-0.351	
		(0.371)			(0.247)			(0.383)	
lnfm_host$_{(t-1)}$			0.0268			0.0925			-0.00178
			(0.0275)			(0.0709)			(0.0527)
lnfm_home$_{(t-1)}$			0.0978			0.0538			0.735***
			(0.127)			(0.0854)			(0.142)
Constant	-7.356***	-8.281***	-7.466***	-23.14***	-21.76***	-25.40***	-29.38***	-31.22***	-29.65***
	(2.175)	(2.198)	(2.182)	(2.930)	(3.124)	(2.914)	(3.145)	(3.402)	(3.021)
Host-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Home-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pair FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sample Years	2009-2017			2001-2012			2001-2017		
Observations	78,192	78,192	74,350	69,747	69,747	68,170	60,184	60,184	58,208
Pseudo R^2	0.987	0.987	0.987	0.973	0.973	0.973	0.950	0.950	0.950

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Corruption is another explanatory variable of interest. The paper uses the World Banks' control of corruption indicator which has been taken from the 2018 update of the Worldwide Governance Indicator (WGI). The value of the control of corruption estimate ranges from -2.5(weak control) to 2.5(strong control). Therefore, a positive and significant relationship between control of corruption and FDI indicates a negative and significant relationship between corruption and FDI (Egger & Winner, 2005). In Table-3 and Table-4, It finds that control of corruption (ccorruption) has a positive and significant effect on FDI stocks, meaning that corruption significantly and negatively affect FDI.

In Table-5, regression results with pair fixed effects and year fixed effects, and in Table-6, host-year, home-year, and pair fixed effects in PPML estimator are reported. The results remain qualitatively same. In general, the results show that financial development has a significant effect on FDI. It seems that the home (source) country financial development is more important than the financial development in the host (destination) country. All gravity time invariant variables (distance, contiguity, language, and colony) have the expected sign and significance level. GDP of market size is significant for both the host and home countries. Generally, political stability and control of corruption positively affect FDI.

4.1. Does Financial Development mitigate adverse effect of corruption?

The paper finds that corruption has a significant negative effect on FDI. It is now imperative to check whether financial development substantially mitigates the risk of corruption in augmenting FDI by interacting financial development of the host country with the control of corruption variable in specifications 7 to 10. A negative sign of the interaction term is expected which signifies that with the presence of a good financial sector, corruption even works as an incentive for FDI (Egger & Winner, 2005). The analysis is based on the UNCTAD dataset as the dataset provides more significant estimates. The results with PPML estimates are reported in Table-7.

The coefficient of interactions of financial development, measured by FD, with control of corruption is negative and significant when we impose host-year and home-year fixed effects (Column-4 and Column-10). The coefficient of interactions (FI and control of corruption) is negative and significant at 1% level of significance in all specifications. However, the sign is positive with 5% level of significance when the financial development is measured by the financial market index. It, therefore, infers that host country financial development mitigates the negative role of corruption for inward FDI.

Table 7: Financial Development, Corruption and FDI (PPML Gravity Estimates with UNCTAD data)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VAR.	**Host Home and Year FE**			**Host-Year Home-Year FE#**			**Pair and Year FE**			**Host-Year Home-Year# & Pair FE**		
$lnfd_host_{(t-1)}$	0.997***			0.730***			0.996***			0.753***		
	(0.185)			(0.186)			(0.175)			(0.173)		
$lnfd_home_{(t-1)}$	0.651***			0.260			0.650***			0.268		
	(0.229)			(0.233)			(0.188)			(0.194)		
$polstab_{(t-1)}$	-0.0587	-0.0962*	-0.0203	-0.0834**	-0.101***	-0.0593	-0.0356	-0.0756	0.00231	-0.0722*	-0.0909**	-0.0477
	(0.0472)	(0.0531)	(0.0481)	(0.0368)	(0.0388)	(0.0381)	(0.0447)	(0.0468)	(0.0458)	(0.0374)	(0.0375)	(0.0387)
$ccorruption_{(t-1)}$	0.268**	0.138	0.369***	0.203*	0.116	0.323***	0.257**	0.118	0.369***	0.181*	0.0818	0.311***
	(0.106)	(0.110)	(0.0907)	(0.107)	(0.111)	(0.0930)	(0.101)	(0.105)	(0.0889)	(0.102)	(0.106)	(0.0923)
$ccorruption_{(t-1)}$* $lnfd_host_{(t-1)}$	-0.0395			-0.212**			-0.0529			-0.240***		
	(0.0914)			(0.0970)			(0.0886)			(0.0926)		
$lngdp_host_{(t-1)}$	0.782***	0.841***	0.980***	0.828***	0.819***	0.956***	0.746***	0.787***	0.945***	0.829***	0.787***	0.972***
	(0.268)	(0.268)	(0.282)	(0.198)	(0.199)	(0.207)	(0.212)	(0.206)	(0.227)	(0.190)	(0.177)	(0.203)
$lngdp_home_{(t-1)}$	1.276**	1.348***	1.357***	1.505***	1.457***	1.518***	1.281***	1.404***	1.343***	1.601***	1.576***	1.599***
	(0.518)	(0.487)	(0.523)	(0.304)	(0.297)	(0.314)	(0.423)	(0.377)	(0.431)	(0.298)	(0.270)	(0.312)
$lntradeopen_{(t-1)}$	0.0368	0.0266	-0.00599	-0.126	-0.0675	-0.147	-0.0179	-0.0282	-0.0483	-0.151	-0.102	-0.162
	(0.175)	(0.165)	(0.181)	(0.147)	(0.151)	(0.150)	(0.167)	(0.163)	(0.173)	(0.133)	(0.136)	(0.141)
$lntax_{(t-1)}$	0.315	0.494	0.514	-0.0913	0.159	0.0603	0.455	0.630	0.641	-0.0242	0.265	0.123
	(0.624)	(0.636)	(0.648)	(0.703)	(0.713)	(0.716)	(0.632)	(0.638)	(0.654)	(0.670)	(0.664)	(0.684)
Infrastructure	-0.101	-0.0732	-0.0638	-0.0607	-0.0497	-0.0338	-0.102	-0.0760	-0.0643	-0.0662	-0.0549	-0.0388
	(0.0720)	(0.0710)	(0.0747)	(0.0842)	(0.0840)	(0.0877)	(0.0622)	(0.0578)	(0.0646)	(0.0683)	(0.0627)	(0.0721)
lndistw	-0.604***	-0.603***	-0.604***	-0.604***	-0.603***	-0.604***						

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VAR.	**Host Home and Year FE**			**Host-Year Home-Year FE#**			**Pair and Year FE**			**Host-Year Home-Year# & Pair FE**		
	(0.0669)	(0.0670)	(0.0669)	(0.0668)	(0.0669)	(0.0669)						
contig	0.255*	0.254*	0.253*	0.255*	0.255*	0.254*						
	(0.149)	(0.149)	(0.150)	(0.149)	(0.149)	(0.150)						
language	0.403***	0.403***	0.408***	0.403***	0.403***	0.408***						
	(0.134)	(0.134)	(0.134)	(0.134)	(0.134)	(0.134)						
colony	0.510***	0.511***	0.508***	0.510***	0.510***	0.507***						
	(0.148)	(0.148)	(0.148)	(0.148)	(0.148)	(0.148)						
landlocked	-0.00128	-0.000506	-0.00444	-0.00172	-0.00135	-0.00438						
	(0.317)	(0.317)	(0.317)	(0.316)	(0.316)	(0.317)						
$rta_{(t-1)}$	0.542***	0.543***	0.541***	0.543***	0.545***	0.543***	-0.266**	-0.234**	-0.280**	-0.249**	-0.221**	-0.249**
	(0.139)	(0.140)	(0.140)	(0.139)	(0.140)	(0.140)	(0.122)	(0.113)	(0.125)	(0.121)	(0.106)	(0.116)
$wagegap_{(t-1)}$	0.183	0.180	0.186	0.183	0.181	0.187	-0.0227	-0.0381	-0.0109	-0.0311	-0.0436	-0.0181
	(0.138)	(0.138)	(0.138)	(0.138)	(0.138)	(0.138)	(0.0648)	(0.0658)	(0.0654)	(0.0636)	(0.0656)	(0.0659)
$lnfi_host_{(t-1)}$		0.984***			0.991***			1.060***			1.101***	
		(0.250)			(0.240)			(0.228)			(0.236)	
$lnfi_home_{(t-1)}$		0.499*			0.513**			0.513**			0.546**	
		(0.255)			(0.253)			(0.233)			(0.239)	
$ccorruption_{(t-1)}$* $lnfi_host_{(t-1)}$		-0.349***			-0.406***			-0.385***			-0.458***	
		(0.110)			(0.114)			(0.104)			(0.103)	
$lnfm_host_{(t-1)}$			0.183**			0.0926			0.173***			0.0863
			(0.0761)			(0.0734)			(0.0658)			(0.0636)
$lnfm_home_{(t-1)}$			0.231**			0.0528			0.234***			0.0531
			(0.103)			(0.104)			(0.0859)			(0.0861)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VAR.	**Host Home and Year FE**			**Host-Year Home-Year FE#**			**Pair and Year FE**			**Host-Year Home-Year# & Pair FE**		
ccorruption(t-1)*lnfm_host$_{(t-1)}$			0.119**			0.0281			0.120**			0.0240
			(0.0485)			(0.0492)			(0.0470)			(0.0484)
Constant	-13.95	-15.94*	-18.58**	-18.07***	-17.17***	-20.59***	-17.04**	-19.44***	-21.41***	-22.86***	-21.81***	-25.41***
	(9.057)	(8.890)	(9.231)	(3.062)	(3.392)	(3.066)	(6.649)	(6.288)	(6.804)	(2.929)	(3.091)	(2.917)
Host FE	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
Home FE	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year FE	YES	YES	YES	NO	NO	NO	YES	YES	YES	NO	NO	NO
Host-Year FE	NO	NO	NO	YES	YES	YES	NO	NO	NO	YES	YES	YES
Home-Year FE	NO	NO	NO	YES	YES	YES	NO	NO	NO	YES	YES	YES
Pair FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES
Observations	302,774	302,774	261,030	300,788	300,788	260,257	69,789	69,789	68,180	69,747	69,747	68,170
(Pseudo) R^2	0.897	0.897	0.893	0.897	0.897	0.893	0.973	0.973	0.973	0.973	0.973	0.973

Note: Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1. # Host-year and Home-Year FE varies by every four years.

4.2. Financial Development and FDI Nexus by Country Classification

It is argued that the conditions of financial system are lacking in developing countries compared to the developed counterparts. This lacking leads the developing countries greater scope of reforms and thereby greater potential to attract higher FDI (Donaubauer, Neumayer & Nunnenkamp, 2019). Although the global FDI flow dropped in 2016 and 2017, the flow to the developing countries however remained stable (UNCTAD, 2018). Moreover, Blonigen and Wang (2004) find that the factors that determine the location choice of FDI activity systematically varies across developed and developing countries. In this context, the sample is pooled for developing and developed host country groups and concentrates the estimation only with the financial development index (FD) for simplicity. The PPML estimation for specifications of 7, 8 and 10 are reported in Table-8, Table-9 and Table-10.

Table-8 reports the PPML estimation with host, home and year fixed effects to control for country specific characteristics as well as the factors that varies by year. While in Table-9, the model is estimated with host-year and home-year fixed effects to control for MRTs, the Table-10 also includes the pair fixed effects to further control for heteroscedasticity and endogeneity. A systematic difference in the magnitude of coefficients and in sign and significance level for the two country groups (developing and developed) is observed.

By Table-8 and Table-9, it can assess the impact of gravity time-invariant variables on FDI stock. Distance has significant (1% level) negative impact for both the groups. Contiguity also has the significant positive impact on FDI for both developed and developing country groups. Language and Colony, however, are more important factor for inward FDI in developing countries than the developed counterparts as the coefficients of those variables are highly and positively significant for the developing country group. The results are valid for the three datasets (CDIS, UNCTAD and OECD).

The estimate of the time variant gravity variable (GDP) varies significantly between the two country groups. The effect of host country GDP on inward FDI is significantly positive, but the magnitude of the coefficient is higher in case of developed countries. On the other hand, the home country GDP has also positive impact on FDI in line with theory; however, the magnitude of the coefficient

differs between the two countries groups in terms of the datasets used for the study. The magnitude of the coefficient is higher for the developed county groups for CDIS and OECD data; however, it is higher for the developing country groups in case of UNCTAD data.

The host country financial development significantly contributes to the rise of FDI for both developed and developing countries in the early years of the sample period (UNCTAD data). However, the financial development of the host country turns to impact FDI negatively for the developed country groups in the recent years (in case of CDIS and OECD data) and becomes neutral for the developing country groups as the coefficient is not significant. One of the reasons for this negative sign could be that in recent years the lending interest rates in developed countries became substantially low[ii]. As a result, MNEs see much profitable to procure external finance from the host country rather than to bring more funds from the home country. Political tensions could be a reason for which the impact of financial development on FDI becomes neutral in case of developing host country groups. On the other hand, the home country financial development is more important for the developing country groups than the developed counterparts. In general, it can be asserted that financial development of both the host and home country are important factors for inward FDI.

Political stability and the control of corruption have greater impact on inward FDI stocks in the developed country groups than the developing country groups. Corporate tax rate negatively affect FDI for developing countries in case of UNCTAD data, however, in the later years the impact turns out to be positive with the CDIS data. The results shows corporate tax has no impact on FDI for the developed country groups. In general wage gap and infrastructure positively attract FDI in the developing countries. RTA has mixed results in terms of different specifications. In case of home-year and host-year fixed effects estimations, a positive and significant impact in FDI for both the developed and developing groups is found. But, while pair fixed effects is imposed, RTA negatively affects FDI in developing countries only (for UNCTAD and OECD data)[ii]

[ii] According to World Bank data, the lending interest was in Canada (2.7% in 2017), Japan (1.0% in 2017), UK (0.5% in 2014), USA (3.3% in 2015) . However in Brazil, China, Russia and India it was 47%, 4.4%, 10.6% and 9.5% respectively in 2017.

Table 8: Gravity Estimation of Financial Development and FDI (PPML with Host, Home and Year FE)-Developing and Developed Country Groups

	(1)	(2)	(3)	(4)	(5)	(6)
	CDIS Data		**UNCTAD Data**		**OECD Data**	
VAR.	Dependent Variable: fdi_stock					
	Developing	Developed	Developing	Developed	Developing	Developed
$lnfd_host_{(t-1)}$	-0.0284	-0.584*	0.355**	1.130***	0.348	-0.647
	(0.190)	(0.315)	(0.152)	(0.283)	(0.308)	(0.541)
$lnfd_home_{(t-1)}$	0.622**	-0.0546	1.121***	0.426*	1.402***	0.993**
	(0.262)	(0.474)	(0.312)	(0.246)	(0.498)	(0.452)
$polstab_{(t-1)}$	0.0163	0.208**	0.00861	-0.0573	0.0235	0.0848
	(0.0533)	(0.0831)	(0.0829)	(0.0489)	(0.0683)	(0.125)
$ccorruption_{(t-1)}$	0.118*	0.147	0.133	0.240*	0.112	0.244**
	(0.0694)	(0.121)	(0.119)	(0.128)	(0.162)	(0.123)
$lngdp_host_{(t-1)}$	0.416***	1.684***	-0.366	1.234***	0.527*	1.685***
	(0.142)	(0.339)	(0.375)	(0.335)	(0.279)	(0.389)
$lngdp_home_{(t-1)}$	0.453**	1.262***	0.891*	1.394**	2.194***	4.182***
	(0.207)	(0.395)	(0.455)	(0.615)	(0.496)	(0.691)
$lntradeopen_{(t-1)}$	0.102	-0.235	0.00101	0.264	-0.129	0.380
	(0.0957)	(0.220)	(0.252)	(0.194)	(0.217)	(0.235)
$lntax_{(t-1)}$	1.431*	0.787	-0.589	0.326	1.406	0.0433
	(0.734)	(1.467)	(0.738)	(0.873)	(1.100)	(1.663)
Infrastructure	0.354***	0.0407	-0.182*	-0.0796	0.0958	-0.0281
	(0.0699)	(0.238)	(0.106)	(0.0833)	(0.0827)	(0.146)
lndistw	-0.996***	-0.402***	-1.024***	-0.383***	-1.156***	-0.287**
	(0.0680)	(0.0847)	(0.0735)	(0.0942)	(0.100)	(0.142)
contig	0.433***	0.367*	0.408**	0.451***	0.182	0.491**
	(0.149)	(0.213)	(0.170)	(0.171)	(0.214)	(0.243)
language	1.120***	-0.0782	1.202***	0.171	0.0243	0.232
	(0.129)	(0.166)	(0.146)	(0.145)	(0.231)	(0.158)
colony	0.521***	0.0433	0.440**	0.372**	0.555**	0.299*
	(0.179)	(0.145)	(0.214)	(0.163)	(0.249)	(0.167)
landlocked	-0.150	0.174	-0.166	0.182	-0.293	0.267
	(0.447)	(0.311)	(0.233)	(0.378)	(0.362)	(0.264)
$rta_{(t-1)}$	0.535***	0.385**	0.391***	0.583***	0.161	0.361*
	(0.129)	(0.187)	(0.147)	(0.199)	(0.131)	(0.219)
$wagegap_{(t-1)}$	-0.00102	0.0120	0.336*	0.0546	0.0397	0.142
	(0.217)	(0.170)	(0.175)	(0.138)	(0.266)	(0.180)
Constant	3.590	-27.74***	10.55	-23.54**	-20.78**	-70.61***
	(3.278)	(8.435)	(10.27)	(11.50)	(9.312)	(11.25)
Host FE	YES	YES	YES	YES	YES	YES
Home FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	174,570	44,550	235,609	54,798	81,018	19,264
(Pseudo) R^2	0.891	0.911	0.866	0.903	0.747	0.820

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Gravity Estimation of Financial Development and FDI (PPML with Host-Year and Home-Year FE)-Developing and Developed Country Groups

	(1)	(2)	(3)	(4)	(5)	(6)
	CDIS Data		**UNCTAD Data**		**OECD Data**	
VAR.	Dependent Variable: fdi_stock					
	Developing	Developed	Developing	Developed	Developing	Developed
lnfd_host$_{(t-1)}$	0.0329	-0.136	0.424**	0.545**	0.425	-1.030**
	(0.180)	(0.379)	(0.173)	(0.257)	(0.278)	(0.473)
lnfd_home$_{(t-1)}$	0.728**	0.119	0.833*	0.115	1.505***	0.837**
	(0.306)	(0.452)	(0.493)	(0.242)	(0.463)	(0.390)
polstab$_{(t-1)}$	0.0111	0.201**	0.0596	-0.133***	-0.00222	0.0570
	(0.0573)	(0.0803)	(0.0854)	(0.0385)	(0.0745)	(0.120)
ccorruption$_{(t-1)}$	0.126*	0.267**	0.245**	0.231*	0.170	0.575***
	(0.0721)	(0.135)	(0.115)	(0.135)	(0.192)	(0.138)
lngdp_host$_{(t-1)}$	0.241*	0.974***	0.695***	0.874***	0.382**	-0.00455
	(0.129)	(0.291)	(0.224)	(0.261)	(0.194)	(0.350)
lngdp_home$_{(t-1)}$	0.309**	0.633**	2.265***	1.390***	1.482***	2.880***
	(0.150)	(0.320)	(0.296)	(0.405)	(0.265)	(0.468)
lntradeopen$_{(t-1)}$	0.0796	-0.217	-0.160	0.0124	-0.0352	0.0356
	(0.0834)	(0.188)	(0.227)	(0.139)	(0.182)	(0.226)
lntax$_{(t-1)}$	1.641**	1.800	-1.765**	0.927	1.091	2.485
	(0.741)	(1.671)	(0.704)	(0.985)	(1.133)	(1.728)
Infrastructure	0.374***	-0.0226	-0.194	-0.0248	0.178**	-0.0441
	(0.0700)	(0.250)	(0.142)	(0.0776)	(0.0770)	(0.175)
lndistw	-0.997***	-0.402***	-1.024***	-0.381***	-1.159***	-0.281**
	(0.0680)	(0.0849)	(0.0739)	(0.0948)	(0.101)	(0.143)
contig	0.434***	0.368*	0.405**	0.452***	0.181	0.497**
	(0.149)	(0.213)	(0.172)	(0.172)	(0.215)	(0.243)
language	1.121***	-0.0779	1.195***	0.172	0.0231	0.229
	(0.129)	(0.166)	(0.147)	(0.145)	(0.232)	(0.158)
colony	0.521***	0.0423	0.442**	0.374**	0.555**	0.301*
	(0.179)	(0.145)	(0.213)	(0.163)	(0.248)	(0.167)
landlocked	-0.150	0.174	-0.156	0.183	-0.299	0.300
	(0.448)	(0.312)	(0.234)	(0.377)	(0.362)	(0.263)
rta$_{(t-1)}$	0.533***	0.383**	0.393**	0.590***	0.144	0.372*
	(0.130)	(0.187)	(0.164)	(0.200)	(0.133)	(0.220)
wagegap$_{(t-1)}$	-0.00217	0.0102	0.347**	0.0532	0.0458	0.142
	(0.222)	(0.171)	(0.176)	(0.138)	(0.266)	(0.180)
Constant	8.036***	-9.146***	-22.81***	-19.07***	-8.540***	-29.79***
	(1.542)	(3.269)	(3.720)	(3.932)	(3.193)	(4.071)
Host-Year FE#	YES	YES	YES	YES	YES	YES
Home-Year FE#	YES	YES	YES	YES	YES	YES
Observations	174,308	44,550	232,452	54,105	81,018	19,264
(Pseudo) R^2	0.891	0.911	0.864	0.902	0.746	0.817

Note: Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1. # Host-year, Home-year FE vary by every four years.

Table 10: Gravity Estimation of Financial Development and FDI

(PPML with Host-Year, Home-Year and Pair FE)-Developing and Developed Country Groups

	(1)	(2)	(3)	(4)	(5)	(6)
	CDIS Data		UNCTAD Data		OECD Data	
VAR.	Dependent Variable: fdi_stock					
	Developing	Developed	Developing	Developed	Developing	Developed
$lnfd_host_{(t-1)}$	0.0752	-0.138	0.378**	0.572**	0.377	-0.934**
	(0.168)	(0.356)	(0.158)	(0.256)	(0.268)	(0.462)
$lnfd_home_{(t-1)}$	0.443*	0.0877	0.803**	0.0819	1.318***	0.761**
	(0.262)	(0.427)	(0.392)	(0.220)	(0.416)	(0.381)
$polstab_{(t-1)}$	-0.00965	0.195**	0.0344	-0.112***	0.0130	0.0551
	(0.0449)	(0.0805)	(0.0944)	(0.0361)	(0.0635)	(0.112)
$ccorruption_{(t-1)}$	0.114	0.236*	0.324***	0.200	0.0607	0.444***
	(0.0710)	(0.129)	(0.0933)	(0.125)	(0.136)	(0.130)
$lngdp_host_{(t-1)}$	0.330***	0.938***	0.724***	0.866***	0.302	-0.0952
	(0.116)	(0.257)	(0.218)	(0.286)	(0.193)	(0.379)
$lngdp_home_{(t-1)}$	0.310**	0.671**	2.433***	1.471***	1.625***	2.987***
	(0.136)	(0.302)	(0.312)	(0.417)	(0.255)	(0.491)
$lntradeopen_{(t-1)}$	0.0377	-0.246	-0.123	-0.0526	-0.111	-0.0447
	(0.0822)	(0.183)	(0.222)	(0.138)	(0.154)	(0.202)
$lntax_{(t-1)}$	1.601**	1.818	-1.383**	0.761	0.503	2.109
	(0.700)	(1.653)	(0.704)	(0.962)	(0.955)	(1.657)
Infrastructure	0.355***	-0.000459	-0.160	-0.0539	0.223***	-0.0843
	(0.0661)	(0.247)	(0.104)	(0.0753)	(0.0829)	(0.168)
$rta_{(t-1)}$	-0.00959	0.0482	-0.404**	-0.107	-0.325***	-0.0633
	(0.0778)	(0.0657)	(0.176)	(0.118)	(0.117)	(0.170)
$wagegap_{(t-1)}$	0.174**	-0.154	0.0136	-0.0319	0.0103	-0.0357
	(0.0718)	(0.231)	(0.116)	(0.0666)	(0.197)	(0.0900)
Constant	-0.355	-11.66***	-32.51***	-21.86***	-18.67***	-30.89***
	(1.500)	(3.153)	(3.602)	(3.659)	(2.784)	(3.728)
Host-Year FE#	YES	YES	YES	YES	YES	YES
Home-Year FE#	YES	YES	YES	YES	YES	YES
Pair FE	YES	YES	YES	YES	YES	YES
Observations	53,143	24,808	46,955	22,401	42,545	17,433
(Pseudo) R^2	0.983	0.986	0.951	0.976	0.921	0.940

Note: Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1.Host-year, Home-year FE vary by every four years.

5. Conclusions and Recommendations

This study examined the effect of financial development on inward FDI, mainly stocks, using the gravity framework in a worldwide context covering 169 countries. The choice of other control or explanatory variables is based on the theoretical background on FDI determinants. To capture the patterns of the relationship between financial development (FD, FI and FM) and FDI as well as reasons of FDI activity, the study employs structural gravity model using three unique datasets for bilateral FDI (CDIS, UNCTAD and OECD). The reason for utilizing three distinct datasets is that they cover different time periods. The CDIS data covers period from 2009-2017, the UNCTAD data covers 2001-2012 and finally, the OECD data integrates both the periods (2001-2017). China and Russia are added in the list of source or home country in the OECD database.

To get reliable estimates, the paper addresses the challenges of FDI study-treatment of zero and negative values- following Dorakh (2020). As usual, It also addresses multilateral resistances, endogeneity and heteroscedasticity by utilizing various dimensional fixed effects and one period lags of the explanatory variables. Both OLS and PPML with high dimensional fixed effects are employed. The PPML estimates give the most consistent and efficient estimates as it handle zeros efficiently. Consistent with existing literature, the study with UNCTAD data, in general, finds that financial development (irrespective of its measurement) of both host (destination country) and home (source country) are significant (mostly positive) determinants of FDI stocks(flows as well). Several robustness tests also confirm that the main specifications and finding are robust. However, the estimates with CDIS and OECD-that covers recent years- show that inward FDI in host countries positively associated with home country financial development and, to some extent, negatively associated with that of the host country. This result indicates that MNEs are now sourcing their external finance demand from the host countries as financial development leads them funding from the host countries as less costly. Other reason could be the increasing political tensions and trade wars among the nations cause disinvestment or less appetite for Greenfield investment, however, this justification needs further research.

While the political stability has a mixed effect on FDI stocks, corruption still remains a persistent problem in FDI. By interacting financial development of the host country with the control of corruption variable the study finds, however, that the presence of a good financial sector, corruption even works as an incentive for FDI.

By pooling the full sample to developing and developed host countries the study also reassesses the financial development and FDI nexus. The conditions of financial system are, in general, lacking in developing countries compared to the developed counterparts that leads the developing countries greater scope of reforms and thereby greater potential to attract higher FDI. The results suggest that the host country financial development significantly contributes to the rise of FDI for both developed and developing countries in the early years of the sample period (UNCTAD data). However, the financial development of the host country turns to impact FDI negatively for the developed country groups in the recent years (in case of CDIS and OECD data) and becomes neutral for the developing country groups as the coefficient is not significant. One of the reasons for this negative sign could be that in recent years the lending interest rates in developed countries became substantially low.

Pooling data into developing and developed country groups, the study also reveal that political stability and the control of corruption have greater impact on inward FDI stocks in the developed country groups than the developing country groups. Corporate tax rate negatively affect FDI for developing countries in case of UNCTAD data, however, in the later years the impact turns out to be positive with the CDIS data. The results shows corporate tax has no impact on FDI for the developed country groups. In general wage gap and infrastructure positively attract FDI in the developing countries.

The study has import contribution in FDI gravity literature. First, the study examines the impact of financial development on bilateral FDI by utilizing a comprehensive set of financial development measurement of IMF for the first time. Second, the study extends the gravity literature incorporating the interaction between control of corruption and financial development to assess how financial development substitutes the adverse effect of corruption on FDI. Third, the study

for the first time employs three distinct datasets of bilateral FDI which covers different time periods.

Although the study finds the overall relationship between both host and home country financial development and FDI is positive, however, estimation with recent data uncover that the host country financial development is becoming negative. It means that financial development. to some extent, substitute FDI. Countries, therefore, should be careful in designing policies to boost economic growth by industrial development. The industrial policy and other macroeconomic policy should be aligned in such a way that it accommodates choice whether the industrialization should be driven by augmenting domestic investment or by attracting more FDIs. Excessive liberalization may hamper FDI inflows, and, therefore, countries should be careful in further liberalizing the financial system. Even though, financial development helps to mitigate adverse effect of corruption for FDI, developing countries, especially should be more concern on controlling corruption. This will lead the MNEs presence in the host country as well as domestic firms more competitive in the world markets.

References

Alabi, M. O., Tella, S. A., Odusanya, I. A., & Yinusa, O. G. (2018). Financial deepening, foreign direct investment and output performance in Nigeria. *Scientific Annals of Economics and Business,* 65(2), 193–204. https://doi.org/10.2478/saeb-2018-0007

Alemu, A.,M.(2012). Effects of corruption on FDI inflow in Asian economies. *Seoul Journal of Economics*, 25(4), 387-412.

Al-Sadig, A. (2009). The effects of corruption on FDI inflows. *Cato Journal. 29(2)*, 267-294.

Anderson, J. E., Larch, M., & Yotov, Y. V. (2020). Transitional growth and trade with frictions: A structural estimation framework. *The Economic Journal, 130(630),* 1583–1607. https://doi.org/10.1093/ej/ueaa020

Anderson, J.E., & Wincoop,V., E. (2003). Gravity with gravitas: A solution to the border puzzle. *American Economic Review, 93(1)*,170–192. https://doi.org/10.1257/000282803321455214

Ang, J. B. (2008). Determinants of foreign direct investment in Malaysia. *Journal of Policy Modeling, 30(1),* 185–189. https://doi.org/10.1016/j. jpolmod. 2007.06.014

Azzimonti, M. (2019). Does partisan conflict deter FDI inflows to the US? *Journal of International Economics, 120,* 162–178. https://doi.org/ 10.1016/j.jinteco.2019.06.001

Beck, T., Demirguc-Kunt, A., & Levine, R. (2000). A new database on the structure and development of the financial sector. *The World Bank Economic Review, 14(3),* 597– 605. https://doi.org/10.1093/wber/14.3.597

Bevan, A., Estrin, S., & Meyer, K. (2004). Foreign investment location and institutional development in transition economies. *International Business Review, 13(1),* 43–64. https://doi.org/10.1016/j.ibusrev.2003.05.005

Blonigen, B. A., & Davies, R. B. (2004). The effects of bilateral tax treaties on U.S. FDI activity. *International Tax and Public Finance, 11(5),* 601–622. https://doi.org/10.1023/b:itax.0000036693.32618.00

Blonigen, B. A., & Piger, J. (2014). Determinants of foreign direct investment. *Canadian Journal of Economics, 47(3),* 775–812. https://doi.org/10.1111/ caje.12091

Blonigen, B. A., & Wang, M. (2004). *Inappropriate pooling of wealthy and poor countries in empirical FDI studies*. NBER Working Paper No. 10378. https ://www.nber.org/paper s/w10378

Blundell-Wignall, A. & Roulet, C. (2017). Foreign direct investment, corruption and the OECD anti-bribery convention. In *OECD Working Papers on International Investment*. https://doi.org/10.1787/9cb3690c-en

Bruno, R. L., Campos, N., Estrin, S., & Tian, M. (2017). Economic integration, foreign investment and international trade: the effects of membership of the European Union. *LSE Research Online Documents on Economics* https://ideas.repec.org/p/ehl/lserod/86615.html

Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy, 23(2),* 397–415. https://doi.org/10.1016/j.ejpoleco.2006.02.003

Campos, N., & Kinoshita, Y. (2003). Why does FDI go where it goes? New evidence from transition economies. *IMF Working Paper, 2003(228),1*. https://doi.org/10.5089/9781451875461.001

Campos, N., & Kinoshita, Y. (2008). Foreign direct investment and structural reforms: Evidence from Eastern Europe and Latin America. *IMF Working Paper, 08(26),*1. https://doi.org/10.5089/9781451868883.001

Casella, B., Bolwijn, R., Moran, D., & Kanemoto, K. (2019). UNCTAD insights: improving the analysis of global value chains: the UNCTAD-Eora database. *Transnational Corporations, 26(3),* 115–142. https://doi.org/10.18356/3aad0f6a-en

Chamisa, M. G. (2020). Does corruption affect foreign direct investment (FDI) inflows in SADC countries? *Journal of Applied Accounting and Taxation, 5(2),* 166–174. https://doi.org/10.30871/jaat.v5i2.1873

Chenaf-Nicet, D., & Rougier, E. (2016). The effect of macroeconomic instability on FDI flows: A gravity estimation of the impact of regional integration in the case of Euro Mediterranean agreements. *International Economics, 145*, 66–91. https://doi.org/10.1016/j.inteco.2015.10.002

Chinn, M. D., & Ito, H. (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics, 81(1),* 163–192. https://doi.org/10.1016/j.jdeveco.2005.05.010

Choi, S., Furceri, D., & Yoon, C.(2019). Policy uncertainty and FDI flows: The role of institutional quality and financial development. *Working papers 2019 rwp-144*, Yonsei University, Yonsei Economics Research Institute.

Cleeve, E. (2008). How effective are fiscal incentives to attract FDI to Sub-Saharan Africa? *The Journal of Developing Areas, 42(1),* 135–153. https://doi.org/10.1353/jda.0.0015

Curtis, T., Rhoades, D. L., & Griffin, T. (2013). Effects of global competitiveness, human development, and corruption on inward foreign direct investment. *Review of Business, 34(1).*,1-22.

Dellis, K.(2018). Financial development and FDI Flows: Evidence from advanced economies. *SSRN Electronic Journal*. https://doi.org/ 10.2139/ssrn.4196673

Desai, M. A., Foley, C. F., & Hines, J. R. (2004). The costs of shared ownership: Evidence from international joint ventures. *Journal of Financial Economics, 73(2),* 323–374. https://doi.org/10.1016/j.jfineco.2003.07.001

Desbordes, R., & Wei, S.-J. (2017). The effects of financial development on foreign direct investment. *Journal of Development Economics, 127*, 153–168. https://doi.org/10.1016/j.jdeveco.2017.02.008

De Sousa, J., & Lochard, J. (2011). Does the single currency affect foreign direct investment? *Scandinavian Journal of Economics, 113(3),* 553–578. https ://doi.org/10.1111/j.1467- 9442.2011.01656.x

di Giovanni, J. (2005). What drives capital flows? The case of cross-border M&A activity and financial deepening. *Journal of International Economics, 65(1),* 127–149. https://doi.org/10.1016/j.jinteco.2003.11.007

Donaubauer, J., Neumayer, E., & Nunnenkamp, P. (2019). Financial market development in host and source countries and their effects on bilateral foreign direct investment. *The World Economy, 43(3),* 534–556. https://doi.org/10.1111/twec.12884

Dorakh, A. (2020). A gravity model analysis of FDI across EU member states. *Journal of Economic Integration, 35(3),* 426–456. https://doi.org/ 10.11130/jei.2020.35.3.426

Dunning, J.H., (1981). *International production and the multinational enterprise (RLE International Business)*. Routledge.

Dunning, J.H. (1994). Re-evaluating the benefits of foreign direct investment. *Transnational Corporations, 3 (1),* 23-51.

Dutta, N. & Roy, S. (2011). Foreign direct investment, financial development and political risks. *The Journal of Developing Areas, 44(2),* 303–327. https://doi.org/10.1353/jda.0.0106

Eicher, T. S., Helfman, L., & Lenkoski, A. (2012). Robust FDI determinants: Bayesian model averaging in the presence of selection bias. *Journal of Macroeconomics, 34(3),* 637– 651. https://doi.org/10.1016/ j.jmacro. 2012.01.010

Egger, P., & Larch, M. (2008). Interdependent preferential trade agreement memberships: An empirical analysis. *Journal of International Economics, 76(2),* 384–399. https://doi.org/10.1016/j.jinteco.2008.08.003

Egger, P., & Winner, H. (2005). Evidence on corruption as an incentive for foreign direct investment. *European Journal of Political Economy, 21(4),* 932–952. https://doi.org/10.1016/j.ejpoleco.2005.01.002

Feenstra, R. C. (2016). *Advanced international trade: Theory and evidence(2nd Ed)*. Princeton University Press.

Florensa, L. M., Márquez-Ramos, L., Martínez-Zarzoso, I., & Recalde, M. L. (2015). Regional versus global production networks: where does Latin America stand? *Applied Economics, 47(37),* 3938–3956. https://doi.org/10.1080/00036846.2015.1023938

Gammoudi, M, and Cherif, M.(2016). Capital account openness, political institutions, and FDI in MENA region: an empirical investigation. *Journal of Economic Development, 41(2),*53-76. https://doi.org/10.35866/caujed. 2016.41.2.003

Gylfason, T., Martínez-Zarzoso, I., & Wijkman, P. M. (2015). Free trade agreements, institutions and the exports of Eastern Partnership Countries. *JCMS: Journal of Common Market Studies, 53(6*), 1214–1229. https://doi.org/10.1111/jcms.12275

Habib, M., & Zurawicki, L. (2001). Country-level investments and the effect of corruption — some empirical evidence. *International Business Review, 10(6),* 687–700. https://doi.org/10.1016/s0969-5931(01)00038-5

Habu, K. (2017). Centre for business taxation tax database 2017. University of Oxford.

Hakimi, A., & Hamdi, H. (2017). Does corruption limit FDI and economic growth? Evidence from MENA countries. *International Journal of Emerging Markets, 12(3*), 550–571. https://doi.org/10.1108/ijoem-06-2015-0118

Hasan, M., Rahman, M. N., & Iqbal, B. A. (2017). Corruption and FDI Inflows: Evidence from India and China. *Mediterranean Journal of Social Sciences, 8(4),* 173–182. https://doi.org/10.2478/mjss-2018-0088

Head, K., & Mayer, T. (2014). Gravity equations: Workhorse, toolkit, and cookbook. In: Gopinath, G., Helpman, E.,& Rogoff, K. (Eds.). *Handbook of International Economics, vol. 4. E*lsevier, North Holland, pp. 131–195.

Hermes, N., & Lensink, R. (2003). Foreign direct investment, financial development and economic growth. *Journal of Development Studies, 40(1),* 142–163. https://doi.org/10.1080/00220380412331293707

Hymer, S. H. (1960). *The international operations of national firms: A study of direct foreign investment (Ph.D Dissertation)*. Massachusetts Institute of Technology.

Hyun, H.-J., & Kim, H. H. (2010). The determinants of cross-border M&As: The role of institutions and financial development in the gravity model. *World Economy, 33(2),* 292–310. https://doi.org/10.1111/j.1467-9701.2009.01 22 4.x

Islam, M. A., Liu, H., Khan, M. A., Reza, S. M. D., Yahia, Y. E., & Nasrin, L. (2018). Causal relationship between economic growth, financial deepening, foreign direct investment and innovation: Evidence from China. *Asian Economic and Financial Review, 8(8),* 1086–1101. https://doi.org/10. 18488/ journal.aefr.2018.88.1086.1101

Jetin, B., Saadaoui, J., & Ratiarison, H. (2024). The Effect of Corruption on Foreign Direct Investment at the Regional Level: A Positive or Negative Relationship? *In Asia in transition*, 69–86. https://doi.org/10.1007/978-981-99-9303-1_3

Johnson, A. (2006). FDI and exports: The case of the high performing East Asian Economies. *Working Paper Series in Economics and Institutions of Innovation 57,* Royal Institute of Technology, CESIS - Centre of Excellence for Science and Innovation Studies.

Karaman, K. K., & Yıldırım-Karaman, S. (2019). How does financial development alter the impact of uncertainty?. *Journal of Banking & Finance*, *102*, 33-42.

Kareem, F.,O., Martínez-Zarzoso, I., & Bruemmer, B.(2016). Fitting the gravity model if zero trade flows are frequent: A comparison of estimation techniques using Africa's trade data. *Global Food Discussion Paper No. 77*. Georg-August University Göttingen.

Krifa-Schneider, H., Matei, I., & Sattar, A. (2022). FDI, corruption and financial development around the world: A panel non-linear approach. *Economic Modelling, 110*, https://doi.org/10.1016/j.econmod.2022.105809

Kelly, R. (2016). Does financial sector development enhance the relationship between FDI and economic growth? A comparative study of East African countries. *Journal of Reviews on Global Economics, 5,* 145–153. https://doi.org/10.6000/1929-7092.2016.05.12

Kerner, A. (2009). Why should I believe you? The costs and consequences of bilateral investment treaties. *International Studies Quarterly, 53(1),* 73–102. https://doi.org/10.1111/j.1468-2478.2008.01524.x

Kinoshita, Y., & Campos, N. (2004). Estimating the determinants of foreign direct investment inflows: How important are sampling and omitted variable biases. *BOFIT Discussion papers No. 10/2004*. http://dx.doi.org/10.2139/ssrn.1015209

Klein, M. W., Peek, J., & Rosengren, E. S. (2002). Troubled banks, impaired foreign direct investment: The role of relative access to credit. *American Economic Review, 92(3),* 664–682. https://doi.org/10.1257/00028280260136309

Kojima, K. (1973). A macroeconomic approach to foreign direct investment. *Hitotsubashi Journal of Economics, 14*,1-20.

Kox, H., & Rojas-Romagosa, H. (2019). Gravity estimations with FDI bilateral data: Potential FDI effects of deep preferential trade agreements. *SSRN Electronic Journal,* https://doi.org/10.2139/ssrn.3457319

Larch, M., Wanner, J., Yotov, Y.V, & Zylkin, T.(2019). Currency unions and trade: A PPML re-assessment with high dimensional fixed effects. *Oxford Bulletin of Economics and Statistics, 81(3),* 487-510. https://doi.org/10.1111/obes.12283

Markusen, J. R., & Maskus, K. E. (2002). Discriminating among alternative theories of the multinational enterprise. *Review of International Economics, 10(4),* 694–707. https://doi.org/10.1111/1467-9396.00359

Martínez, V., Bengoa, M., & Sánchez-Robles, B. (2012). Foreign direct investment and trade: Complements or substitutes? Empirical evidence for the European Union. *Technology and Investment, 03(02),* 105–112. https://doi.org/10.4236/ti.2012.32013

Martínez-Zarzoso, I., & Márquez-Ramos, L. (2019). Exports and governance: Is the Middle East and North Africa region different? *The World Economy, 42(1),* 143–174. https://doi.org/10.1111/twec.12633

Mayer,T., & Zignago, S. (2011). Notes on CEPII's distances measures: The GeoDist database. *CEPII Working Paper 2011(25).*

Mundell, R.A.(1957). International trade and factor mobility. *American Economic Review, 47 (3),* 321–335.

Mundell, R. (1968). *International economics*. Macmillan.

Noy, I., & Vu, T. B. (2007). Capital account liberalization and foreign direct investment. *The North American Journal of Economics and Finance, 18(2),* 175–194. https://doi.org/10.1016/j.najef.2007.04.001

OECD(2020). FDI in figures, April 2020. Organization for Economic Co-operation and Development

Olivero, M. P., & Yotov, Y. V. (2012). Dynamic gravity: endogenous country size and asset accumulation. *Canadian Journal of Economics, 45(1),* 64–92. https://doi.org/10.1111/j.1540-5982.2011.01687.x

Otchere, I., Soumaré, I., & Yourougou, P. (2015). FDI and financial market development in Africa. *The World Economy, 39(5),* 651–678. https://doi.org/10.1111/twec.12277

Rajan, R. G., & Zingales, L.(1998). Financial dependence and growth. *American Economic Review, 88,* 559–586

Rodríguez-Crespo, E., & Martínez-Zarzoso, I. (2019). The effect of ICT on trade: Does product complexity matter? *Telematics and Informatics, 41*, 182–196. https://doi.org/10.1016/j.tele.2019.05.001

Santos Silva, J. M. C., & Tenreyro, S. (2006). The log of gravity. *The Review of Economics and Statistics, 88(4)*, 641-658

Soumaré, I., & Tchana Tchana, F. (2015). Causality between FDI and financial market development: Evidence from emerging markets. *The World Bank Economic Review, 29(suppl. 1)*, S205–S216. https://doi.org/10.1093/ wber/ lhv015

Svirydzenka, K. (2016). Introducing a new broad-based index of financial development. *IMF Working Papers, 16(05)*, 1. https://doi.org/10.5089/978 1513583709.001

UNCTAD (2010). *World investment report 2010: Investing in a low-carbon economy*. UNCTAD.

UNCTAD (2014). *Bilateral FDI statistics 2014*. UNCTAD. http://unctad.org/ en/Pages/DIAE/ FDI%20Statistics/ FDI-Statistics-Bilateral.aspx

UNCTAD (2018). *World investment report 2018: Investment and new industrial policies*. UNCTAD.

Vernon, R. (1966). International investment and international trade in the product cycle. *The Quarterly Journal of Economics, 80(2*), 190-207. https://doi.org/ 10.2307/1880689

Welfens, P., & Baier, F. (2018). BREXIT and foreign direct investment: Key issues and new empirical findings. *International Journal of Financial Studies, 6(2)*, 1-21. https://doi.org/10.3390/ijfs6020046

Yotov, Y.V., Piermartini, R., Monteiro, J., & Larch, M.(2016). *An advanced guide to trade policy analysis: The structural gravity model*. WTO Publications, UN & WTO.

Zongo, A.(2020). The impact of restrictive measures on bilateral FDI in OECD countries. *MPRA Paper 101929*, University Library of Munich.

Bank Parikrama – A Journal of Banking & Finance
Volume 50, No. 1, June 2025 (pp. 332-357)
ISSN: 1019-7044
DOI: http://doi.org/10.64204/BP1019-7044/50(1)/A20259

The Impact of Central Bank Independence on Inflation: Evidence from Developing Countries

- Robin Chandra Paul*

Abstract

The study investigates how variations in Central Bank Independence (CBI) affect inflation dynamics in developing countries. While theoretical arguments suggest that an independent central bank may reduce inflationary bias caused by political interference and time-inconsistent monetary policies, empirical evidence for developing countries remains limited and inconclusive. Employing a two-step System GMM, we identify that higher CBI significantly reduces both inflation levels and fluctuations, supporting its role as a crucial institutional mechanism for sustaining price stability. Moreover, the results indicate that money supply acts as the transmission link in which CBI reduces inflation. These findings underscore the importance of strengthening central bank autonomy to enhance macroeconomic stability in developing countries.

Keywords: Central Bank Independence (CBI), Inflation Rates, Inflation Fluctuations, Transmission Channel of CBI, and Monetary Expansion.
JEL Classification: E31, E32, E51, E52, E58

1. Introduction

Maintaining price stability remains a core responsibility of a central bank. Broad consensus suggests that central bank independence works as a crucial institutional safeguard for ensuring stable prices and curbing inflation. Over the past two decades, Central Bank Independence (CBI) has attracted growing attention from both scholars and policymakers, as many governments have introduced frequent reforms to central banking legislation (Bodea & Hicks, 2015a; Garriga, 2016). It is widely recognized that central banks, guided by long-term objectives, must remain insulated from political pressures tied to short-term economic and electoral considerations.

* Robin Chandra Paul is a Deputy Director, Bangladesh Bank, Email: robin@iuj.ac.jp. The views expressed in this paper are the author's own. The author gratefully acknowledges Professor Ching-Yang Lin of the International University of Japan for his invaluable supervision and guidance during this research. This article is based on the author's master's thesis submitted to the International University of Japan (IUJ) under the Japan Development Scholarship (JDS) program, with support from the Central Bank of Bangladesh.

By shielding monetary policy from such political interference, central banks are better able to focus on their main objectives—most notably, containing inflation and maintaining price stability. The autonomy of central banks might support to from credibility and public confidence in monetary policy, which, in turn, enhances its effectiveness and overall macroeconomic outcomes. Many studies showed that greater CBI is associated with lower inflation in advanced economies (e.g., Alesina & Summers, 1993; Arnone & Romelli, 2013; Cukierman, 1992; Klomp & de Haan, 2010a, 2010b; Persson & Tabellini, 1990). Nonetheless, in the case of developing nations, the link between legal CBI and inflation remains limited and inconclusive (Bagheri & Habibi, 1998; Crowe & Meade, 2007; Cukierman, 1992; Desai et al., 2003; Klomp & de Haan, 2010b).

There remains significant research vacuum for developing nations in confirming whether higher CBI is systematically associated with lower inflation levels. Furthermore, according to Svensson's (1997), it is also valuable to examine how CBI influences inflation variability. High inflation volatility can distort output stability, purchasing power, and efficient resource allocation. Thus, this study focuses on both the levels and variability of inflation.

Additionally, this paper explores how CBI relates to monetary expansion. The underlying rationale is that independent central banks are less subject to political incentives for expansionary monetary policy. Consequently, they are less likely to pursue expansionary money growth without sound economic reasoning and instead prioritize maintaining their credibility. These central banks may tend to adopt relatively higher interest rates to control inflation, which typically achieved through reduced money supply. Hence, greater central bank independence is expected to coincide with restrained monetary expansion, mitigating the time-inconsistent policy decisions.

According to De Haan and Eijffinger (2016), enhancing central bank independence can reduce the likelihood of politically motivated monetary manipulation, particularly around elections. Such autonomy also promotes steady monetary expansion, leading to more stable inflation dynamics. Therefore, if empirical results show a significant negative effect of CBI on money growth, this would imply that money supply serves as one of the transmission mechanisms in

which higher CBI reduces inflation. Thus, the paper seeks to address three research questions by analyzing how central bank independence (CBI) influences inflation from multiple perspectives. First, it examines whether higher levels of CBI may reduce inflation levels. Second, it explores whether stronger independence contributes to lower inflation fluctuations. Finally, the study examines the transmission mechanism in which CBI affects inflation.

The empirical analysis demonstrates that CBI acts as an effective institutional arrangement for maintaining low inflation in developing countries, similar to its established role in developed ones. These findings may contribute to the expanding body of literature on the inflation-moderating effects of legal CBI in developing countries (Acemoglu et al., 2008; Bodea & Hicks, 2015a; Jacome & Vazquez, 2008; Klomp & de Haan, 2010a; Landstrom, 2011). Moreover, the study reveals that CBI also plays a stabilizing role in managing inflation fluctuations.

2. Literature Review

Rogoff (1985) proposed that assigning monetary policy authority to an independent central bank can reduce the inflationary bias resulting from the time-inconsistent problem.[1] Since that time, many theoretical and empirical works have examined the relationship between inflation and the degree of central bank independence. Grilli et al. (1991), Cukierman et al. (1992), Alesina and Summers (1993), Jonsson (1995), and Eijffinger et al. (1998) provided empirical support for the argument that independent central banks are more effective in controlling inflation in developed countries.

The theoretical foundation of CBI rests on mitigating the inflationary bias that arises when monetary authorities lack autonomy (Fischer, 2015; De Haan & Eijffinger, 2016). Political motivations often encourage governments to pursue short-term expansionary policies to stimulate output before elections and finance large fiscal deficits through money creation (Bodea & Hicks, 2015a; De Haan & Eijffinger, 2016; Acharya, 2018). Such practices can compromise long-term price

[1] Rogoff (1985): See more details about the time inconsistency problem in Kydland and Prescott (1977) and Barro and Gordon (1983).

stability. Consequently, insulating central banks from political influence may enhance policy credibility and foster sustained control over inflation.

Earlier studies mainly concentrated on the relationship between CBI and inflation rates. Svensson (1997) expanded this discussion by highlighting how the time inconsistency problem can generate an inflationary bias, leading to a stabilization bias. This condition occurs when policymakers, attempting to stabilize output, tolerate greater fluctuations in inflation. His analysis implies that higher central bank independence can mitigate inflation variability by reducing this bias and reinforcing commitment to price stability.

Cukierman et al. (1992) are the first researchers to make efforts to test this theoretical argument by empirical study, aiming to measure central bank independence (CBI) and explore its relation with inflation. They first developed the CBI index, based on four dimensions and sixteen indicators. Their findings showed that legal independence is inversely related to inflation in developed nations but not in developing ones. In the latter group, the written rules often vary to actual practice, making the de jure measure less reliable. Loungani and Sheets (1997) and Walsh (2005) similarly argued that differences between legal provisions and practical implementation can distort the assessment of true independence.

Alternatively, several researchers have examined de facto measures of independence, most notably the turnover rate of central bank governors (TOR) (Cukierman & Webb, 1995; De Haan & Siermann, 1996). The TOR index assumes that frequent changes in central bank leadership reflect lower independence. However, long tenures might indicate compliance with political agendas rather than genuine autonomy. This ambiguity complicates the causal interpretation of the relationship between CBI and inflation by de facto based index.

Arnone and Romelli (2013) as well as Masciandaro and Romelli (2015) observed that focusing solely on the governor's tenure while ignoring the independence of other board members can distort measurement—potentially overstating or understating overall CBI. Furthermore, as Walsh (2005) noted,

causality can run both ways: high inflation could lead to more dismissals of central bank officials, or weak performance could justify their removal. Given these limitations of the de facto approach, we utilize the legal CBI index, which provides a more consistent and institutional measure of autonomy.

Evidence from developed economies suggests that higher legal independence leads to lower inflation rates (e.g., Alesina & Summers, 1993; Arnone & Romelli, 2013; Cukierman, 1992; Klomp & De Haan, 2010a, 2010b). In contrast, findings for developing economies remain limited and inconclusive (Bagheri & Habibi, 1998; Crowe & Meade, 2007; Cukierman, 1992; Desai et al., 2003; Klomp & De Haan, 2010b). Moreover, empirical evidence on whether CBI effectively reduce inflation fluctuations is scarce.

3. Data and Methodology

3.1. Measurement of Central Bank Independence (CBI)

Most empirical research on Central Bank Independence (CBI) generally relies on two main indicators: one derived from central bank legislation and another based on the Turnover Rate of central bank governors (TOR). The legal or de jure measure evaluates CBI according to statutory provisions. The most widely adopted measure of this index was developed by Cukierman et al. (1992). Alternative legal measures were proposed by Alesina (1988), Grilli et al. (1991), and Arnone et al. (2006).

This study used the legal CBI index constructed by Garriga (2016), which builds on the framework of Cukierman et al. (1992). It incorporates more recent reforms affecting central bank legislation. Garriga's dataset offers broader coverage and accounts for most legal reforms influencing institutional independence. The index is calculated using a weighted composite of sixteen indicators grouped into four dimensions: personnel, objectives, policy, and financial independence. The resulting scores range from 0 to 1, where higher values indicate greater independence. Details of the variables and their corresponding weights are presented in Appendix-1.

The legal measure of CBI has some criticisms (de Haan & Kooi, 2000; Klomp & de Haan, 2010b). Since, the legal measure of CBI (de jure) does not always reflect actual CBI (de facto). The Turnover Rate of the central bank governor (TOR), as an alternative de facto measure of CBI, relates the central bank's independence to the governor's autonomy (Cukierman & Webb, 1995; de Haan & Siermann, 1996). However, Arnone and Romelli (2013) and Masciandaro and Romelli (2015) argue that such consideration might over or underestimate the degree of CBI. In addition, the TOR-based index suffers from reverse causality since the central bank governor may be replaced when it fails to control inflation well (Dreher et al., 2008). To overcome these limitations, legal measures of CBI is employed in this study.

3.2. Data

The study includes 67 developing countries observed over a 33-year period from 1980. Since the legal CBI index compiled by Garriga (2016) is available only up to 2012, this study collected data for this period. Compared with other datasets, Garriga's index includes a broader set of developing countries, captures more reform measures, and spans a longer timeline, making it particularly appropriate for examining the effects of CBI on inflation. The sample selection of 67 countries is based on the availability of the other control variables. This time span is adequately long enough to capture both structural transitions and major global shocks such as the crises of the early 1990s and the 2008 financial crisis, thereby providing robust variation for dynamic panel estimation.

The list of sample countries appears in Appendix-2. The dependent variable is the inflation rate, defined as the annual percentage change in the inflation rate (following Aisen & Veiga, 2006). Since many countries experienced exceptionally high inflation, the logarithm of the inflation rate is used. Otherwise, countries with high inflation may influence the estimation process (Klomp & de Haan, 2010b). Klomp and de Haan's (2010b) meta-analysis showed that using the logarithm of inflation instead of inflation does not impact the significance of the CBI coefficient. This transformation reduces heteroscedasticity and outliers (as in Aisen and Veiga, 2006).

To deal with negative inflation rates, we transform all inflation rates by adding a constant value to ensure all inflation rates are positive. Then we take the logarithm on transformed inflation rates. We take inflation data from World Bank Global Inflation Database (2023). We also use Hodrick–Prescott (HP) filter to get inflation trends and inflation cycles (fluctuations). This filter is a widely recognized method for separating the business cycle from the trend component (Hodrick & Prescott, 1997). This HP filter is applied to logged inflation (level) rates for decomposing inflation into trends and cycles. The trend captures long-term inflation behavior, whereas the cycle represents short-term fluctuations related to business cycles. These help us to understand the effectiveness of central bank independence for managing both short and long-term dynamics of inflation. As our objective is to measure the degree of fluctuations, we use the absolute value of inflation cycles. The money-growth rate (M2Growth) is taken as another dependent variable used to explore the transmission channel between CBI and inflation. The data for this variable is obtained from the World Development Indicators, World Bank (2023).

Among control variables, democracy is included because political institutions shape central bank autonomy and macroeconomic performance (Acemoglu et al., 2008; Bodea & Hicks, 2015a; Fazio et al., 2018). Stronger democratic governance tends to reflect higher institutional quality, checks and balances, and improved economic outcomes. Krieger (2019) similarly finds that democracy enhances the quality of monetary institutions. To find the actual effects of CBI, democracy is proxied by the Polity2 score (Marshall & Jaggers, 2012), which ranges from −10 (full autocracy) to +10 (complete democracy).

Capital movement and the exchange rate regime of a country are related to monetary policy and affect inflation (Fleming, 1962; Mundell, 1961). Accordingly, we incorporate the Chinn–Ito (2008) index of capital-account openness, capturing cross-country differences in financial integration and policy choices that may influence the anti-inflationary effects of CBI. The study focuses on developing countries with broad variance in capital controls (Aizenman, 2019; Aizenman et al., 2010; Obstfeld et al., 2005; Rey, 2015).

In addition, the study controls Real GDP per capita and Trade openness (sum of exports and imports as a share of GDP) by following Daniels et al. (2005). To account for global price spillovers, the analysis also controls for world inflation, measured as the median annual percentage change in CPI across all World Bank-reporting countries (Bodea & Hicks, 2015a; Lin & Ye, 2012; Neely & Rapach, 2011). These data are collected from the World Bank (2023). The HP filter is applied to the world-inflation rate to isolate its cyclical component, and the absolute value of this cycle is used. Table-1 reports descriptive statistics, and Table-2 summarizes variable and data sources.

Table 1: Descriptive Statistics

Variable	Observation	Mean	Std. dev.	Min	Max
Inflation (log) Level	2,211	1.95	0.21	-1.96	4.12
Inflation (log) Cycle	2211	0.03	0.10	0.00	3.04
$Inflation_{-1}$ (log) Level	2,211	1.95	0.21	-1.96	4.12
$Inflation_{-1}$ (log) Cycle	2211	0.03	0.10	0.00	3.03
CBI	2,201	0.47	0.17	0.10	0.91
M2Growth (log)	2,134	1.91	.19	.26	4.10
$M2Growth_{t-1}$ (log)	2,129	1.91	.19	.26	4.10
GDP Per Capita (log)	2,085	3.38	0.48	2.49	5.06
Capital Account Openness	2,149	0.38	0.33	0.00	1.00
Trade Openness	2,000	64.90	36.44	6.32	251.14
Democracy	2,181	1.10	6.58	-10.00	10.00
World $Inflation_{-1}$ (Level)	2,211	6.72	2.91	2.94	13.52
World $Inflation_{-1}$ (Cycle)	2211	0.68	0.73	0.05	3.63

Table 2: Summary of Variables with Data Sources

Type of Variable	Name of Variable	Unit of Measurement	Source
Dependent Variable	Inflation (Level) Inflation (Cycle) M2Growth	Logarithm	Global Database of Inflation by World Bank (2023); WDI (2023)
Main Independent Variable	Central Bank Independence (CBI)	Index	Garriga (2016)
	Inflation$_{-1}$ (Level) Inflation $_{t-1}$ (Cycle)	Logarithm	Global Database of Inflation by World Bank (2023)
	M2Growth $_{t-1}$	Logarithm	WDI (2023)
	Capital Account Openness	Normalized Index	Chin and Ito's (2008)
	Polity2index	Index	Marshall and Keith Jaggers (2012)
Control Variables	GDP Per Capita	Logarithm	WDI (2023)
	Trade Openness	Percentage (Sum of exports and imports as % of GDP)	WDI (2023)
	World Inflation $_{t-1}$ (Level) World Inflation $_{t-1}$ (Cycle)	Percentage	Global Database of Inflation by World Bank (2023)

3.3. Model

Considering the dynamic relationship, the study utilizes a two-step system GMM approach to examine how central bank independence affects both inflation levels and inflation fluctuations.

3.3.1. Two-Step System GMM Model

Several earlier studies relied on fixed-effects models to estimate the impact of CBI on inflation, yet failed to account for the lagged dependent variable, which exhibits high persistence. Some studies included lagged dependent variables in

the fixed effect model but could not completely remove Nickell's bias (Nickell, 1981) due to a small number of time series (T). While the fixed-effects model accounts time invariant unobserved heterogeneity, it cannot address time-varying unobserved factors, which may lead to potential endogeneity. Additionally, including a highly persistent lagged dependent variable as a regressor introduces bias into fixed-effects estimates.

Considering these limitations of the fixed effect model, this study utilizes a two-step system GMM model. Arellano and Bond (1991) introduced the difference GMM model, utilizing lagged first differences as the chosen instruments. Later, Arellano and Bover (1995) and Blundell and Bond (1998) enhanced the application of the two-step system GMM by including lagged differences and levels as instruments. Thus, the study employs the two-step System GMM model using both levels and lagged differences as instruments.

The first step of the two-step system GMM model involves estimating a system of equations that includes both the level equation and the first-difference equation. This allows for using both lagged levels and lagged differences of the variables as instruments. The rationale behind using both types of instruments is to exploit the information contained in both the levels and changes of the variables. In the next step, the system of equations is estimated jointly using the GMM approach, incorporating additional moment conditions derived from the system of equations. This ensures consistent and efficient parameter estimates.

The baseline specification of the two-step system GMM model used to estimate the impact of CBI on inflation levels is formulated as follows

$$Y_{l,it} = \beta_0 Y_{l,it-1} + \beta_1 CBI_{it} + \beta_2 X_{it} + \eta_i + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

The baseline specification of the two-step system GMM model used to estimate the impact of CBI on inflation cycle is formulated as follows

$$Y_{c,it} = \beta_0 Y_{c,it-1} + \beta_1 CBI_{it} + \beta_2 X_{it} + \eta_i + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where $Y_{l,it}$ is the inflation rate (level) for the country *i* at the time *t*, $Y_{l,it-1}$ is the inflation rate (level) for the country *i* at the time *t-1*, $Y_{c,it}$ is the inflation rate

(cycle) for the country *i* at the time *t*, $Y_{c,it-1}$ is the inflation rate (cycle) for the country *i* at the time *t-1,* CBI_{it} is the measure of central bank independence, X_{it} is a set of control variables changing over time, η_i is the country-specific fixed effects that capture the time-invariant unobserved factors affecting the inflation, and $\mathcal{E}_{it}$ is the error term.

The specification of the two-step system GMM model used to find the association between CBI and money growth is formulated as follows

$$M2Growth_{it} = \beta_0 M2Growth_{it-1} + \beta_1 CBI_{it} + \beta_2 X_{it} + \eta_i + \mathcal{E}_{it} \ldots\ldots\ldots\ldots (3)$$

where $M2Growth_{it}$ is the Money growth rate for country *i* at the time *t,* and $M2Growth_{it-1}$ is the Money growth rate for country *i* at the time *t-1*, CBI_{it} is the measure of central bank independence, X_{it} is a set of control variables changing over time, η_i is the country-specific fixed effects that capture the time-invariant unobserved factors affecting the Money growth, and $\mathcal{E}_{it}$ is the error term.

Following the estimation, we conduct serial correlation and over-identifying restriction tests to verify the validity of the instruments. The serial correlation test is particularly important for capturing the model's dynamic structure by assessing the adequacy of the included lags. Specifically, we employed the AR (1) and AR (2), the Arellano and Bond (1991) test, with the null hypothesis for both tests being "H0: No Autocorrelation." The validity of instruments in the system GMM estimator critically depends on the absence of second-order autocorrelation, since its presence yields inconsistent estimates. Hence, obtaining an insignificant AR (2) z-statistic is essential.

In addition, the Hansen test is employed to assess the validity of the over-identifying restrictions implied by the instrument sets. As recommended by Lillo & Torrecillas (2018) for two-step System GMM estimation, this test is essential to check over-identification. The null hypothesis for the Hansen test is "H0: All the restrictions of over-identification are valid", and we should fail to reject this hypothesis. A desirable range for the p-value of the Hansen test, according to Lillo & Torrecillas (2018), is between 0.05 and 0.80. Furthermore, following Roodman's (2009b) suggestion, we keep the instruments smaller than the total number of groups to avoid instrument proliferation.

4. Results and Discussion

4.1 Impact of CBI on Inflation Level

Table 3 reports the estimation results based on Equation (1). Column (1) excludes world inflation as a control variable. Column (2) introduces world inflation but omits time dummies to prevent multicollinearity. Column (3) incorporates world inflation along with decade dummies, rather than year dummies, to address multicollinearity and capture broader time effects. Though we have not included year dummies, we use world inflation and decade dummies for the same control. Including many-year dummies may increase the number of parameters and instrument proliferation in the system GMM model. Decade dummies provide a more parsimonious model, capturing long-term structural changes and major economic events. Additionally, world inflation accounts for global economic conditions that affect national inflation rates, serving as a proxy for international factors.

As reported in Column (1), CBI exerts a negative and statistically significant impact on inflation levels, with a magnitude of 69% at the 10% significance level. This estimate reflects the unconditional impact of CBI on the inflation levels. This finding is consistent with Bodea and Hicks (2015a), Garriga (2020), and Loungani and Sheets (1997). In Column (2), the results reveal a similar negative effect of CBI on inflation levels. However, the magnitude of this effect increases and becomes more statistically significant after controlling for world inflation. Specifically, CBI leads to 72% reduction in inflation level, significant at the 5% level.

Column (3) presents the results including control variables for World inflation and decade dummies. The findings again reflect a negative impact of CBI on inflation levels, consistent with Columns (1) and (2). In this specification, CBI corresponds to 71% reduction in inflation levels, statistically significant at the 5% level. The coefficients associated with Democracy, Capital account openness, Lagged Inflation, GDP per capita, Trade openness, World inflation, and Decade dummies are not statistically significant in all specifications.

Table 3: Two-Step System GMM Estimation for Inflation Level

Inflation Level	(1)	(2)	(3)
CBI	-0.699*	-0.726**	-0.712**
	(0.370)	(0.333)	(0.345)
Democracy	0.004	0.003	0.005
	(0.009)	(0.010)	(0.012)
Capital account openness	-0.099	-0.085	-0.073
	(0.108)	(0.118)	(0.132)
$Inflation_{t-1}$	0.287	0.291	0.293
	(0.315)	(0.324)	(0.321)
GDP per capita	0.217	0.215	0.217
	(0.175)	(0.168)	(0.155)
Trade Openness	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
World $Inflation_{t-1}$		-0.001	-0.001
		(0.003)	(0.002)
Decade_1981-1990			0.011
			(0.038)
Decade_1991-2000			0.001
			(0.009)
Observations	1,892	1,892	1,892
Number of Group/Instrument	67/64	67/64	67/64
Hansen test (p value)	0.32	0.30	0.26
AR (2) test (p-value)	0.50	0.50	0.50

Note: *p<0.1; **p<0.05; ***p<0.01; denotes statistical sig.; Robust Standard errors in parentheses.

Across all three specifications, the main independent variable, CBI, remains statistically significant and continues to exert a negative effect on inflation. Though initially insignificant, lagged inflation becomes significant after decomposing inflation into trends and cycles, which is demonstrated in the next section. The control variables yield similar and consistent results across all three specifications. The estimates satisfy the AR (2) test, confirming the absence of second-order serial correlation, and the Hansen test, validating the over-identifying restrictions of the instrument set. In each case, the number of instruments remains below the total number of groups, and robust standard errors (reported in parentheses) are used. Overall, these results suggest that central bank independence serves as an effective institutional mechanism for controlling inflation in developing countries.

4.2 The Impact of CBI on Inflation Fluctuations

To address the second research question, the study further explores inflation dynamics by decomposing inflation into its trend and cyclical components. The Hodrick–Prescott (HP) filter is applied to the log of inflation rates to obtain these components, as described in the data section. The same model specifications used in Columns (1)–(3) of Table-3 are employed, along with the corresponding control variables. The cyclical components of log inflation, log lagged inflation, and lagged world inflation are then used to examine the effect of CBI on inflation fluctuations.

Table-4 reports the estimation results from equation (2), examining the impact of CBI on inflation fluctuations. The analysis evaluates how effectively CBI mitigates inflation fluctuations. Column (1) indicates that CBI exerts a negative and statistically significant effect on inflation fluctuations, reducing them by approximately 34% at the 10% significance level. The lagged inflation cycle is also highly significant, influencing 35% of current-year inflation fluctuations at the 1% level. In Column (2), when world inflation fluctuations are included as an additional control variable, CBI remains statistically significant at the 5% level and continues to display a negative impact, corresponding to a 31% reduction in inflation fluctuations. The lagged inflation cycle again shows a strong and significant relationship, contributing to a 35% change in current inflation fluctuations at the 1% level.

Column (3) presents the results incorporating control variables for world inflation and decade dummies. The findings again reveal a negative impact of CBI on inflation fluctuations, consistent with columns (1) and (2). The coefficient on CBI remains statistically significant at the 10% level, indicating a 31% reduction in inflation fluctuations even after adding these additional controls. The lagged inflation cycle continues to exert a strong and significant influence, accounting for 35% of current inflation fluctuations at the 1% significance level. The world inflation cycle has a negative effect on domestic inflation fluctuations, though the coefficient is small and significant only at the 10% level. Other control variables—such as Democracy, Capital account openness, GDP per capita, Trade openness, and the Decade dummies—are not statistically significant across any of the three specifications.

Table 4: Two-Step System GMM Estimation for Inflation Fluctuation

Inflation Cycle	(1)	(2)	(3)
CBI	-0.340*	-0.318**	-0.315*
	(0.181)	(0.158)	(0.164)
Democracy	0.002	0.002	0.002
	(0.004)	(0.004)	(0.005)
Capital account openness	-0.007	-0.025	-0.027
	(0.066)	(0.061)	(0.058)
Inflation $Cycle_{t-1}$	0.358***	0.358***	0.358***
	(0.078)	(0.083)	(0.087)
GDP per capita	0.163	0.193	0.170
	(0.122)	(0.126)	(0.114)
Trade Openness	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
World Inflation $Cycle_{t-1}$		-0.004	-0.004*
		(0.002)	(0.002)
Decade_1981-1990			-0.001
			(0.016)
Decade_1991-2000			-0.002
			(0.007)
Observations	1,892	1,892	1,892
Number of Group/Instrument	67/64	67/64	67/64
Hansen test (p value)	0.56	0.53	0.44
AR (2) test (p-value)	0.39	0.39	0.39

Note: *p<0.1; **p<0.05; ***p<0.01; denotes statistical sig.; Robust Standard errors in parentheses.

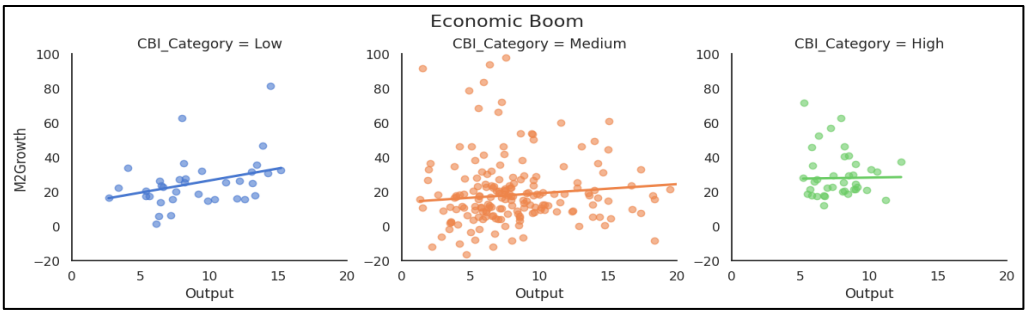
Across all three specifications, CBI remains negatively and significantly associated with inflation fluctuations, suggesting that greater central bank independence can serve as an effective tool for managing inflation fluctuations. The lagged inflation cycle consistently exerts a positive and statistically significant effect on inflation fluctuations in each specification. Other control variables are statistically insignificant, except for the world inflation cycle in Column (3). These findings satisfy the AR (2) test for absence of second-order serial autocorrelation and the Hansen test for the validity of over-identification restrictions.

4.3 Impact of CBI on Money Growth

To address the third research question and explore the transmission channel, the study examines the impact of CBI on money growth. At first, we try to determine the relationship between money growth and output at different levels of CBI and economic conditions. We categorize central bank independence into low, medium, and high levels. Then, we also categorize economic conditions

based on economic boom and slump. When the economy is in a boom, the relationship between output and money growth shows a positive slope across all levels of CBI (as shown in Figure-1). However, central banks use more expansionary monetary policy at a low level of independence. Central banks adjust the money supply slowly in response to economic growth in medium-level independence. When the central bank is highly independent, output does not significantly affect the money supply. This indicates that highly independent central banks maintain a consistent monetary policy that does not react strongly to the change in output, even during a boom.

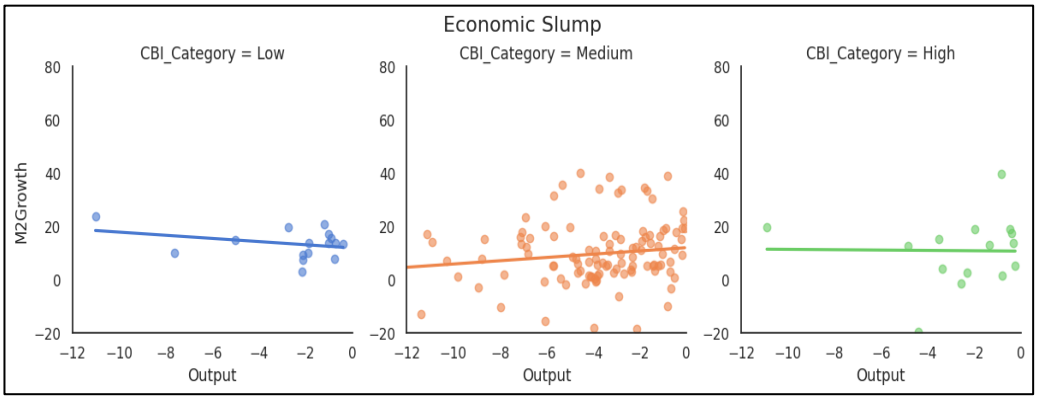
Figure 1: Correlation During Economic Boom



However, monetary policy response during economic slump varies differently depending on the level of CBI (as shown in Figure-2). In the low level of CBI, there is a negative slope between output and money growth. This means that during economic downturns, a low level of CBI is associated with expansionary monetary policy and tends to lower output. This implies that monetary policy is less effective under a lower level of CBI during downturns.

However, in the case of medium CBI, the slope is positive. The monetary policy response of the central bank in terms of increasing money supply is associated with higher growth. In the case of higher CBI, output does not significantly affect money growth. Central banks follow a more predictable and stable monetary policy regardless of economic conditions. This highlights the stabilizing effect of a highly independent central bank during adverse economic condition. At the same time, we see the asymmetric response of the central bank for different levels of independence.

Figure 2: Correlation During Economic Slump



This suggests that lower independence is associated with more counter cyclical monetary policy responses, while higher independence leads to a more consistent and potential focus on long-term price stability over economic stabilization during slumps. In both economic conditions, money growth tends to be high when the central bank is less independent. During the recession, central banks with less independence use more expansionary monetary policy leading to lower output. This evidence indicates that a more symmetric monetary policy is needed.

Secondly, if the central bank is more independent, it may face fewer time inconsistency problems being free from political pressure. It can make monetary policy decisions based on economic fundamentals rather than short-term political considerations. In this case, independent central banks prioritize maintaining their credibility by keeping inflation low. Consequently, they will be less inclined to pursue expansionary monetary policies without sound economic justification. Then the monetary policy of the central bank is likely to be more symmetric.

Most central bank target interest rates as a means to achieve low inflation. Higher interest rates are typically attained by reducing the money supply. Accordingly, greater central bank independence is associated with less reliance on expansionary monetary policies, as lower money supply helps sustain higher interest rate targets. Within this transmission mechanism, central bank independence functions as a policy discipline that maintains low inflation through

controlled money growth. If CBI exerts a strong negative effect on money growth, we can claim money growth serves as the transmission channel by which greater independence leads to lower inflation.

The impact of CBI on money growth is estimated using Equation (3) within a two-step system GMM framework. In this specification, the dependent variable is the M2 growth rate, with its first lag included as the lagged dependent variable. The same set of regressors is employed since political and economic considerations remain same. Table-5 reports the estimation results for the effect of CBI on money growth.

Column (1) indicates that CBI exerts a strong negative effect on money growth. The results suggest that greater CBI is associated with a 104% reduction in money growth, which is statistically significant at the 5% level. The Lagged Money Growth variable is also highly significant, with a 1% level of significance, affecting 43% of current-year money growth. In Column (2), the findings are consistent with those in Column (1), showing a similar negative and statistically significant relationship between CBI and money growth. In this specification, CBI is associated with a 116% reduction in Money Supply, significant at the 5% level. The Lagged Money Growth variable again shows a strong positive relationship, accounting for around 42% of current Money Growth at the 1% significance level.

Table 5: Two-Step System GMM Estimation for Money Growth

M2Growth	(1)	(2)	(3)
CBI	-1.047**	-1.166**	-1.060**
	(0.482)	(0.516)	(0.510)
Democracy	0.007	0.004	-0.003
	(0.010)	(0.009)	(0.014)
Capital account openness	-0.037	0.003	-0.071
	(0.119)	(0.117)	(0.130)
$M2Growth_{t-1}$	0.430***	0.421***	0.423***
	(0.100)	(0.102)	(0.101)
GDP per capita	0.634	0.602	0.474
	(0.396)	(0.386)	(0.403)
Trade Openness	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
$World\ Inflation_{t-1}$		-0.004	-0.004
		(0.002)	(0.002)
Decade_1981-1990			-0.049
			(0.044)
Decade_1991-2000			-0.013
			(0.019)
Observations	1,897	1,897	1,897
Number of Group/Instrument	67/64	67/64	67/64
Hansen test (p-value)	0.26	0.26	0.25
AR (2) test (p-value)	0.88	0.83	0.76

Note: *p<0.1; **p<0.05; ***p<0.01; denotes statistical sig.; Robust Standard errors in parentheses.

Column (3) presents the results incorporating control variables for world inflation and decade dummies. The findings once again reveal a negative and statistically significant effect of CBI on money growth, consistent with Columns (1) and (2). The coefficient on CBI remains significant at the 5% level, indicating a 106% reduction in money growth even after the inclusion of additional controls. The Lagged Money Growth variable continues to exert a strong positive influence, accounting for 42% of current Money Growth at the 1% significance level. All other control variables remain statistically insignificant across the three specifications.

In all specifications, CBI has a significant negative impact on money growth. Thus, higher central bank independence leads to a more predictable monetary policy environment. Central banks are less susceptible to political pressures. They are more likely to stick to their announced policy paths, which mitigates time

inconsistency problems. Thus, by linking higher central bank independence to a stable and predictable monetary policy environment and observing the asymmetry in monetary policy, we find how central bank independence can mitigate the adverse effects of time inconsistency on economic outcomes.

These findings support the argument that money growth serves as the transmission channel through which higher CBI leads to lower inflation. This result carries important policy implications related to the time-inconsistency problem faced by central banks. Once political interference is curtailed, central banks tend to adopt a more disciplined approach, implementing symmetric monetary policies aimed at maintaining stable inflation.

5. Conclusion and Policy Implications

Central bank credibility plays a crucial role in anchoring inflation expectations at low and stable levels. When a central bank is perceived as credible and independent, it signals to the public that monetary policy decisions are insulated from political pressures and excessive monetary expansion will be avoided. Within the time inconsistency framework, such independence helps mitigate the inflationary bias that arises when monetary authorities prioritize short-term political gains over long-term economic stability due to political pressure.

Previous studies on developed countries have established a strong and inverse association between central bank independence and inflation levels. However, findings for developing countries remains limited and inconclusive. To address this gap, this study empirically measures how central bank independence affects inflation levels in developing countries. Moreover, since limited research explores whether central bank independence can moderate inflation volatility, the analysis extends to examining inflation fluctuations as well. Finally, the study examines the monetary transmission mechanism by which central bank independence influences inflation.

The results show that greater central bank independence is associated with reduced inflation levels. It negatively affects the inflation levels, and this effect is statistically significant. Upon incorporating various control variables across

many specifications, we observe robust evidence. Moreover, this study finds that central bank independence adversely and significantly affects inflation fluctuations. Although the effect on inflation fluctuations is diminished relative to the inflation level, it remains noteworthy, substantial, and robust across many specifications. Finally, we identify that the money supply serves as a conduit in which independence results in reduced inflation.

These findings indicate several important policy implications. First, they confirm the claim that greater independence of central bank serves as an essential institutional safeguard for maintaining targeted inflation levels. Second, the results indicate that greater independence not only reduce inflation levels but also mitigates its fluctuations in developing countries. Furthermore, the results suggest that when central banks enjoy higher independence, they face less political pressure to pursue expansionary policies for short-term gains. The observed link between independence and restrained money growth supports this argument and provides additional insight into the mechanism through which autonomy contributes to macroeconomic stability. These findings provide empirical support to the time inconsistency theory in explaining how institutional design influences inflation outcomes.

Finally, there exists potential scope for future study to investigate additional benefits of central bank independence, such as its role in attracting foreign direct investment and enhancing financial stability. Because greater independence may strengthen policy credibility, predictability, and investor confidence, which may serve as a broader catalyst for long-term economic growth. Future studies could also apply alternative CBI datasets with different weighting measures and methodologies to derive more unified and conclusive results.

References

Acemoglu, D., Johnson, S., Querubin, P., & Robinson, J. A. (2008). *When does policy reform work? The case of central bank independence* (No. w14033). National Bureau of Economic Research.

Acemoglu, D., Johnson, S., Robinson, J. A., & Yared, P. (2008). Income and democracy. *American Economic Review, 98*(3), 808-842.

Acharya, V. V. (2018). On the importance of independent regulatory Institutions–The case of the central bank. *Current Statistics, 67*, 21.

Aisen, A., & Veiga, F. J. (2006). Does political instability lead to higher inflation? A panel data analysis. *Journal of Money, Credit and Banking*, 1379-1389.

Aizenman, J. (2019). A modern reincarnation of mundell-fleming's trilemma. *Economic Modelling, 81*, 444-454.

Aizenman, J., Chinn, M. D., & Ito, H. (2010). The emerging global financial architecture: Tracing and evaluating new patterns of the trilemma configuration. *Journal of International Money and Finance, 29*(4), 615-641.

Alesina, A. (1988). Credibility and policy convergence in a two-party system with rational voters. *The American Economic Review, 78*(4), 796-805.

Alesina, A., & Summers, L. H. (1993). Central bank independence and macroeconomic performance: Some comparative evidence. *Journal of Money, Credit and Banking, 25*(2), 151-162.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, *58*(2), 277-297.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics, 68*(1), 29-51.

Arnone, M., Laurens, B., & Segalotto, J. (2006). The measurement of central bank autonomy: Survey of models, indicators, and empirical evidence.

Arnone, M., & Romelli, D. (2013). Dynamic central bank independence indices and inflation rate: A new empirical exploration. *Journal of Financial Stability, 9*(3), 385-398.

Bagheri, F. M., & Habibi, N. (1998). Political institutions and central bank independence: A cross-country analysis. *Public Choice, 96*(1), 187-204.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115-143.

Bodea, C., & Hicks, R. (2015a). Price stability and central bank independence: Discipline, credibility, and democratic institutions. *International Organization, 69*(1), 35-61.

Chinn, M. D., & Ito, H. (2008). A new measure of financial openness. *Journal of Comparative Policy Analysis, 10*(3), 309-322.

Crowe, C., & Meade, E. E. (2007). The evolution of central bank governance around the world. *Journal of Economic Perspectives, 21*(4), 69-90.

Cukierman, A. (1992). Central bank strategy, credibility, and independence: Theory and evidence. *The MIT Press, Cambridge, MA.*

Cukierman, A., Web, S. B., & Neyapti, B. (1992). Measuring the independence of central banks and its effect on policy outcomes. *The World Bank Economic Review, 6*(3), 353-398.

Cukierman, A., & Webb, S. B. (1995). Political influence on the central bank: International evidence. *The World Bank Economic Review, 9*(3), 397-423.

Daniels, J. P., Nourzad, F., & Vanhoose, D. D. (2005). Openness, central bank independence, and the sacrifice ratio. *Journal of Money, Credit, and Banking, 37*(2), 371-379.

De Haan, J., &Eijffinger, S. (2016). The Politics of Central Bank Independence (No. 2016-047). *Tilburg University, Center for Economic Research.*

De Haan, J., & Kooi, W. J. (2000). Does central bank independence really matter?: New evidence for developing countries using a new indicator. *Journal of Banking & Finance, 24*(4), 643-664.

De Haan, J., & Siermann, C. L. (1996). New evidence on the relationship between democracy and economic growth. *Public Choice, 86*(1), 175-198.

Desai, R. M., Olofsgård, A., & Yousef, T. M. (2003). Democracy, inequality, and inflation. *American Political Science Review, 97*(3), 391-406.

Dreher, A., Sturm, J. E., & De Haan, J. (2008). Does high inflation cause central bankers to lose their job? Evidence based on a new data set. *European Journal of Political Economy*, *24*(4), 778-787.

Eijffinger, S. C., & De Haan, J. (1996). The political economy of central-bank independence. *Papers 9587, Tilburg - Center for Economic Research.*

Eijffinger, S., Schaling, E., & Hoeberichts, M. (1998). Central bank independence: A sensitivity analysis. *European Journal of Political Economy*, *14*(1), 73-88.

Fazio, D. M., Silva, T. C., Tabak, B. M., & Cajueiro, D. O. (2018). Inflation targeting and financial stability: Does the quality of institutions matter? *Economic Modelling, 71*, 1-15.

Fischer, S. (2015). Central Bank Independence: Remarks by Stanley Fischer, Vice Chairman, Board of Governors of the Federal Reserve System, at the 2015 Herbert Stein Memorial Lecture, National Economists Club, Washington, D.C.

Garriga, A. C. (2016). Central bank independence in the world: A new data set. *International Interactions, 42*(5), 849-868.

Garriga, A. C., & Rodriguez, C. M. (2020). More effective than we thought: Central bank independence and inflation in developing countries. *Economic Modelling*, *85*, 87-105.

Garriga, A. C., & Rodriguez, C. M. (2023). Central bank independence and inflation volatility in developing countries. *Economic Analysis and Policy*, *78*, 1320-1341.

Grilli, V., Masciandaro, D., & Tabellini, G. (1991). Political and monetary institutions and public financial policies in the industrial countries. *Economic Policy*, *6*(13), 341-392.

Ha, J., Kose, M. A., & Ohnsorge, F. (2023). One-stop source: A global database of inflation. *Journal of International Money and Finance*, *137*, 102896.

Hodrick, R. J., & Prescott, E. C. (1997). Postwar US business cycles: an empirical investigation. Journal of Money, credit, and Banking, 1-16.

Jácome, L. I., & Vázquez, F. (2008). Is there any link between legal central bank independence and inflation? evidence from latin america and the caribbean. *European Journal of Political Economy*, *24*(4), 788-801.

Jonsson, G. (1995). Institutions and macroeconomic outcomes-the empirical evidence. *Swedish Economic Policy Review*, *2*(1), 181-212.

Klomp, J., & De Haan, J. (2010a). Central bank independence and inflation revisited. *Public Choice*, *144*, 445-457.

Klomp, J., & De Haan, J. (2010b). Inflation and central bank independence: A meta-regression analysis. *Journal of Economic Surveys*, *24*(4), 593-621.

Krieger, T. (2019). Democracy and institutional quality: Theory and evidence (downloaded from http://hdl.handle.net/10419/203507).

Landström, M. (2011). Do central bank independence reforms matter for inflation performance? *International Journal of Banking, Accounting and Finance*, *3*(4), 320-335.

Lillo, R. L., & Torrecillas, C. (2018). Estimating dynamic panel data. A practical approach to perform long panels. *Revista Colombiana De Estadística*, *41*(1), 31-52.

Lin, S., & Ye, H. (2012). What to target? inflation or exchange rate. *Southern Economic Journal*, *78*(4), 1202-1221.

Loungani, P., & Sheets, N. (1997). Central bank independence, inflation, and growth in transition economies. *Journal of Money, Credit, and Banking*, 381-399.

Marcus, F. J. (1962). Domestic financial policies under fixed and under floating exchange rates. *Staff Papers, International Monetary Fund, 9*, 369.

Marshall, M. G., Jaggers, K., & Gurr, T. R. (2012). Polity IV project: Dataset users. *Manual Center for Systemic Peace*,

Masciandaro, D., & Romelli, D. (2015). Ups and downs of central bank independence from the great inflation to the great recession: Theory, institutions and empirics. *Financial History Review, 22*(3), 259-289.

Mundell, R. A. (1961). A theory of optimum currency areas. *The American Economic Review, 51*(4), 657-665.

Neely, C. J., & Rapach, D. E. (2011). International co-movements in inflation rates and country characteristics. *Journal of International Money and Finance, 30*(7), 1471-1490.

Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica: Journal of the Econometric Society*, 1417-1426.

Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2005). The trilemma in history: Tradeoffs among exchange rates, monetary policies, and capital mobility. *Review of Economics and Statistics, 87*(3), 423-438.

Persson, T., & Tabellini, G. (1990). Macroeconomic policy, credibility and politics (Harwood, London).

Polillo, S., & Guillén, M. F. (2005). Globalization pressures and the state: The worldwide spread of central bank independence. *American Journal of Sociology, 110*(6), 1764-1802.

Rey, H. (2015). *Dilemma not trilemma: the global financial cycle and monetary policy independence* (No. w21162). National Bureau of Economic Research.

Rogoff, K. (1985). The optimal degree of commitment to an intermediate monetary target. *The quarterly journal of economics*, *100*(4), 1169-1189.

Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in stata. *The Stata Journal, 9*(1), 86-136.

Svensson, L. E. (1997). Inflation forecast targeting: Implementing and monitoring inflation targets. *European Economic Review, 41*(6), 1111-1146.

Walsh, C. (2005) Central bank independence. Prepared for the New Palgrave Dictionary, December 2005 (downloadedfrom http://econ.ucsc.edu/walshc/; last accessed 13 December 2006).

World Bank, 2023. World Development Indicators On-Line [WWW Document].

Appendices

Appendix 1:Variables and Their Weight to Construct the CBI Index

Components (weight in the index)	Variables	(weight in the component)
CEO (0.20)	1. Term of office of CEO	(0.25)
	2. Who appoints the CEO	(0.25)
	3. Provisions for dismissal of CEO	(0.25)
	4. CEO allowed to hold another office in government	(0.25)
Objectives (0.15)	5. Central bank objectives	(1)
Policy formulation (0.15)	6. Who formulates monetary policy	(0.25)
	7. Government directives and resolution of conflicts	(0.50)
	8. Central bank given active role in formulation of government's budget	(0.25)
Limitation on lending to the government (0.50)	9. Limitations on advances	(0.30)
	10. Limitations on securitized lending	(0.20)
	11. Who decides control of terms of lending to (0.20) government	
	12. Beneficiaries of central bank lending	(0.10)
	13. Type of limits when they exist	(0.05)
	14. Maturity of loans	(0.05)
	15. Restrictions on interest rates	(0.05)
	16. Prohibition on central bank lending in primary market to Government	(0.05)

Source: Sourced from Garriga & Rodriguez (2023) based on Cukierman et al. (1992). Value assigning criteria for CBI is taken from Cukierman et al. (1992).

Appendix 2. Countries Included in the Analysis

Algeria	Honduras	Papua New Guinea
Angola	Hungary	Paraguay
Argentina	India	Peru
Bahrain	Indonesia	Poland
Bangladesh	Iran	Russia
Benin	Jamaica	Saudi Arabia
Bolivia	Jordan	Senegal
Botswana	Kenya	Solomon Islands
Brazil	Kuwait	South Africa
Burkina Faso	Lebanon	Sri Lanka
Cameroon	Madagascar	Sudan
Central African Republic	Malaysia	Suriname
Chad	Mauritania	Tanzania
Chile	Mauritius	Thailand
China	Mexico	The Philippines
Colombia	Morocco	The United Arab Emirates
Comoros	Nepal	Togo
Costa Rica	Nicaragua	Tunisia
Egypt	Niger	Turkey
El Salvador	Nigeria	Uganda
Gabon	Pakistan	Zambia
Ghana	Panama	Zimbabwe
Guatemala		

ISSN 1019-7044
DOI: https://doi.org/10.64204/BP1019-7044

Call for Papers

BANK PARIKRAMA (A Journal of Banking & Finance)

Bank Parikrama (A Journal of Banking & Finance), a professional refereed semi-annual journal of the Bangladesh Institute of Bank Management (BIBM), dedicated to Banking, Finance and allied subjects. First issue of Bank Parikrama was published in March, 1976. Usually, two issues are published in June and December each year. Bank Parikrama is listed in Cabells Journalytics, Directory of Excellence in Research for Australia (ERA), Australian Business Deans Council (ABDC) Journal Quality List, Elton B. Stephens Co. (EBSCO) Database and Europa World Year book.

Bank Parikrama is a double-blind peer reviewed scholarly journal. It only considers manuscripts that have been neither published nor accepted for publication elsewhere. The similarity index of an article after checking plagiarism with a software should not be exceeded 20%.

The author has to submit the softcopy of the article in MS word format at: **bibmresearch@bibm.org.bd** addressed to the Executive Editor of Bank Parikrama. No submission fee or publication fee is required for this journal.

For Formatting and abstracting, please follow the attached **"Note for Contributors and General Readers"**. For referencing, please follow the attached "American Psychological Association **(APA)** Referencing Style".

For further queries, please visit our journal website: **www.journal.bibm.org.bd** or e-mail us at: **bibmresearch@bibm.org.bd**

Before article submission, please read carefully the "Note for Contributors and General Readers".

Price: BDT 400.00
USD 20.00

Bangladesh Institute of Bank Management (BIBM)
Main Road No. 1 (South), Section-2, Mirpur, Dhaka-1216, Bangladesh.