

IMPACT OF ESG DISCLOSURE SCORES ON BANK PERFORMANCE: EMPIRICAL EVIDENCE FROM EMERGING MARKET ECONOMIES

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by

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Submitted

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to the



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Dedicated to my beloved parents,

Mr. Ramesh Gangwani and Mrs. Sunita Gangwani, and my brother,

Himanshu Gangwani

*For their endless love, unwavering support, and constant
encouragement.*

Certificate

The thesis titled "**Impact of ESG Disclosure Scores on Bank Performance: Empirical Evidence from Emerging Market Economies (EMEs)**," being submitted by **Mr. Mayank Gangwani** to the **Indian Institute of Technology Delhi** for the award of the degree of **Doctor of Philosophy**, is a record of bona fide research work carried out by him. He has worked under my guidance and supervision and has fulfilled all the requirements for the submission of this thesis, which has attained the standard required for a Ph.D. degree at this institute.

The results presented in this thesis have not been submitted elsewhere for the award of any degree or diploma.

(Dr. Smita Kashiramka)

Professor

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गुरुर्ब्रह्मा गुरुर्विष्णु गुरुर्देवो महेश्वरः।

गुरु साक्षात् परब्रह्म तस्मै श्री गुरवे नमः ॥

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Through every challenge and triumph, I have learned an invaluable lesson:

क्यों डरें ज़िन्दगी में क्या होगा,
कुछ ना होगा तो तज़रूबा होगा

Abstract

Purpose

Amid the 2008 global financial crisis, concerns are being raised regarding how governance flaws contribute to banks' excessive risk exposure, which seriously harmed the banking system. Bank failures pose detrimental effects on taxpayers and the real economy. Due to their vital role in financing various projects and industries, banks' operations often extend beyond their core sector. Banks increase their ESG efforts in an effort to regain the confidence of stakeholders and investors. It could be challenging for financial institutions, especially banks, to satisfy investor and customer demands for incorporating ESG considerations into their lending, investing, and product offerings.

Because of its crucial role in financial intermediation, the banking sector is particularly vulnerable to sustainability problems. These hazards stem from both the ESG dangers that banks' customers experience and the ESG challenges that banks themselves face. Although banks are not directly involved in actions that cause social and environmental catastrophes, their financing of other businesses or initiatives can significantly impact these sectors. These dangers manifest themselves in conventional risk categories including operational, reputational, and credit hazards. In light of the recent financial industry upheaval that followed the bankruptcies of Silicon Valley Bank and Credit Suisse, it is imperative to consider banks' social responsibility initiatives as essential pledges intended to boost trust and elevate the reputation of financial institutions.

Objective

The purpose of this study is to investigate the impact of ESG disclosure scores on commercial banks that operate in emerging market economies (EMEs) from three distinct viewpoints. It first examines how ESG disclosure scores affect bank value and risk-taking practices. Next, it assesses how ESG disclosure scores impact banks' systemic risk levels. Third, it investigates

the role of ESG disclosure scores at the country-level in influencing cross-border banking flows, further analyzing the moderating role played by green credit in this relationship.

Design/Methodology/Approach

To achieve these objectives, the study employs data from commercial banks operating in EMEs during the sample time period of 2015-2022. The sample size of each objective varies according to the data that is available. In EMEs, banks can benefit from ESG activities by improving their brand image and reputation in the marketplace. Banks can use their reputation as insurance to shield them from market downturns. Profitability can be increased by well-designed ESG initiatives through improved risk management, increased returns on invested capital, and increased freedom to pursue growth prospects. The overall sample of the study is composed of a total of 1424 bank-year observations across 178 banks. The study uses pooled ordinary least squares (OLS) regression to analyse the sample data, but it disregards potential endogeneity and bias from missing variables. Therefore, to overcome these issues, the study uses a two-step system GMM estimator. The GMM estimator corrects for endogeneity, serial correlation, and heteroscedasticity in addition to taking into consideration the dynamic nature of panel data.

Findings

The findings show that banks with higher ESG disclosure scores and their components (E, S, and G) lead to a reduction in insolvency, leverage, and liquidity risks. Furthermore, there is a positive relationship between the market-based (Tobin's Q) and accounting-based (ROA and ROE) measures of bank value and these banks with higher ESG and its components (E, S, and G) disclosure scores. The findings are consistent with the resource-dependence, signaling, and stakeholder theories, showing that implementing ESG reporting and sustainable practices can act as a reliable market signal, lowering information asymmetry and increasing transparency, all of which will eventually boost firm value (Buallay & Aldhaen, 2018). Additionally, the

ownership dummy's statistical significance shows that private banks tend to be greater in value but also face larger insolvency risk because of their profit-driven policies. The COVID-19 pandemic significantly lowered the overall value of banks and increased bank risk. The negative coefficient for interaction of ESG*COV suggests that banks with better ESG disclosures are less susceptible to the negative consequences of the crisis. Similarly, the positive coefficient for interaction of ESG*COV suggests that ESG transparency improved banks' financial performance and resilience during the pandemic (Yuen et al., 2022; Al Amosh & Khatib, 2023).

Given the significant influence of ESG disclosure scores on banks' systemic risk levels, the findings show that banks with higher ESG disclosure scores reduce systemic risk collectively by contributing less to both SRISK and LRMES systemic risk. Similarly, banks with higher E, S, and G disclosure scores, banks with more robust corporate governance, social responsibility, and environmental policies also face lower systemic risk. The results align with the perspectives of risk mitigation, stakeholder theory, and signaling theory, which assert that ESG disclosure acts as a certification signal that improves transparency and motivates banks to implement ethical practices, such as giving preference to lower-risk borrowers and exploring innovative investment opportunities. Although banks that take on excessive risk are vulnerable to increased systemic risk, this conservative approach lowers the possible levels of systemic risk (De Haan & Vlahu, 2016). Furthermore, the COVID-19 pandemic and bank ownership structure greatly increase the degree to which commercial banks in EMEs contribute to systemic risk (Yan et al., 2023).

The study finds that higher country-level ESG disclosure scores and their components (E, S, and G) disclosure scores are linked to increased cross-border banking flows, underscoring the macroeconomic influence of these scores on international bank transactions and the moderating effect of green credit on this relationship. This underscores the fact that strong governance,

social responsibility, and environmental policies make a country more appealing to foreign capital. These findings support the stakeholder theory, resource-based theory, good management hypotheses and signaling theory, suggesting that a country's better ESG scores serves as a reliable signal and draws in more foreign investment. The study also shows that the association between cross-border banking flows and country-level ESG disclosure scores is positively moderated by green credit. Green credit not only strengthens the overall sustainability score but also signals the borrowing country's strong repayment capacity, thereby positively impacting cross-border banking flows. These results are consistent with the theories of environmental risk management and competitive strategy, indicating that green credit enables commercial banks to prioritize loans to environmentally conscious businesses in order to manage environmental risks, improve their brand reputation, and take first-mover advantages.

Implications

The findings of the study offer significant recommendations for academics, investors, bank managers, and policymakers. To increase financial stability and transparency in emerging markets, policymakers should support green credit programs, strengthen regulatory frameworks, and create standardized ESG reporting systems. To reduce financial vulnerabilities, bank management is urged to establish transparent disclosure procedures, improve board composition, and incorporate ESG-related risks into core operations. Investors should prioritize investments in countries with higher sustainability scores and take ESG factors into account when evaluating risk. Finally, in order to gain a deeper understanding of sustainability's evolving influence on the banking industry, scholars should investigate the long-term effects of ESG disclosures on bank performance and financial stability.

सारांश

उद्देश्य

2008 के वैश्विक वित्तीय संकट के बीच, इस बात को लेकर चिंता जताई जा रही है कि किस तरह से शासन संबंधी खामियाँ बैंकों के अत्यधिक जोखिम में योगदान करती हैं, जिसने बैंकिंग प्रणाली को गंभीर रूप से नुकसान पहुँचाया। बैंक विफलताएँ करदाताओं और वास्तविक अर्थव्यवस्था पर हानिकारक प्रभाव डालती हैं। विभिन्न परियोजनाओं और उद्योगों के वित्तपोषण में उनकी महत्वपूर्ण भूमिका के कारण, बैंकों का संचालन अक्सर उनके मुख्य क्षेत्र से आगे तक फैल जाता है। हितधारकों और निवेशकों का विश्वास हासिल करने के प्रयास में बैंक अपने ईएसजी प्रयासों को बढ़ाते हैं। वित्तीय संस्थानों, विशेष रूप से बैंकों के लिए, अपने ऋण, निवेश और उत्पाद पेशकशों में ईएसजी विचारों को शामिल करने के लिए निवेशक और ग्राहक की माँगों को पूरा करना चुनौतीपूर्ण हो सकता है।

वित्तीय मध्यस्थता में अपनी महत्वपूर्ण भूमिका के कारण, बैंकिंग क्षेत्र स्थिरता समस्याओं के प्रति विशेष रूप से संवेदनशील है। ये खतरे बैंकों के ग्राहकों द्वारा अनुभव किए जाने वाले ईएसजी खतरों और बैंकों द्वारा स्वयं सामना की जाने वाली ईएसजी चुनौतियों दोनों से उत्पन्न होते हैं। हालाँकि बैंक सीधे तौर पर उन कार्यों में शामिल नहीं होते हैं जो सामाजिक और पर्यावरणीय आपदाओं का कारण बनते हैं, लेकिन अन्य व्यवसायों या पहलों के लिए उनके वित्तपोषण से इन क्षेत्रों पर महत्वपूर्ण प्रभाव पड़ सकता है। ये खतरे परिचालन, प्रतिष्ठा और ऋण जोखिमों सहित पारंपरिक जोखिम श्रेणियों में खुद को प्रकट करते हैं। सिलिकॉन वैली बैंक और क्रेडिट सुइस के दिवालिया होने के बाद हाल ही में वित्तीय उद्योग में हुई उथल-पुथल के मद्देनजर, बैंकों की सामाजिक जिम्मेदारी की पहल को आवश्यक प्रतिज्ञा के रूप में मानना आवश्यक है, जिसका उद्देश्य वित्तीय संस्थाओं में विश्वास बढ़ाना और उनकी प्रतिष्ठा को ऊपर उठाना है।

उद्देश्य

इस अध्ययन का उद्देश्य तीन अलग-अलग दृष्टिकोणों से उभरते बाजार अर्थव्यवस्थाओं (ईएमई) में काम करने वाले वाणिज्यिक बैंकों पर ईएसजी प्रकटीकरण स्कोर के प्रभाव की जांच करना है। यह सबसे पहले जांचता है कि ईएसजी प्रकटीकरण स्कोर बैंक मूल्य और जोखिम लेने की प्रथाओं को कैसे प्रभावित करते हैं। इसके बाद, यह आकलन करता है कि ईएसजी प्रकटीकरण स्कोर बैंकों के प्रणालीगत जोखिम स्तरों को कैसे प्रभावित करते हैं। तीसरा, यह सीमा पार बैंकिंग प्रवाह को प्रभावित करने में देश-स्तर पर ईएसजी प्रकटीकरण स्कोर की भूमिका की जांच करता है, और इस संबंध में ग्रीन क्रेडिट द्वारा निभाई गई मध्यस्थ भूमिका का विश्लेषण करता है।

डिजाइन/पद्धति/दृष्टिकोण

इन उद्देश्यों को प्राप्त करने के लिए, अध्ययन 2015-2022 की नमूना समय अवधि के दौरान ईएमई में संचालित वाणिज्यिक बैंकों के डेटा का उपयोग करता है। प्रत्येक उद्देश्य का नमूना आकार उपलब्ध डेटा के अनुसार भिन्न होता है। ईएमई में, बैंक बाजार में अपनी ब्रांड छवि और प्रतिष्ठा में सुधार करके ईएसजी गतिविधियों से लाभ उठा सकते हैं। बैंक अपनी प्रतिष्ठा का उपयोग बाजार में गिरावट से खुद को बचाने के लिए बीमा के रूप में कर सकते हैं। बेहतर जोखिम प्रबंधन, निवेशित पूंजी पर बढ़े हुए रिटर्न और विकास की संभावनाओं को आगे बढ़ाने की बढ़ी हुई स्वतंत्रता के माध्यम से अच्छी तरह से डिज़ाइन की गई ईएसजी पहलों द्वारा लाभप्रदता बढ़ाई जा सकती है। अध्ययन का समग्र नमूना 178 बैंकों में कुल 1424 बैंक-वर्ष टिप्पणियों से बना है। अध्ययन नमूना डेटा का विश्लेषण करने के लिए पूल किए गए साधारण न्यूनतम वर्ग (ओएलएस) प्रतिगमन का उपयोग करता है, लेकिन यह लापता चर से संभावित अंतर्जातता और पूर्वाग्रह की उपेक्षा करता है। इसलिए, इन मुद्दों को दूर करने के लिए, अध्ययन दो-चरण प्रणाली जीएमएम अनुमानक का उपयोग करता है। जीएमएम अनुमानक पैनल डेटा की गतिशील प्रकृति को ध्यान में रखने के अलावा अंतर्जातता, धारावाहिक सहसंबंध और विषमता को भी सही करता है।

निष्कर्ष

निष्कर्षों से पता चलता है कि उच्च ईएसजी प्रकटीकरण स्कोर और उनके घटकों (ई, एस, और जी) वाले बैंक दिवालियापन, उत्तोलन और तरलता जोखिमों में कमी लाते हैं। इसके अलावा, बैंक मूल्य के बाजार-आधारित (टोबिन्स क्यू) और लेखा-आधारित (आरओ और आरओई) उपायों और उच्च ईएसजी और उसके घटकों (ई, एस, और जी) प्रकटीकरण स्कोर वाले इन बैंकों के बीच एक सकारात्मक संबंध है। निष्कर्ष संसाधन-निर्भरता, संकेत और हितधारक सिद्धांतों के अनुरूप हैं, जो दिखाते हैं कि ईएसजी रिपोर्टिंग और संधारणीय प्रथाओं को लागू करना एक विश्वसनीय बाजार संकेत के रूप में कार्य कर सकता है, सूचना विषमता को कम कर सकता है और पारदर्शिता बढ़ा सकता है, जो सभी अंततः फर्म के मूल्य को बढ़ाएंगे (ब्यूले और अलधेन, 2018)। इसके अतिरिक्त, स्वामित्व डमी के सांख्यिकीय महत्व से पता चलता है कि निजी बैंक मूल्य में अधिक होते हैं, लेकिन अपनी लाभ-संचालित नीतियों के कारण बड़े दिवालियापन जोखिम का भी सामना करते हैं। कोविड-19 महामारी ने बैंकों के समग्र मूल्य को काफी कम कर दिया और बैंक जोखिम को बढ़ा दिया। ईएसजी*सीओवी के परस्पर क्रिया के लिए नकारात्मक गुणांक से पता चलता है कि बेहतर ईएसजी प्रकटीकरण वाले बैंक संकट के नकारात्मक परिणामों के प्रति कम संवेदनशील हैं। इसी तरह, ईएसजी*सीओवी के परस्पर क्रिया के लिए सकारात्मक गुणांक से पता चलता है कि ईएसजी पारदर्शिता ने महामारी के दौरान बैंकों के वित्तीय प्रदर्शन और लचीलेपन में सुधार किया (यूएन एट अल., 2022; अल अमोश और खतीब, 2023).

बैंकों के प्रणालीगत जोखिम स्तरों पर ईएसजी प्रकटीकरण स्कोर के महत्वपूर्ण प्रभाव को देखते हुए, निष्कर्ष बताते हैं कि उच्च ईएसजी प्रकटीकरण स्कोर वाले बैंक एस-रिस्क और एल-आर-एम-ई-एस प्रणालीगत जोखिम दोनों में कम योगदान देकर सामूहिक रूप से प्रणालीगत जोखिम को कम करते हैं। इसी तरह, उच्च ई, एस, और जी प्रकटीकरण स्कोर वाले बैंक, अधिक मजबूत कॉर्पोरेट प्रशासन, सामाजिक जिम्मेदारी और पर्यावरण नीतियों वाले बैंक भी कम प्रणालीगत जोखिम का सामना करते हैं।

परिणाम जोखिम शमन, हितधारक सिद्धांत और संकेत सिद्धांत के दृष्टिकोणों के अनुरूप हैं, जो दावा करते हैं कि ईएसजी प्रकटीकरण एक प्रमाणन संकेत के रूप में कार्य करता है जो पारदर्शिता में सुधार करता है और बैंकों को नैतिक प्रथाओं को लागू करने के लिए प्रेरित करता है, जैसे कि कम जोखिम वाले उधारकर्ताओं को वरीयता देना और अभिनव निवेश अवसरों की खोज करना। हालाँकि जो बैंक अत्यधिक जोखिम उठाते हैं, वे बढ़े हुए प्रणालीगत जोखिम के प्रति संवेदनशील होते हैं, यह रूढ़िवादी दृष्टिकोण प्रणालीगत जोखिम के संभावित स्तरों को कम करता है (डी हैन और व्लाहू, 2016)। इसके अलावा, कोविड-19 महामारी और बैंक स्वामित्व संरचना ईएमई में वाणिज्यिक बैंकों द्वारा प्रणालीगत जोखिम में योगदान देने की डिग्री को बहुत बढ़ा देती है (यान एट अल., 2023).

अध्ययन में पाया गया है कि उच्च देश-स्तरीय ईएसजी प्रकटीकरण स्कोर और उनके घटकों (ई, एस, और जी) प्रकटीकरण स्कोर बढ़ी हुई सीमा-पार बैंकिंग प्रवाह से जुड़े हैं, जो अंतर्राष्ट्रीय बैंक लेनदेन पर इन स्कोर के वृहद आर्थिक प्रभाव और इस संबंध पर हरित ऋण के मध्यस्थ प्रभाव को रेखांकित करता है। यह इस तथ्य को रेखांकित करता है कि मजबूत शासन, सामाजिक जिम्मेदारी और पर्यावरण नीतियां किसी देश को विदेशी पूंजी के लिए अधिक आकर्षक बनाती हैं। ये निष्कर्ष हितधारक सिद्धांत, संसाधन-आधारित सिद्धांत, अच्छे प्रबंधन की परिकल्पना और संकेत सिद्धांत का समर्थन करते हैं, यह सुझाव देते हुए कि किसी देश का बेहतर ईएसजी स्कोर एक विश्वसनीय संकेत के रूप में कार्य करता है और अधिक विदेशी निवेश आकर्षित करता है। अध्ययन यह भी दर्शाता है कि सीमा-पार बैंकिंग प्रवाह और देश-स्तरीय ईएसजी प्रकटीकरण स्कोर के बीच संबंध को हरित ऋण द्वारा सकारात्मक रूप से नियंत्रित किया जाता है ये परिणाम पर्यावरणीय जोखिम प्रबंधन और प्रतिस्पर्धी रणनीति के सिद्धांतों के अनुरूप हैं, जो यह दर्शाते हैं कि हरित ऋण वाणिज्यिक बैंकों को पर्यावरणीय जोखिमों का प्रबंधन करने, अपनी ब्रांड प्रतिष्ठा में सुधार करने और पहले लाभ उठाने के लिए पर्यावरण के प्रति जागरूक व्यवसायों को ऋण देने में प्राथमिकता देने में सक्षम बनाता है।

निहितार्थ

अध्ययन के निष्कर्ष शिक्षाविदों, निवेशकों, बैंक प्रबंधकों और नीति निर्माताओं के लिए महत्वपूर्ण सिफारिशें प्रदान करते हैं। उभरते बाजारों में वित्तीय स्थिरता और पारदर्शिता बढ़ाने के लिए, नीति निर्माताओं को ग्रीन क्रेडिट कार्यक्रमों का समर्थन करना चाहिए, नियामक ढांचे को मजबूत करना चाहिए और मानकीकृत ईएसजी रिपोर्टिंग सिस्टम बनाना चाहिए। वित्तीय कमजोरियों को कम करने के लिए, बैंक प्रबंधन से पारदर्शी प्रकटीकरण प्रक्रियाएं स्थापित करने, बोर्ड की संरचना में सुधार करने और मुख्य संचालन में ईएसजी-संबंधित जोखिमों को शामिल करने का आग्रह किया जाता है। निवेशकों को उच्च स्थिरता स्कोर वाले देशों में निवेश को प्राथमिकता देनी चाहिए और जोखिम का मूल्यांकन करते समय ईएसजी कारकों को ध्यान में रखना चाहिए। अंत में, बैंकिंग उद्योग पर स्थिरता के विकसित होते प्रभाव की गहरी समझ हासिल करने के लिए, विद्वानों को बैंक के प्रदर्शन और वित्तीय स्थिरता पर ईएसजी प्रकटीकरण के दीर्घकालिक प्रभावों की जांच करनी चाहिए।

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Abbreviations

AR (2)	Arellano-Bond Serial Correlation Test
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BCG	Boston Consulting Group
BOE	Bank of England
CAR	Capital Adequacy Ratio
CSR	Corporate Social Responsibility
CSP	Corporate Social Performance
CDS	Credit Default Swaps
EMU	European Market Union
ESG	Environmental, Social, and Governance
EMEs	Emerging Market Economies
EBA	European Banking Authority
ECB	European Central Bank
ESRB	European Systemic Risk Board
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GMM	Generalized Method of Moments
GSCI	Global Sustainable Competitiveness Index
HHI	Herfindahl-Hirschman Index
IMF	International Monetary Fund
IV	Instrument Variable

LIBS	Locational International Banking Statistics
LRMES	Long-run Marginal Expected Shortfall
KPMG	Klynveld Peat Marwick Goerdeler
MES	Marginal Expected Shortfall
MENAT	Middle East, North Africa, and Turkey
NPL	Non-Performing Loans
OECD	Organisation for Economic Cooperation and Development
OLS	Ordinary least square
PPP	Purchasing Power Parity
PwC	Price Waterhouse Coopers
ROA	Return on Assets
ROE	Return on Equity
TENET	Tail-Event-Driven Network Risk
UNFCCC	United Nations Framework Convention on Climate Change
VIF	Variance Inflation Factor
WDI	World Development Indicators
WHO	World Health Organization
WEF	World Economic Forum