2023

Firm Size as a Moderator of the Relationship Between Sustainability Practices and Organizational Performance in Banks

Abel Azuwueze Osuji
Walden University

Walden University

College of Management and Human Potential

This is to certify that the doctoral study by

Abel Azuwueze Osuji

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Erica Gamble, Committee Chairperson, Doctor of Business Administration Faculty

Dr. James Glenn, Committee Member, Doctor of Business Administration Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2023

Abstract

Firm Size as a Moderator of the Relationship Between Sustainability Practices and Organizational Performance in Banks

by

Abel Azuwueze Osuji

MS, Enugu State University of Technology, 2005

MBA, University of Lagos, 2000

BS, University of Port Harcourt, 1992

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

August 2023

Abstract

Bank managers are facing increasing pressure to adopt sustainable finance models that address stakeholders' diverse interests. It is important to understand how ESG strategies relate to corporate financial performance (CFP) to facilitate the adoption by bank leaders. Grounded in the triple bottom line and stakeholder theories, the purpose of this ex-post facto study was to examine the relationship between sustainability practices and the CFP of banks within the contingency of firm size. Secondary data on 226 global banks were collected from the Sustainalytics and FitchConnect databases. The results of the moderated multiple regression analysis indicated the two full models comprising four predictor variables (ESG risk ratings and firm size) were significant in explaining the variations in CFP, $R^2 = .142$, $F(7, 218) = 5.155$, $p < .05$ and $R^2 = .140$, $F(7, 218) = 5.086$, $p < .05$. In the first model, the relationships between the banks' ESG risk management and CFP were nonsignificant. The interaction effect of bank size and governance risk management was significant ($p = .015$, $\beta = -3.664$). In the second model, the linkage between social risk management and CFP was significant ($p = .034$, $\beta = -.028$). The (a) connections between environmental and governance risk management and CFP and (b) interaction impacts of bank size and ESG risk management were nonsignificant. The key recommendations are for bank leaders to clarify the financial and nonfinancial motivations for adopting sustainable strategies and apply appropriate benchmarks to evaluate the outcomes. The implications for positive social change include the potential for banks to foster financial inclusion, reduce social inequalities, positively influence other players' sustainability behaviors, and catalyze the transition to low-carbon economies.

Firm Size as a Moderator of the Relationship Between Sustainability Practices and Organizational Performance in Banks

by

Abel Azuwueze Osuji

MS, Enugu State University of Technology, 2005

MBA, University of Lagos, 2000

BS, University of Port Harcourt, 1992

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

August 2023

Dedication

I dedicate this work to Ada and the children, who demonstrated unflinching support and immense understanding of my absence from some of their growing-up activities while on this journey. I hope this will inspire Ihuoma, Emeka, Obi, Dozie, and other younger folks who look up to me to never give up on the quest for continuous learning and self-improvement. I hope that they learn to persevere to realize their dreams and fulfill their potential, no matter what cards life has dealt them. Above all, I am most grateful to God, who directs the affairs of all men, for enabling me to complete this study and bringing me this far.

Acknowledgments

I want to acknowledge everyone who guided and supported me throughout this journey, especially my committee chair, Dr. Erica Denise Gamble; consecutive second committee members, Dr. Natalie C. Casale and Dr. Jim R. Glenn; and university research reviewer, Dr. Roger Mayer. I am immensely grateful for your expert guidance, continuing encouragement, steady help, and patience through the milestones, crossroads, and swings on this research trip. I appreciate the inputs of all the faculty at Walden University, whom I worked with in the various courses and residence programs. Your encouragement, suggestions, and objective feedback on my preparatory works were very helpful. I would also like to thank several colleagues and peers I worked and exchanged ideas and resources with while completing this study. You were a robust support system with your generous tips and insights.

Table of Contents

List of Tables

List of Figures

Section 1: Foundation of the Study

Sustainable finance has taken hold in recent years in the global banking sector, but it has a long history. The adoption of responsible business activities in banks is connected to calls for corporate sustainability practices that began in the 1960s (Dziawgo, 2019). Campaigners advocated for businesses to contribute to the well-being of their operating environment by adopting the concept of corporate social responsibility (CSR; Dziawgo, 2019). For banks, the 2008 global financial crisis was a crucial turning point, with combined pressures from new regulations, changes to the governance framework within the global financial sector, changing public expectations, and digitalization and other technological innovations compelling global banks to improve their sustainability behaviors (Nițescu & Cristea, 2020). As Rabia et al. (2021) noted, banking sustainability practices or sustainable finance involves the implementation of a business model that incorporates environmental, social, and governance (ESG) concerns into the core strategy and processes for availing financial products and services to customers. The relationship between sustainability practices and the corporate financial performance (CFP) of banks was the focus of this study.

Background of the Problem

Inadequately mitigated sustainability-related exposures are a salient issue for banks (Antoncic, 2021). The Carbon Disclosure Project (2020), a global expert body on government environmental reporting, estimated the value of worldwide bank-financed emissions in 2020 at USD1.05 trillion; the organization also estimated that 49% of financial institutions do not monitor the sustainability impacts of their assets. The lack of

attention to ESG practices is concerning, in part, because of the potential financial benefits associated with sustainability. Banking sustainability is evolving from downside risk management to exploitation of opportunities for superior performance and strategic advantage (Déséglise & Freijido, 2019; Sustainable Infrastructure Alliance, 2020). Sustainability practices enhance banks' resource allocation decisions, improving asset quality, long-term profits, and corporate value (Soumya, 2019). Sustainable strategies could improve banks' operational resilience and long-term survival (Buallay, 2020).

Changing operational challenges make sustainable models imperative for global banks. The evolving globalized financial order presents a complex interlinked risk climate that has contagion effects, with increasing integration of financial markets enabling rapid transmission of risks across markets and regions (United Nations Inter-Agency Task Force on Financing for Development, 2021). The adoption of ESG models could help banks improve transparency and rebuild their denigrated industry reputation following the unethical practices revealed during the 2008 global financial crisis (Bugandwa et al., 2021; Daszyńska-Żygadło et al., 2021). Also, in a context marked by rising competition from new entrants (Forcadell et al., 2019), bank managers could improve organizational outcomes and competitive positioning using a sustainable finance strategy. In this study, I examined the relationship between banks' sustainability practices and financial performance.

Problem and Purpose

The specific business problem was that some global bank leaders lacked an understanding of the relationship between organizational ESG risk management and

financial performance, as moderated by firm size. The purpose of this quantitative ex-post facto study was to examine the relationship between organizational ESG risk management and financial performance, as moderated by firm size. The independent variables were the ESG risk management ratings, and the dependent variable was financial performance. The organization-specific moderating variable was firm size. The target population for the study consisted of global banks located in the Americas, Europe, Africa, and Asia.

Population and Sampling

The target population for this study comprised global banks operating in at least two different countries. I collected secondary cross-sectional data on the selected global banks for this study from the ESG database belonging to Sustainalytics, a global ESG data analytics company, and the FitchConnect database. The archival data collected from the Sustainalytics company's database were the ESG cluster scores. The ESG cluster scores represented an organization's ratings for unmanaged ESG domain risks, comprising the risk management shortfalls and unmanageable risks, derived by considering the scores for the firm's relevant ESG exposures and associated mitigations (Sustainalytics, 2022). The ESG cluster scores reflected the summary rating of a firm's sustainability risk management deficiencies. I collected documentary data on the financial performance measures of return on assets (ROA), return on equity (ROE) ratios, and total assets from the FitchConnect database. The FitchConnect database is a reliable repository for banks' financial information (Khattak, 2021). Secondary information provides business researchers with easily accessible accurate data that enhance the

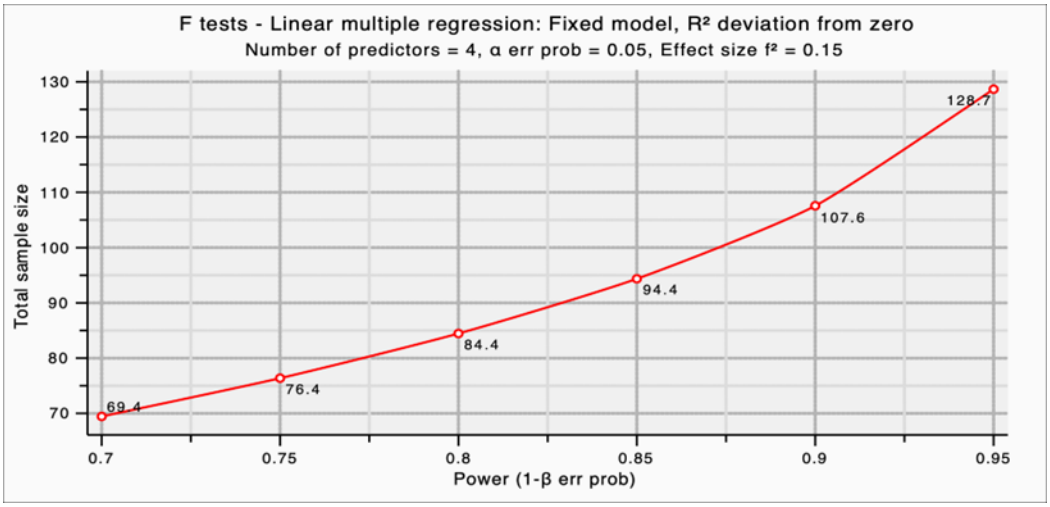
reliability of their study results (Stewart, 2012). In a cross-sectional study of several organizations or contexts, researchers analyze secondary data to evaluate the correlations between variables of research interest from a large sample (Al-Ababneh, 2020). The use of secondary data in this cross-sectional study was therefore appropriate.

The independent variables were the ESG risk management ratings, measured by the ESG cluster scores. The dependent variable was the financial performance metric, measured by ROA and ROE ratios. The moderator variable was firm size, measured by total assets. The ESG cluster scores, ROA, and ROE ratios were interval scale data, whereas total assets were ratio scale data.

I used G*Power 3.1.9.7 analysis to calculate the minimum sample size for multiple regression analysis. With four predictor variables, a significance level of .05, an effect size of .15, and a statistical power of .9, the estimated sample size was 108. The specific statistical test used in estimating the sample size was linear multiple regression: fixed model, R^2 deviation from 0. Figure 1 depicts the sample size calculation for this study from G*Power analysis.

Figure 1

*Sample Size Calculation Using G*Power Analysis*



Sample selection involved the use of a random sampling technique. Probability-based random sampling technique allows for the selection of unbiased samples that adequately represent the population, thus enhancing the study's validity (Bougie & Sekran, 2019). Random sampling technique was therefore appropriate for this study.

Nature of the Study

The research methods applied in business research comprise quantitative, qualitative, and mixed methods (Draper et al., 2021). The quantitative research methodology is undergirded by a positivist philosophy emphasizing objectivity and deductive reasoning (Bloomfield & Fisher, 2019). The distinguishing characteristics of the quantitative method include the researcher's independence and accuracy of results achieved by testing for study validity and reliability (Park & Park, 2016). Bloomfield and Fisher (2019) noted that a quantitative study involves the use of numerical data in empirical and statistical analytical procedures to test hypotheses relating to mere

associations or cause-and-effect relationships between variables and groups. The objective of this study was to examine the relationship between organizational sustainability risk management ratings and financial performance; therefore, the quantitative methodology was suitable. Mixed methods researchers combine quantitative and qualitative approaches (Al-Ababneh, 2020). Qualitative research is associated with interpretative philosophy and inductive reasoning; researchers use it to explore and understand the meaning of socially constructed phenomena (Al-Ababneh, 2020). The focus of this study was not on understanding the meaning of social phenomena or behaviors. For this reason, qualitative methodology and mixed-methods research were inappropriate for this study.

The research design adopted for this study was the ex-post facto design. This design is appropriate when a researcher is unable to manipulate the outcome or occurrence of the attributes of the variables under study (Silva, 2010). This study involved using existing archival data to evaluate the relationship between variables. The ex-post facto design was appropriate for the study. Other research designs aligned with the quantitative methodology are quasi-experimental and experimental techniques. Quasi-experimental and experimental designs are used to examine causal relationships between variables (Bloomfield & Fisher, 2019). The objective of this study was not to determine causal relationships between variables; therefore, quasi-experimental and experimental designs were inappropriate for the research.

Research Questions and Hypotheses

The research questions (RQs) and hypotheses were

RQ1: What is the relationship between organizational ESG risk management ratings and financial performance?

$H_0$1: There is no statistically significant relationship between organizational ESG risk management ratings and financial performance.

H_A1: There is a statistically significant relationship between organizational ESG risk management ratings and financial performance.

RQ2: Does firm size moderate the relationship between organizational ESG risk management ratings and financial performance?

$H_0$2: Firm size does not moderate the relationship between organizational ESG risk management ratings and financial performance.

H_A2: Firm size moderates the relationship between organizational ESG risk management rating and financial performance.

Theoretical Framework

The theoretical framework for this study consisted of the triple bottom line (TBL) and the stakeholder theories. The premise of the TBL theory, which John Elkington developed in 1994, is that in undertaking productive activities, businesses also exploit human and natural endowments within the society, along with financial resources (Frecea, 2017). TBL is a strategic sustainability approach requiring businesses to strike a balance between "people, planet, and profits" (Frecea, 2017, p. 2). This middle ground necessitates that corporate leaders extend their underlying objectives beyond economic considerations to equally emphasize social and environmental values (Frecea, 2017). The TBL theory emphasizes organizational sustainability practices and the resulting

performance criteria or bottom lines categorized into the triple economic, social, and environmental dimensions (Frecea, 2017; Shim et al., 2021). Adopting the ESG classifications of sustainable business practices (the independent variables) in this study aligned with the three dimensions of the strategic TBL approach for sustainability management.

The stakeholder theory, expounded by Edward Freeman in 1984 proposes that an organization's stakeholders represent manifold, sometimes conflicting, interests. Firm leaders should deliberately seek to understand and consider their relevant stakeholders' concerns in developing and implementing business strategies and design specific programs to address them (Freeman, 1984). Freeman defined stakeholders as individuals or groups who can potentially impact or be impacted by an organization's activities or decisions taken in pursuit of its objectives. Organizational stakeholders include employees, customers, suppliers, shareholders, lenders, nongovernmental organizations, special interest groups, government entities and regulators, local communities, media, and competitors (Freeman, 1984). Addressing the various interests of the numerous organizational stakeholders necessitates multifaceted business objectives.

A multidimensional approach to business sustainability underlying ESG practices enables firms to address the interests of their diverse stakeholders, consistent with the stakeholder theory (see Buallay, 2020). Sustainability practices help firms improve their relationship with internal and external stakeholders, (Poursoleyman et al., 2022). Businesses undertake sustainability activities to mitigate their ESG exposures by concurrently addressing the requirements of multiple stakeholders (Buallay, 2020).

Organizational leaders could adopt sustainable business models to address the expectations of diverse stakeholders and secure their support.

Operational Definitions

Business sustainability: A firm's simultaneous pursuit of organizational goals encompassing ESG considerations (Benkert, 2021).

Corporate social responsibility (CSR): Organizational activities that address the social and ecological issues arising from business conduct, especially to mitigate the adverse impacts on segments of the population or society as a whole (Ali et al., 2019).

Corporate social responsibility (CSR) *disclosure*: Communication of organizational ESG activities to the wider society or to interested stakeholders within the society, in the form of qualitative or quantitative, financial and nonfinancial information (Ali et al., 2019).

Corporate social performance (CSP): A metric that represents the measurable outcomes of a firm's sustainability behaviors (Johnson et al., 2019).

Environmental, social, and governance (ESG): A compound construct that depicts the dynamic exchange between an organization and the internal and external environment and that requires the pursuit of business objectives that transcend profit maximization (Qureshi et al., 2021).

Greenwashing: The manipulation of actual organizational sustainability performance through misleading labeling and advertising of product or service environmental features and selective reporting of positive sustainability activities while downplaying the negative events (Zharfpeykan, 2021).

Risk management: The measures taken by firms to prevent the occurrence or mitigate the impact of threats to achieving their objectives and enhance their potential to identify and exploit business opportunities that could strengthen their strategic advantage (Nobanee et al., 2021).

Stakeholders: Persons or groups who can potentially influence or be affected by an organization's decisions in one or more capacities, including customers, employees, shareholders, creditors, suppliers and service providers, banks, associations, and local community organizations (Poursoleyman et al., 2022).

Sustainable finance: A term associated with the financial sector that involves adopting a business model that incorporates sustainability-oriented criteria in the strategic investment and lending decision-making processes, based on the organization's voluntary policy or compliance with regulatory obligations (Dziawgo, 2019).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are unchallenged factual representations of a study or argument (Valor et al., 2022). I made some assumptions relating to unconfirmed facts for this study. The first assumption was that the archival data on ESG risk ratings applied for this study accurately reflected the effectiveness and adequacy of the selected banks' sustainability risk management initiatives. The next assumption was that implementing business sustainability practices, whether voluntarily adopted, or compelled by regulatory requirements or other extraneous factors, had the same implications for the organization; hence, there was no distinction as to the antecedents of sustainability initiatives between

the banks. Another assumption was that bank leaders sought to mitigate their ESG exposures by making concrete targeted decisions relevant to their business strategy to gain a competitive advantage. The next assumption was that effective ESG risk management by bank leaders resulted in high sustainability performance. The last assumption was that the sustainability performance of the selected banks was the direct result of the ESG business models their leaders adopted, not unintended consequences of other initiatives, like innovation projects, that could also enhance their strategic advantage.

Limitations

The limitations of research are inherent obligatory constraints beyond the researcher's control, which may be related to the research design, statistical test technique, funding, and timing restraints (Theofanidis & Fountouki, 2018). Theofanidis and Fountouki (2018) stated that limitations represent underlying weaknesses in research that cannot be addressed by the researcher and could affect the study conclusions; hence, researchers should disclose them a priori. A fundamental limitation of this study derived from the potential greenwashing practices of organizations included in the sample. Misrepresentations of organizational sustainability performance may affect the accuracy of the data analyzed for the study and the validity of the conclusions reached.

Another limitation of the study was the reliance on database ESG scores obtained from a public rating agency for the analysis. I was unable to access the proprietary instruments and measurement models underlying the calculations, as rating agencies do not publicly disclose the information to subscribers. The implication was that I could not

undertake additional instrument validity and reliability checks, including content validity, criterion-related validity, and construct validity assessments, to empirically support the accuracy and reliability of the study criteria measurement.

Delimitations

Delimitations highlight the definitional boundaries established by researchers to focus their studies and ensure that the objectives are attainable (Theofanidis & Fountouki, 2018). A crucial delimitation of this study related to the application of cross-sectional data for only 1 year, which could limit the generalization of the conclusions. Cross-sectional studies may not offer the required flexibility for multidimensional evaluation and generation of robust conclusions on complex social models or subjects, such as the business sustainability concept (Daszyńska-Żygadło et al., 2021; Ji et al., 2022).

Another delimitation of this study was the focus on only international banks, whose sustainability risk management data were available on the Sustainalytics organization's database. The study findings may be restricted to only the population of banks on the database. By including other sustainability performance rating models and incorporating other banks not included in the database, researchers may be able to validate this study's results and extend the generalizability. The geographical locations of interest in the study were continental America, Africa, Asia, and Europe. The expanded geographical area of coverage allowed for selecting a sizable sample for this study, given the potentially limited number of global banks, the unit of analysis, from each global region.

An additional delimitation of the research involved the use of ESG ratings and financial performance data relating to the same period in the analysis. This negated the view that corporate investments in ESG initiatives logically undergo some gestation period before affecting the firm's financial performance (see Martinez & Mesa, 2021). Lee and Suh (2022) acknowledged a potential problem from timing divergences in the occurrence of ESG activities and the financial outcomes applied to study the associations between them. Overlooking the potential impact of timing differences in firms' ESG activities and the related financial results in investigating the linkages between the variables may affect the validity of the findings.

The last limitation was the application of the centered values of the independent variables in the study regression analysis to address potential multicollinearity problems involving some of the variables. Centering is a form of data transformation, which involves subtracting the mean of the independent variables from all the initial variable values, and using the resulting centered information for analysis (Frost, 2019). Laerd Statistics (2018) noted that data transformation entails using different data values from the original data for analysis, which could generate different model coefficient estimates and complicate the interpretation.

Significance of the Study

Contribution to Business Practice

The findings from this study might enhance global banking leaders' understanding of business sustainability and motivate them to develop appropriate strategies that promote their banks' internal and external sustainability practices. The internal activities

include a reduction in paper usage, waste management, sustainable employment policies, and occupational health and safety practices (Soumya, 2019). The external business sustainability practices of global banks, relating to their lending and investment decisions, include green banking services, such as multichannel online/mobile banking, ATMs, and agency banking (Zahid et al., 2021); green loans, such as green mortgages and bonds; and green checking accounts and credit cards (Soumya, 2019). The conclusions from this study could motivate bank leaders to improve external practices, including making enhancements in banks' direct CSR programs and leveraging the financial intermediation roles to indirectly influence the sustainability practices of banks' borrowers across other industry sectors (Saeudy et al., 2022).

Implications for Social Change

The results from this study may contribute to a positive social change by providing knowledge that enables banking leaders to create supportive work environments that promote organizational diversity, equal opportunities, compensation, and health improvements. These elements enhance workers' sense of fairness and foster general staff well-being (Moufty et al., 2021). The positive social impact, in terms of healthier and more productive staff, may reduce the societal costs associated with paid absenteeism and presenteeism (reduced or lost productivity of staff who are present at work) resulting from injury or ill health (Shimura et al., 2022). Bank-sponsored community projects could trigger positive societal changes, including enhanced social cohesion and fairness, and improvements in communal trust and welfare (Paula-Carmen & Dorin-Paul, 2019). Positive social changes, such as financial inclusion and reduction in

social inequalities, could result from extending sustainable banking services to the underbanked population segments (Zahid et al., 2021). Positive social changes relating to enhanced ecological resilience and transitioning to low-carbon societies could benefit the wider society, as banks positively inspire the sustainability behaviors of their clients, thus generating multiplier effects across societies (Scholtens & van't Klooster, 2019).

A Review of the Professional and Academic Literature

The literature review is a crucial component of a study for it updates the researcher on previous work in the area of interest. Researchers review the literature to explore the existing body of knowledge on a topic, including different and sometimes conflicting viewpoints on the study subject; methodologies and research designs adopted; and conclusions from prior research. My searches indicated inconclusive results on how banking sustainability practices related to financial performance (Jaba et al., 2020). The findings of this doctoral research could become a pertinent addition to previous works on banking sustainability. To ensure a systematic approach, I first reviewed the TBL and stakeholder theories, both of which underpinned the theoretical framework through which I viewed the banking sustainability phenomenon in this study. Next, I reviewed some of the rival theories to the designated theoretical framework for this study and the measurement instruments for the variables underlying the theoretical framework. Further reviews included the moderating and dependent variables used for this research, including the relevant measurements and methodological approaches applied in previous studies. The concluding segment contained a summary of the above literature reviews and a transition statement.

The databases where I obtained articles on the TBL and stakeholder theories, banking sustainability practices, and other aspects of this literature review included the following: Sage Premier; Emerald Insight; ABI/INFORM Collection; ResearchGate; Accounting, Tax & Banking Collection; Science and Philosophy; IEEE; and other databases accessible from the Thoreau multidatabase search tool within the Walden Library website. The keywords used for the search were *triple bottom-line*; *TBL*; *triple bottom-line theory*; *TBL theory*; *TBL approach*; *TBL sustainability*; *social businesses*; *sustainable businesses*; *business stakeholder*; *stakeholder theory*; *stakeholder model*; *stakeholder perspective*; *stakeholder management*; *stakeholder relationship*; *stakeholder relations governance*; *stakeholder relations*; *stakeholder governance*; *stakeholder approach*; *sustainability practices*; *sustainability performance*; *sustainability reporting*; *corporate social responsibility*; *CSR*; *stakeholder communication*; *sustainability accounting*; *voluntary disclosure*; *environmental, social, and governance practices*; *ESG activities*; *sustainability practices*; *business sustainability*; *banking sustainability*; and *sustainable finance*.

Consistent with Walden University's specifications, I verified the peer-review status of the articles included in this literature review using the functionality on the Walden Library website for confirming peer-reviewed scholarly journals. Of the 164 articles, books, and other materials included in this review, 162 (99%) were peer-reviewed, and the publication dates of 142 sources, translating to 87% of the total articles reviewed, were within 5 years of my anticipated graduation year of 2023. The two non-

peer-reviewed materials are related to corporate reports and publications, not academic papers.

Theoretical Framework

A researcher should ground their study in existing theories. Researchers could identify suitable theoretical foundations for their studies through extensive review of the literature (Watson & Webster, 2020). A theory provides the lens through which a researcher views the problem. I used the TBL theory and stakeholder theory, both of which are established theories, for this study to review banking sustainability practices. Sustainable models or CSR are contextual strategic activities conducted by business managers to achieve the triple economic, social, and environmental baselines and address relevant stakeholders' diverse interests (Mahmood et al., 2021). The TBL and stakeholder theories are appropriate theoretical models on which to ground studies on business sustainability practices.

Triple Bottom Line Theory

The TBL theory suggests the implementation of sustainability activities that encompass the economic, social, and environmental dimensions to optimize organizational performance by contributing positively to societal well-being, ecological preservation, and enhanced corporate profitability and long-term survival. Elkington espoused the TBL idea in 1994 and expanded it into the TBL theory in 1997 to advocate for organizational sustainability practices (Farooq et al., 2021; Guo et al., 2021). Elkington (1997/1998) defined sustainability as a perspective that prioritizes current business activities that do not jeopardize future stakeholders' environmental, social, and

economic prospects. Elkington stated that the business sustainability agenda combines TBLs emphasizing economic progress, ecological integrity, and social fairness. Elkington noted that leaders of 21st-century emerging markets and businesses should incorporate environmental and social values into their strategic mix to generate additional bottom lines to the traditional profit considerations. The TBLs of organizations should encompass economic, social, and environmental objectives (Elkington, 1997/1998). The TBL theory is based on the view that business leaders exploit the mix of natural endowments, human expertise, and financial resources to create economic values and should not emphasize only their profit performance (Frecea, 2017).

The TBL theory is a strategic approach to business sustainability that requires firms to create a "people-planet-profits" balance by equally prioritizing the three bottom lines to make meaningful positive impacts on organizational outcomes and stakeholders' values (Frecea, 2017, p.2; Shim et al., 2021, p. 4422). The TBL theory is a multidimensional approach to business sustainability and outlines three broad baselines for delineating corporate sustainability exposures, the related response activities, and organizational outcomes. Applying the ESG classification of business sustainability practices (the independent variables) in this study aligned with the three domains of the strategic TBL model for sustainability management. The three dimensions of Elkington's (1997/1998) TBL theory are economic, social, and environmental.

Economic Dimension. The economic dimension of the TBL theory relates to business profitability concerns, emphasizing organizational value-creation and economic prosperity in a sustainable (cf., destructive) manner. Elkington (1997/1998) noted that the

economic dimension involves enhancing a firm's economic capital: physical and financial assets and knowledge-based resources or intellectual capital. Frecea (2017) stated that the economic domain covers profit enhancement, liquidity improvements, tax payments, and the means by which the target firm's activities affect growth in the broader economy. Shim et al. (2021) indicated that economic sustainability entails conducting organizational wealth creation and distribution activities to improve the firm value and maximize broader societal wealth. The TBL's economic dimension covers firms' financial activities and profitability.

The profit concept under the TBL perspective differs from the conventional accounting profit (Farooq et al., 2021). The traditional profit-maximizing business motive still applies to sustainable economic activities, but the TBL philosophy compels business leaders to consider the future implications of their activities and adopt a perspective of long-term survival within a conducive society (Frecea, 2017; Paraschivescu, 2021). Frecea (2017) added that adopting sustainability-oriented economic agenda generates reciprocal interaction between the organization and the community and creates mutually reinforcing sustainable benefits for them. The TBL theory's financial perspective de-emphasizes business pursuit of short-term profit-maximization objectives for enduring organizational resilience and growth. A long-term perspective to business strategy means that firm leaders consider the interests of all relevant stakeholders in their decisions.

Social Dimension. Business activities classified under the social dimension essentially relate to corporate people-oriented policies. Elkington (1997/1998) noted that business leaders should develop sustainable models that enhance their social capital,

reflecting the totality of a group's well-being, knowledge, competencies, and the collective heritage and wealth-creation capability reinforced by a high sense of trust and reduced friction among them. The social bottom-line includes the organizational sociocultural and ethical concerns (Elkington, 1997/1998). The TBL theory's social indicators are diverse because of the complexities of real life (Guo et al., 2021). Shim et al. (2021) referred to the TBL's social domain as organizational conduct supporting care for humanity and enhanced individual and community welfare, including (a) ethnic and gender equity and equality, (b) diversity and inclusion, (c) individual health and living standard, (d) social justice and cohesion, and (e) people's general well-being. Frecea (2017) noted that the TBL's social concerns involve (a) appropriate and equitable remuneration or rewards; (b) physical and psychologically safe and conducive work environments; (c) training and professional development or education; (d) human rights, wealth distribution, and standard of living; (e) health; and (f) equal opportunities. Social sustainability practices enable organizations to maintain enduring positive relationships with internal and external stakeholders. Adopting a socially sustainable business model supports an organization in generating crucial social capital, such as enhanced staff commitment, brand loyalty, and positive media coverage, that is relevant for long-term survival.

Environmental Dimension. The environment dimension relates to organizational pro-climate behaviors. Elkington (1997/1998) referred to TBL's ecological pillar as a measure of organizational contribution to enhancing society's natural capital and supporting the environmental ecosystems' resilience and biodiversity, including the

critical nature and renewable resources. Shim et al. (2021) stated that the environmental domain of the TBL theory entails adopting ecofriendly business conduct, preserving the natural ecology, and reducing or eliminating activities that pollute or degrade the environment and negatively impact society. Frecea (2017) described the broad environmental aspect of the TBL model as comprising organizational climate-positive practices, such as (a) energy efficiency; (b) resource use efficiency and recycling; and (c) preventing incidents of toxic emissions and pollution, resource wastes, effluents, and waste disposals. The environmental dimension of TBL theory depicts firms' efforts at mitigating the direct and indirect climate-related externalities deriving from their activities. Implementing ecologically enhancing policies improves an organization's environmental bottom-line and profile as a responsible member of society.

Business Sustainability Implementation Paradox

The paradox of the TBL theory highlights the challenges organizations could face in adopting sustainable business models arising from the likely implementation conflicts between the triple dimensions. Hann et al. (2015) and Ozanne et al. (2016) noted that the inherent conflicting and overlapping implications of the TBL's multidimensional approach to business sustainability present implementation tensions for organizations. Okanga (2017) identified some inherent paradoxes as an emphasis on economic versus noneconomic values and financial versus sustainability reporting. Ozanne et al. noted four types of TBL paradoxes: belonging, performing, organizing, and learning tensions. Hann et al. indicated that potential paradoxes facing sustainable organizations include: (a) tensions between individual and corporate sustainability orientations, (b) short and long-

term perspectives, (c) existing business models and technological or structural transformations, and (d) efficient versus resilient sustainability practices. Sustainability adoption paradoxes vary between organizations. The individual managerial and entity levels of the TBL implementation paradox and the methods business managers adopted to mitigate the related tensions are important aspects of this discussion because of the potential to impact the effectiveness of the sustainability strategy.

Managerial Decision and Corporate Level Sustainability Paradoxes. Tensions in implementing sustainable business models could manifest at an individual manager's decision point or corporate strategy levels. A sustainability-oriented manager requires an enabling corporate culture and decision environment to support the personal impetus for introducing sustainable initiatives and innovations through the organizational hierarchy or exercising managerial resource allocation discretions that favor sustainable concerns (Hann et al., 2015; Benkert, 2021). Paiva et al. (2021) identified granular overlapping decision clusters in banks' TBL strategies comprising (a) prudence, (b) commercial field, (c) internal policies, (d) ethics, and (e) external factors, representing areas that require congruence between a manager's values and firm decision logic to enhance sustainable banking. An underlying hierarchical TBL decision paradox could constrain managers' individual sustainability disposition within a firm and adversely impact ESG performance.

Corporate level paradox affects organizational sustainable strategies. Ozanne et al. (2016) noted that the inherent tensions in corporate sustainability activities could manifest from scarcity or resource constraints, plurality and uncertainty of goals or

means, and rapid changes requiring strategic adaptation. Hann et al. (2015) recognized change and context dimensions of firm level paradoxes within the broad TBL domains. The presence and mix of these driving factors in the operating environment may exacerbate the intensity of the sustainability implementation tension a firm leader may experience. Business managers should deploy strategies to identify and address latent tensions within their planned sustainable business models to ensure effective implementation.

Methods of Mitigating the Triple Bottom Line Paradox. Leaders of sustainable firms adopted various approaches to address TBL tensions based on the assessed nature of the conflicts and the underlying drivers. Ozanne et al. (2016) noted that business managers commonly prioritized the TBL's economic component to avoid the inherent implementation paradox. Ozanne et al. and Shim et al. (2021) posited that such a biased sustainability approach, focused on short-term profitability, may yield suboptimal outcomes and prove counterproductive to long-term corporate performance and survival. Hann et al. (2015) identified the acceptance and resolution strategies as two broad comprehensive approaches for mitigating TBL-oriented tensions and further categorized the resolution strategy into separation and synthesis methods. Ozanne et al. identified the methods for coordinating the business sustainability dimensions and resolving the inherent tensions: (a) win-win, (b) tradeoff, (c) integrated, (d) paradoxical (e) splitting, and (f) synthesis strategies. The TBL approach to business sustainability practices generates implementation tensions that could lead to suboptimal organizational ESG performance if not effectively managed. A balanced approach to sustainability helps

business leaders to effectively identify and characterize the sources of tensions and apply appropriate strategies to address the paradoxes and enhance corporate sustainability performance across the triple components.

Sustainable Finance

The emerging sustainable finance model encompasses the empirical application of the TBL theory in varied contexts within the financial sector. The sustainable finance taxonomies, including social finance, green banking, and CSR, share a commonality in banks' objectives to incorporate ESG criteria into their strategies for availing financial products and services to customers (Qureshi et al., 2021; Rabia et al., 2021; Tóth et al., 2021). Paiva et al. (2021) posited that bank managers should seek to address today's ESG concerns within their operations and provide innovative solutions that meet the stakeholders' changing requirements as the traditional banking services focused on maximizing profits from capital mobilization and allocation no longer suffice. The sustainable finance nomenclatures involve the application of the TBL considerations within the financial players' core value chain. The sustainable finance approach helps in identifying and classifying specific banking activities and the related outcome under the triple baselines.

Banks' sustainable finance approaches and instruments differ in terms of the impact spread or underlying decision considerations. Ziolo et al. (2021) classified sustainable banking activities under the sub-themes of sustainability objectives, ESG risk-reduction, and ESG value-enhancing innovations within the broader TBL domains. Rabia et al. (2021) identified banks' innovative financing programs relevant to

sustainable finance: responsible investment, green bonds, SRI, and social impact bonds. Michaelowa et al. (2020) noted the use of donor-contributed trust funds within Multilateral Development Banks as sustainable financing instruments for supporting climate-oriented projects. Other sustainable finance models include, applying ESG criteria in credit risk evaluation; blended financing based on public-private partnerships (PPPs); and using guarantees, equity, syndications, non-recourse financing, and structured trade finance to attract conventional financing to socially impactful projects (Mendez & Houghton, 2020). Bank leaders have continued to expand and evolve the sustainable finance model within the broad spectrum of ESG causes. Some of the sustainable finance programs were designed to cover the comprehensive TBL baselines, or more narrowly focused on specific social or climatic domain agenda, leading to the proliferation of funding models, instruments, and goals. The potential for adaptations and innovations in sustainable finance strategies and products offer bank managers the flexibility in designing product objectives, funding scope, instruments, and practices that address widespread stakeholders' concerns.

Similarly, bank managers' motivations for adopting sustainable finance models could vary. Saeudy et al. (2022). identified various purposes for which bank leaders adopted ESG practices, including to enhance the risk management framework, develop a sociological and financial framework of sustainable borrower relationships, and collaborate with other sustainable banks under the UNEP FI. The evolving legal and regulatory requirements for business sustainability practices compelled some financial sector players to adopt sustainable strategies, not only for compliance purposes but also

to exploit emerging opportunities and gain competitive advantages (Paula-Carmen & Dorin-Paul, 2019). Stakeholders' pressures, especially in the aftermath of the 2008 financial downturn, have driven bank managers to adopt practices that deliver increased sustainable values (Nițescu & Cristea, 2020; Rabia et al., 2021). Further, there is a growing adoption of sustainable business models attributable to bandwagon effect, which has led to the emergence of greenwashing malpractices, involving misleading labeling of products and services or misrepresentation of noncompliant corporate activities as green (Dziawgo, 2019). Bank managers adopted sustainable finance models mainly to meet stakeholders' changing expectations and gain market benefits. The emerging deviant greenwashing tendencies, adding to the growth of sustainable finance, have intensified the need for harmonizing and standardizing sustainable finance models, practices, and performance criteria.

The sustainable finance subsector has recorded consistent and resilient growth over the years. Global private lenders have increasingly introduced sustainability-oriented products and services since Pax World Fund was established in 1971 as the first SRI-oriented mutual fund/private equity firm with formalized CSR objectives (Mendez & Houghton, 2020). There has been increasing adoption of ESG-focused market indices with several other exchanges developing market sustainability indices to measure and track their listed companies' ESG performances following the launching of the Dow Jones Sustainability Index (DJSI) at the New York Stock Exchange (NYSE) in 1991 (Paula-Carmen & Dorin-Paul, 2019; Mendez & Houghton, 2020). The value of the global professionally managed sustainable assets rose from $18.28 trillion in 2014 to $30.68

trillion in 2018 (Dziawgo, 2019); and global sustainable investments in mutual funds and exchange-traded funds (ETFs) at $288 billion between January and November 2020 translated to a 96% growth compared to the entire 2019 (LeBlanc et al., 2021). The resilience observed in sustainable ETFs in 2020 is remarkable when viewed against the prevailing global market disruptions, uncertainties, and general investor risk-aversion that characterized the COVID-19 pandemic era. The increasing adoption and innovative adaptation of the sustainable finance approach within the banking sector will foster continuing improvements in bank managers' interpretation and application of sustainable finance models.

Banking Sustainability Risk Management

Sustainable banking risk management focuses on the inherent ESG exposures of a bank's operations. Soumya (2019) and Paiva et al. (2021) recognized that sustainable banking models have underlying ESG downside and upside risks and suggested strategies for addressing the potential adverse outcomes to improve the effectiveness of banks' sustainability frameworks. Empirically, sustainability risk management entails measures for mitigating ESG threats and exploiting the related opportunities to deliver positive organizational outcomes (Nițescu & Cristea, 2020; Nobanee et al., 2021; Lau & Chen, 2022). For example, environmental risks constitute investment exposures for bank managers, whereas the associated transition activities create strategic opportunities they could exploit for profits and market positioning (LeBlanc et al., 2021). The sustainable finance risk management is a dual approach to mitigate the downside risks and harness

inherent strategic opportunities for cocreating stakeholders' values. The two-pronged model supports bank leaders in optimizing their overall sustainability performance.

The robustness of a bank's existing risk management framework is vital for implementing a sustainable finance risk model. Global bank managers broadly classified conventional risks as credit, market, liquidity, operational, and systemic exposures, using the regulatory framework stipulated in the international guidelines (Ciulei, 2021). Nițescu and Cristea (2020) noted that bank leaders' capability in effectively managing ESG risks is partly a function of the maturity of the underlying enterprise risk management (ERM) model. ESG performance necessarily drives changes in corporate risk profile, implying that adopting sustainable business models will require enhancements to the subsisting ERM framework to cope with the new activities involved, (Scholtens & van't Klooster, 2019; Nițescu & Cristea, 2020). For example, a bank leader may not accurately analyze and predict the carbon footprint using the existing ERM model that relies on historical instead of forward-looking data (Nițescu & Cristea, 2020). The existence of an effective ERM framework provides a vital baseline that supports bank leaders in transitioning their systems to an ESG-oriented risk management model. Bank managers could achieve optimal results from integrating the traditional and ESG-oriented risks into an enhanced sustainable risk framework.

The established nexus and potential positive interaction effect between banks' ESG exposures and conventional risks demonstrate that ESG factors may be antecedents to the conventional bank risks and buttress the efficacy of an integrated risk management for sustainable banks (Lau & Chen, 2022; Tóth et al., 2021; Nițescu & Cristea, 2020).

Using logistic regression (LR), Nițescu and Cristea (2020) studied the relationship between ESG and conventional bank risks and found significant correlation between them ($p > \chi^2 = .0211$, pseudo-$R^2 = 15.09\%$, LR $\chi^2 = 16.47$). Nițescu and Cristea concluded from the results that there are opportunities for banks to integrate ESG activities into their core business strategies. Scholtens and van't Klooster (2019) investigated whether sustainability is connected to banks' default risk and contribution to the financial sector's systemic risk and found that banking ESG performance is associated with reduced default risk (Z-score =.303. adj. $R^2 = .138$, $p < .001$, standard deviation (ROE) = -.001, adj. $R^2 = .174$), and lower contribution to systemic risk ($\beta = -1.552$, adj. $R^2 = .092$). Using regression analysis, Lau and Chen (2022) found from examining the relationship between sustainability and business risk factors that at $\alpha = .01$ significance level, ESG risks are positively related to conventional business risks and vice versa ($B = .907$, $t = 14.25$, adj. $R^2 = .511$, $F = 55.13$). Lau and Chen concluded from the study results that firms' sustainability exposures could turn into business risks if not properly controlled. Adopting an ESG risk management model will necessitate improving and integrating the conventional banking and ESG risk management frameworks, requiring that bank leaders correctly understand how the ESG factors affect the traditional business risks. Integrating ESG practices into the core business strategy implies that banks' strategic objectives will drive the decisions to adopt sustainable activities instead of executing ESG initiatives as discretionary projects or mere corporate charitable gestures.

There are several approaches to integrating a bank's conventional and ESG-related risks into an expanded sustainable ERM framework. One method is for bank managers to

incorporate sustainability considerations into their decision-making processes (Nițescu & Cristea, 2020; Scholtens & van't Klooster, 2019). Nițescu and Cristea (2020) identified additional bank ESG risk integration strategies: specifying borrowers' ESG responsibilities in the loan agreements and monitoring compliance during the active loan period, and developing and tracking specific ESG-related risk performance indicators. Bank leaders may adopt a broad range of external and internal-focused strategies to integrate their ESG and conventional ERM frameworks. The externally focused approaches enable bank managers to leverage client or borrowers' ESG activities to achieve the sustainability objectives whereas using the internally driven key risk indicators assists them in monitoring the related risk trends and internal performance.

The risk management motivation for banking sustainability has assumed increased importance and supersedes all other considerations (Saeudy et al. (2022). Sustainability risk management became critical for banks to restore stakeholders' trust and rebuild their lost reputation (Saeudy et al., 2022). Bank leaders' emphasis on ESG risk management is further driven by stakeholders' demand that they lead in the global transition to zero-carbon societies and facilitate the emergence of an acceptable economic model that incorporates the costs of ESG externalities into the profit logic (Scholtens & van't Klooster, 2019). Another factor motivating ESG risk management concerns of bank managers is the emerging risk society (Wan-Rosli et al., 2021; Saeudy et al. (2022). Many banks that adopted sustainable finance models following the 2008 financial crisis were motivated by ESG risk management concerns. An effective ESG-oriented ERM

framework requires that bank leaders integrate ecological and social considerations into their business strategies.

The current banking sustainability risk management practices are inadequate. Saeudy et al. (2022) noted that the prevailing approach to managing business sustainability risks across industry sectors is suboptimal, with the growing interdependence and linkages in production value chains aggravating the societal challenge in directly allocating responsibility for ESG risks to the polluters. Bank managers have not demonstrated sufficient accountability for their sustainability obligations, particularly, by maintaining shallow environmental responsibility and underplaying their contributions to global pollution compared to the social and economic components, where they have achieved significant performance (Scholtens & van't Klooster, 2019; Saeudy et al., 2022). The existing banking sustainability models have not comprehensively addressed the related ESG exposures. Banks' long-term survival in the face of emerging market dynamics requires that bank managers improve subsisting banking sustainability risk management frameworks by addressing the business imperatives of the currently overlooked and emerging ESG exposures from changing stakeholders' expectations.

Internal and External Banking Sustainability Practices

The classification of banking sustainability practices by the internal and external dichotomy further highlights the complications in adopting the TBL-oriented model within banks and represents an important consideration in evaluating banking sustainability performance. The complexity of banking sustainability partly derives from

the two-pronged approach, reflecting the strategies for internal operations and externally focused practices underlying their lending and investment portfolio (Moufty et al., 2021; Soumya, 2021; Tóth et al., 2021). The internal and external demarcation supports the evaluation of the focus or direction of the impact of a bank leader's ESG initiatives. The dichotomous CSR categorization is a unique characterization of banking sustainability deriving from banks' financial intermediation roles.

The external banking sustainability component has far-reaching implications for banks' ESG performance and the wider society. Bank managers' external sustainability practices place them in a position to influence the sustainability activities of their customers across industry sectors and create multiplier effects (Soumya, 2021; Tóth et al., 2021). Bank leaders could use the external activities to stimulate positive chain CSR reactions that would transform the sustainability culture of the wider society, such as catalyzing the quest to transit to zero-carbon economies across global regions (Zimmermann, 2019; Tóth et al., 2021). The effectiveness of a bank manager's ESG behaviors and the adopted sustainability framework includes measures of the comprehensiveness and balance between the internal and external aspects. Bank leaders should measure and monitor their ESG performance in both components.

Bank managers have not achieved the appropriate balance in their banks' operations. Antoncic (2021) asserted that external activities accrued more ecological exposures for banks than internal sources, noting that many bank leaders instead emphasized the internal sustainability strategies and neglected external sources. Moufty et al.'s (2021) findings from examining the causal relationship between banking

sustainability and performance supported Antoncic's conclusions about bank leaders' lopsided practices in favor of internal sustainability. Using structural equation modelling (SEM) path analysis, Moufty et al. found significant positive effect of internal sustainability activities on bank performance at .05 significance (α) level (R^2 = .04, β = .14, Critical Ratio (CR = 2.24). Conversely, Moufty et al. found no causal relationship between external sustainability and bank performance (R^2 = .04, β = -.11, CR = -1.61), implying low level of bank managers' engagements in external sustainability practices. Bank leaders' inattention to their external ESG activities depicts a mismatch between the sustainability aspect requiring intervention and their prevailing area of focus. Banks' external sustainability practices appear to hold more improvement promises. A more balanced combination of internal and external sustainability elements may be imperative for the banking sector.

The lending and investment activities potentially hold good promises for improving banks' external sustainability. Bank managers can improve their overall sustainability performance by leveraging enhanced ESG orientation of their core credit and investment practices (Zimmermann, 2019). Zimmermann (2019) identified three ways through which bank leaders could boost their external sustainability to balance the skew towards internal practices: adopting SRI models, applying sustainability-oriented lending frameworks or decision-making criteria, and leveraging the active shareholder option to influence the sustainability conduct of investee companies. Bank managers may achieve better sustainability investment returns and improve overall CSR performance by enhancing the external ESG strategies to reduce the lopsided concentration on internal

exposures. Banks' lending and investing strategies could provide effective instruments for balancing the current tilt in their ESG coverages.

Stakeholder Theory

The stakeholder theory is one of the dominant theoretical frameworks applied to ground studies on business sustainability. The seminal work of Freeman (1984) provided an impetus to the stakeholder concept. Wang et al. (2012) noted that Freeman's stakeholder theory was derived from the earlier input-output production management model, which emphasized the crucial limited relationships between businesses and only four groups: suppliers, customers, workers, and shareholders. Freeman propounded the stakeholder theory that firm managers must actively strive to understand and incorporate the stakeholders' interests in business strategies and design specific programs to address the concerns, when required. Freeman described stakeholders as parties who may affect or be affected by a firm's decisions, including employees, customers, suppliers, service providers, shareholders, lenders, special interest groups and nongovernmental organizations, government or regulators, media, and competitors. Stakeholders may represent diverse and conflicting interests (Freeman, 1984). The stakeholder theory underscores important interactions that should exist between businesses and different segments of wider society. The stakeholder theory emphasized the responsibility of business leaders to identify their relevant stakeholder groups and determine how to adequately address the concerns.

The stakeholder theory highlights the governance processes for creating and allocating financial and nonfinancial values between an organization and its diverse

stakeholders (Amis et al., 2020). Business leaders engage in sustainability activities to address the various stakeholders' concerns (Buallay, 2020). Organizations could apply sustainable business models to satisfy the requirements of diverse stakeholders and secure their cooperation. The strategic sustainability approach supports the adoption of multiple business goals consistent with the stakeholder theory.

Application of Stakeholder Theory in Management Practices. The stakeholder theory has evolved from the discrete theoretical proposition espoused by Freeman (1984) to a cluster model covering several related empirical approaches to firm-stakeholder relations management. Jones et al. (2018) and Fares et al. (2021) noted that the stakeholder theory has come to be viewed more as an aggregation of management theories than a stand-alone perspective because of its extensive deployment across several management disciplines. Fares et al. averred that the proliferation of ideas and practices based on the stakeholder theory had generated about 55 variations of the concept and several empirical models for addressing the common theme of corporate interaction with stakeholders. The management models rooted in the stakeholder theory essentially represent variations in the interpretation and application of the initial thoughts. Some of the divergences in the stakeholder theory have evolved as distinct perspectives on their own.

Conceptual Variations of the Stakeholder Theory. The theoretical variations derive from the emphasis on different aspects of the business-stakeholder relationship in the analysis and application of the basic stakeholder theory. Donaldson and Preston (1995) identified three bases of the stakeholder theory: descriptive, instrumental, and

normative. The three bases respectively highlighted the characteristics, purpose or objectives, and values underlying a business leaders' adoption of the stakeholder approach.

The instrumental variant of the stakeholder theory emphasizes the empirical application in management practices and portrays the relationship between sustainable activities and corporate performance, such as the view that CSR activities could help business leaders to generate superior long-term financial performance (Donaldson & Preston, 1995). In contrast to the traditional stakeholder theory, the instrumental stakeholder theory portrays an underlying relational exchange that enables business managers and staff to accumulate superior stakeholder management competencies that could translate to competitive advantage (Jones et al., 2018). This study on the relationship between organizational sustainability practices and the financial performance of global banks aligns with the instrumental perspective of the stakeholder theory.

Practical Approaches to Organizational Stakeholder Management. The implementation challenges of the stakeholder theory may not be apparent in the conceptual evaluations. For example, whereas the stakeholder theory suggests that business managers pay equal attention to all stakeholders' concerns, they may be constrained in satisfying all groups simultaneously (Omran, 2014). Martinez and Mesa (2021) identified sustainability implementation challenges relating to timing mismatch between sustainable investment outlay versus returns and location-specific constraints. Organizational managers may refrain from adopting a sustainable model based on the strict stakeholder theory because of their operating realities. How business leaders

respond to their operating constraints is essential for the success of the sustainability initiative.

Firm leaders have developed different empirical methods for managing the relationship with stakeholders in response to the constraining factors. Zarghami and Dumrak (2021) asserted that organizational leaders developed a governance framework for stakeholders' relationships based on in-depth analysis under the process, rational, and transactional dimensions. Yanru (2011) posited that operationalizing the stakeholder approach involves integrating the broad cogovernance strategy entailing simultaneous pursuit of different groups' values and contingent governance strategy involving flexibly adapting to stakeholders' evolving agenda. Amis et al. (2020) identified the dimensions of business-stakeholder relations governance: bargaining, centralized reconciling mechanism, prioritization, and situational approaches. The situational approach suggested by Amis et al. is similar to Yanru's contingent strategy. The approaches indicate the array of options business managers could adopt in conforming to the stakeholder theory.

Business leaders may also be faced with scenarios where the stakeholder theory may not be strictly applicable. Martinez and Mesa (2021) noted that managers use the satisficing strategy to make difficult organizational stakeholder-related choices when none of the enabling theories adequately address all the relevant stakeholders' concerns. Amis et al. (2020) indicated that organizations could combine the different approaches, such as appointing an independent director while occasionally prioritizing key stakeholders or negotiating with others, to optimize the outcome. The empirical management practices of the stakeholder view may diverge from the theoretical

postulations. Business leaders require a careful balancing art in combining stakeholder management strategies to suit their operating circumstances.

Business Sustainability Practices and Performance

The linkages between corporate ESG activities and operating performances primarily involve different stakeholder interfaces or interactions through which business leaders can create and manage actual or perceived sustainability reputations. Champagne et al. (2021) and Ziolo et al. (2021) averred that business managers undertake sustainability practices to improve their corporate reputation and meet external obligations. Miller et al. (2020) investigated how banks' CSR reputation and the subsequent changes related to the financial performance and found that initial positive CSR reputation is directly linked to banks' performance (β = .157, p < .001, R^2 = .159, F = 69.6), whereas initial negative CSR reputation was associated to reduced performance (β = -.178, p < .05). Miller et al. also found that incurring negative CSR reputation adversely affected banks' performance (β = -.198, p < .05) and gaining positive CSR reputation was associated with improved bank performance (β = .102, p < .001). Miller et al. concluded that CSR reputation is the link through which business sustainability activities positively connected to the financial performance and how a firm's ESG practices and adverse events change the CSR reputation depends on the public's perception of whether the firm met the expected ESG benchmarks. The benchmark could be based on the firm's past performance, competition, or regulatory requirement (Miller et al., 2020).

Champagne et al.'s (2021) examination of whether firms' extra-financial ratings were associated with ESG events or ESG-related risks provided insight into the underlying factors that could explain the association between corporate leaders' sustainable actions, CSR reputation, and financial risks or performance. Champagne et al. concluded from their findings that the connection between a firm's ESG practices, CSR reputation, and performance depends on whether stakeholders perceived the CSR activities as driven by an altruistic motive linked to a core business strategy or mere cosmetic image laundering objectives in response to ESG-related corporate scandals. Sustainability reputation management is an essential element of a firm's CSR practices because it could influence the stakeholders' views of the firm and the organizational outcome by projecting an external image of corporate transparency and social responsibility (Champagne et al., 2021). A company leader's efforts to enhance the stakeholders' perception or understanding of the CSR practices could be as important as the core sustainable activities deployed. Business managers should emphasize the reporting aspect in their sustainable business models to create appropriate stakeholders' awareness of their activities.

How a business manager could use CSR practices to demonstrate value cocreation and address the specific interest of various stakeholder groups provide further perspectives into the link between business sustainability practices and performance. Bugandwa et al. (2021) noted that business leaders use CSR activities to create multiple values for diverse stakeholders, which could trigger their positive reciprocation and enhanced business performance. A strong CSR performance could lower a firm's

financial risks by improving the relationships with diverse stakeholders and creating more stable cash flows for investing in managing financial risks to achieve strategic goals (Champagne et al., 2021). Such mutually reinforcing exchange ensures that the interests of the organization and stakeholders are collaboratively sustained over a long term. Further, the responsibilities of business leaders and stakeholders should evolve over time with the changing interests or expectations of the other. How CSR facilitates value cocreation between businesses and specific stakeholder groups may be an important determinant of the managers' sustainability decisions.

Chen and Zhang (2021) noted that for shareholders, business leaders could use CSR to create product differentiation, which hedges them against systemic and firm-specific risks through enhanced earnings resilience and shareholders' value, and ensures continuing shareholders' support. Chen and Zhang indicated that business managers could use CSR to correct information asymmetry with customers, which improves customer satisfaction and brand loyalty, and mitigates corporate income volatility by increasing the likelihood of market acceptance of premium pricing for sustainable products and services. Bugandwa et al. (2021) stated that each CSR dimension has a positive connection with customers' trust in banks, critical for their repeat patronage and referral prospects, with positive impacts on the banks' sustainable profitability and long-term survival.

CSR-oriented employment policies supporting staff with the required work incentives and a fair reward and compensation system enhance employee productivity and reduce legal risks of unfair labor practices for the business (Chen & Zhang, 2021).

CSR could improve supply chain processes and terms of exchange, such as enhanced trade credit, which creates operational stability with the potential to improve firm performance (Chen & Zhang, 2021). Sustainability-oriented business leaders use CSR to address information asymmetry with investors and create optimistic investors' perception of their operations as low-risk and attractive investment options, which increases the prospects of enhanced funding and cheaper pricing for the business, translating to lower cost of capital (Chen & Zhang, 2021; Zharfpeykan, 2021). Stakeholders derive positive values from CSR practices and contribute to enhancing the firm's value through positive impacts on various micro-operating performance variables.

Another channel through which banks can use CSR to boost corporate performance is sustainability-related efficiency improvements. Ziolo et al. (2021) stated that banks could adopt a sustainability approach to gain economic efficiencies and enhance their value-creation capabilities. Martinez-Campillo et al. (2020) applied Network Slack-based DEA model (NSBM) to evaluate the social and financial efficiencies of sustainable banks' operations and whether their dual social and financial goals conflicted. Though the efficiency of both business models were adequate, Martinez-Campillo et al. concluded that the bank managers achieved higher allocative efficiency in pursuit of their social objectives (mean = 74.96%, range = 41.79%–100%) than financial objectives (mean = 71.97%, range = 41.35%–100%), implying better use of resources in executing programs that generate ethical and socially responsible values. Martinez-Campillo et al. also found that the managers of sustainable banks achieved significant synergy or compatibility in social and financial efficiency (Spearman's

coefficient $P_{SOC\text{-}FIN} = .83$, $p < .01$; $\beta = 6.449$), dispelling the concern about likely social banks' mission drift arising from a conflict between the social and financial goals. CSR activities enable firm leaders to improve operational efficiency through savings in resource utilization and costs, translating to improved performance. The value cocreation and enhancing potential of strategically deployed CSR activities derive from an organizational positive and mutually reinforcing interface with the diverse stakeholders and the associated internal efficiency benefits.

Leveraging of Sustainable Banking Innovations to Improve Performance

Bank managers can implement sustainability-oriented and innovation initiatives as discrete projects for achieving organizational performance improvements. Forcadell et al. (2019) described innovation as new processes, services, or product offerings that represent fundamental technological, organizational, or business model changes. Sustainable banking is a strategic approach to developing and deploying financial products and services to achieve economic, social, and environmental objectives, thus meeting diverse stakeholders' concerns (Igbudu et al., 2018; Forcadell et al., 2019; Zahid et al., 2021). Banking innovation initiatives are not necessarily stakeholder-centric and may be restrictively applied to only improve the internal processes whereas sustainability initiatives are intrinsically stakeholder-focused. Each type of initiative offers significant beneficial potential to organizations.

Bank leaders could deploy both innovation and sustainable initiatives for organizational improvements. Forcadell et al. (2019) and Zahid et al. (2021) noted that banking innovation or sustainability projects could separately unlock transformational

business models underlying opportunities for improving banks' strategic advantage, financial performance, and stability by facilitating brand differentiation, new market entry, early-bird benefits, and enhanced reputation. Forcadell et al. further indicated that the intangible nature of banking products and services and the ease competitors could offer ersatz alternatives make the differentiation value derivable from either innovation or sustainable initiatives a crucial strategic advantage in the banking industry. The differentiation and other overlapping advantages of sustainability and innovation initiatives create vital nexus that justify their complementary deployment in the banking sector. Bank managers should take added steps to optimize the results from combining both initiatives.

The potential synergy and common transformational benefits of banking sustainability and innovation do not automatically accrue from their random simultaneous implementation. Forcadell et al. (2019) noted that the substantial complementarities between service innovation and sustainability in the highly competitive banking sector compel a deliberate strategy to deploy sustainability-oriented innovations, as each does not necessarily give rise to the other. From another study, Forcadell et al. (2020) found that isolated digitalization (β = -.11.3, $p < .001$, $R^2 = .316$; β = -8.035, $p < .001$, $R^2 = .299$) or CSR (β = -.464, $p < .05$, $R^2 = .316$; β = -.491, $p < .001$, $R^2 = .299$) initiatives are inversely related to the market performance of international banks whereas the interaction effect from optimally combining banks' digitalization and sustainability projects is positively related to the market performance (β = 174.86, $p < .05$, $R^2 = .316$; β= 245.695, $p < .05$, $R^2 = .299$). Forcadell et al. concluded that sustainable innovation projects could

improve banking performance compared to randomly deploying discrete innovation and CSR initiatives. The operational and strategic alignments between banks' innovation and sustainability projects are essential for optimizing the derivable financial and nonfinancial benefits. Deploying sustainability-compliant innovation initiatives could enable bank managers to enhance their performance and secure more balanced diverse objectives.

Bank leaders could flexibly focus sustainable innovations on specific aspects of their business models. Sustainable banking is analogous to sustainability-oriented innovation (SOI) in other sectors, and involves initiatives designed to achieve multiple ESG values from core banking activities (Igbudu et al., 2018; Jum'a et al., 2022). The three dimensions of sustainable practices relevant to banking, as a service: technological, social, and organizational sustainability (Igbudu et al., 2018) and those of SOI applicable to the non-services sectors comprising product, process, and organizational innovations (Ceptureanu et al., 2020; Jum'a et al., 2018) mirror each other. Bank managers can leverage innovations to drive their sustainability performance by incorporating ESG objectives in the different aspects of service and product innovations (Forcadell et al., 2019). Bank leaders' leeway to apply sustainable innovations within the narrow business model elements enhances their adaptability in the conception, scaling, and implementation of sustainability initiatives. Some studies have demonstrated how bank managers have effectively deployed sustainability-compliant innovations.

Forcadell et al. (2019, p.3) noted that emerging technological changes have facilitated redesigning of the banking approach from “brick and mortar to click and

mortar". Forcadell et al. developed three dimensions of a broad sustainable innovations framework adopted by bank managers: innovation performance determinants, innovation programs, and innovation-enabled corporate sustainability objectives. Zahid et al. (2021) developed and validated a sustainability measurement scale for branchless banking innovation comprising six dimensions: economic, environmental, human rights and ethics, labor practices and decent work, product responsibility, and social sustainability. The variations in sustainable banking innovations framework identified by Forcadell et al. and Zahid et al. highlighted the divergences in banking sustainability strategy among the players. Evolving towards harmonization to achieve commonality of sustainable practices and strategic models within the financial sector could facilitate its wider adoption and corporate performance comparisons.

The increasing adoption of sustainable banking technologies and other compliant innovations is creating an emerging era of transparency and trust for banks and their stakeholders. Forcadell et al. (2020) and Zahid et al. (2021) indicated that aligning banking innovation with sustainable initiatives helps address the inherent trust deficit in bank–customer relationships, noting that trust is vital in strengthening digital-oriented bank-client interactions. Infusing a sustainability orientation into banking digitalization innovation to create a strategic alignment would reduce the information asymmetry for both banks and customers, improve their mutual trust, and generate synergistic effects that enhance the overall performance of banks (Forcadell et al., 2020). Financial services innovations anchored on digitalization and data analytics capabilities could generate considerable sustainability potential for banks and customers. Bank managers could

consider the additional costs of sustainability-related innovations as investments in intangible assets, such as company image and customer loyalty, which creates organizational synergy and optimizes the inherent stakeholder values from both innovation and sustainability phenomena.

Strategic Approaches to Banking Sustainability

Banks' sustainability strategies depict the methods they adopted to attain an appropriate mix of ESG objectives. Zimmermann (2019) described sustainability strategy as the approach business managers deployed to achieve a target blend of resilient economic expansion, ecological diversity, and social balance for both the organization and stakeholders. Financial institutions' managers tend to pursue sustainability objectives for organizational image enhancement and to meet stakeholders' expectations, especially customers or clients, to sustain their loyalty and trust by demonstrating adherence to transparency and accountability (Lopez et al., 2020; Pascual et al., 2021). A bank's sustainability strategy has an import on the public image, allocation of resources to meet stakeholders' expectations, and management of the core work processes (Pascual et al., 2021). Managing the external stakeholders' relationship is an important element of an effective banking sustainability strategy. The core of financial intermediation roles and fiduciary obligations of banks within the society justifies the criticality of securing public trust in their sustainability strategies.

Bank leaders could adopt varying strategic approaches to sustainability management. Bank's sustainable investment strategies have developed from negative screening, positive or best-in-class screening, norms-based screening, sustainability-

themed investing, positive impact investing, shareholder advocacy to the current ESG integration approach (Dziawgo, 2019). The progression of banking sustainability strategies corresponded with the evolution of the sustainable finance concept from few religion-inspired investing ethics to elaborate use of ESG factors in investment decisions (Dziawgo, 2019). Zimmermann (2019) identified the broad methodical approach to corporate sustainable strategy comprising four elements: strategy logic, strategy process, strategy content, and strategy context. Zimmermann and Ziolo et al. (2021) noted further granular dimensions of the systematic sustainability approach, representing incremental sustainability maturity levels: narrow strategy, peripheral strategy, balanced strategy, and integrated strategy with a social or environmental focus. The integrated social or environment strategy options are equivalent and the highest sustainability maturity levels, reflecting a formal strategic bias towards social or environmental causes (Zimmermann, 2019; Ziolo et al., 2021). The improvements underlying the evolution from the narrow to integrated strategy highlight intensifying embedding of sustainability criteria into resource allocation decisions across the various elements of the organizational business model.

Another broad approach to corporate sustainability strategy is the impact assessment method. Lopez et al. (2020) identified three sustainability models under the impact assessment approach: synthetic impact measures, models emphasizing impact assessment processes, and measures driven by the balanced scorecard model. Under the impact assessment approach, business leaders should emphasize the impact potential of

the chosen dimensions to optimize the stakeholders' values in determining the appropriate sustainability strategies.

Using the impact assessment approach, bank managers could achieve high-impact sustainability performance by adopting various configurations. In separate studies, Lopez et al. (2020) and Pascual et al. (2021) highlighted the centrality of a customer-focused strategic priority among the high-impact generating sustainability configurations for banks, based on the five pillars of the certified B corporation (CBC) sustainability model. Lopez et al. and Pascual et al. identified other combinations with relative high-impact potential in decreasing priority to include an emphasis on the governance, employees, and community dimensions. Pascual et al. stated that bank leaders' high-impact sustainability achievements from configurations incorporating the governance and community dimensions of the CBC model reflect rising stakeholders' requirements for increased transparency, integrity, and accountability in the banking industry. Availability of a variety of effective strategic options allow organizational leaders to incorporate local green or social specifics, a focal stakeholder's unique concerns, or operational peculiarities into their sustainability approaches (Pascual et al., 2021). The sustainability configurations accounting for high-impact performance of banks were dominated by social and governance practices.

Climate-related policies do not appear critical for improving sustainability performance under subsisting CSR dispensation within the banking sector. Lopez et al. (2020) indicated that banks that achieved high sustainability impact scores under the CBC model focused less on the environmental dimension than other aspects. Pascual et

al. (2021) noted that banks attach instrumental value to environmental concerns as they tend to consider climate-related issues only after meeting the short-term interest of their shareholders and focus less on ecological causes when contending with poor financial outcome or low reputation with shareholders. Lopez et al. indicated that there is an evolving market for SRIs, propelled by an emerging class of impact investors and other stakeholders focused on firms' nonfinancial performance. Lopez et al. asserted that the current environmental finance market, characterized by the poor climate outcome in the banking sector, represents a market opportunity, which bank leaders could harness to improve their sustainability performance and firm value by adopting a climate-oriented strategy.

Bank managers could also adopt increasing environmental values to achieve a balanced strategic approach to sustainability. Pascual et al. (2021) stated that bank leaders tend to achieve better impact when one aspect of the sustainability practices is not over-emphasized to the detriment of other dimensions, irrespective of the criticality of its contribution to achieving a high impact, thus underscoring a comprehensive sustainability strategy for high-impact achievement and firm performance. Pascual et al. added that striking a balance between the various sustainability dimensions would enable a bank manager to achieve a more significant strategic advantage by concurrently addressing the concerns of the diverse stakeholders and optimizing the sustainability values. A bank leader could create market differentiation and a competitive advantage by adopting a climate-focused sustainability strategy early. A comprehensive sustainability strategy could support a bank manager in meeting the expectations of multiple stakeholders,

which would enhance the bank's public image, improve its legitimacy within the operating society, and the long-term survival prospects.

Rival Theories of the Theoretical Framework

The institutional and legitimacy theories are alternatives to the theories adopted for this study. Researchers apply stakeholder, legitimacy, and institutional theories to ground studies on organizational sustainability practices (Dong et al., 2021; Islam et al., 2021). The legitimacy theory aligns with the core tenets of the stakeholder theory (Elalfy et al., 2021). The institutional and legitimacy theories were discussed in subsequent sections.

Institutional Theory

Paul DiMaggio and Walter Powell propounded the institutional theory in 1983 (Alsharari, 2020). DiMaggio and Powell (1983) posited in the institutional theory that institutional factors within the functional domains of organizations generally influence their conduct. Businesses operating in a contiguous setup are subject to the same institutional pressures and could adopt analogous practices, called isomorphism, from three critical homogenizing sources: coercive, normative, and mimetic forces (DiMaggio & Powell, 1983). DiMaggio and Powell further stated that organizational homogenization is more entrenched as businesses get more established or older in a domain than at the outset.

DiMaggio and Powell (1983) explained coercive isomorphism as the pressure from other organizations on which the focal business depends, cultural expectations, and the state. Coercive isomorphism reflects sustainability practices where management

prioritizes the interests of stakeholders that exert power over the business, such as laws requiring firms to comply with sustainability reporting regulations and tax edicts (Dong et al., 2021). DiMaggio and Powell described mimetic isomorphism as businesses emulating other organizations' behavior, particularly under uncertainty induced by unfamiliar technologies, complex goals, and ambiguous operating environments. For example, firms could adopt new innovative solutions by modeling the practices of successful organizations and replicating business practices through employee turnover, trade associations, or consultants (Kılıç et al., 2021). DiMaggio and Powell explained that normative isomorphism derives from the specialist capacity-building roles of the universities and professional bodies that could influence business conducts. For example, practitioners could replicate a professional group's codes of conduct, regulations, and practice guidelines across the organizations where they are employees to create common business practices (Alsharari, 2020). Businesses could develop homogeneous sustainability conducts in response to institutional pressures from common isomorphic antecedents within the operating environment (Dong et al., 2021; Kılıç et al., 2021).

Legitimacy Theory

The legitimacy theory was expounded by Mark Suchman in 1995 (Buallay, 2020). Suchman (1995) described legitimacy as the condition that holds when there is value congruency between organizational behaviors and societal norms. Legitimacy is the communal perception of a firm's activities as “desirable, proper, and appropriate,” and therefore acceptable, within the context of socially defined norms, cultural values and beliefs, and standards (Suchman, 1995, p. 574). Buallay (2020) indicated that an

underlying social contract between the community and the business drives organizational legitimacy. Buallay explained that the firm utilizes society's natural, financial, and human resources to achieve its objectives, for which it is accountable to society. For example, businesses can adopt sustainable practices to improve their legitimacy by demonstrating responsible and appropriate use of society's resources (Mans-Kemp & Van der Lugt, 2020). Mans-Kemp and Van der Lugt (2020) added that a firm's actual or perceived violation of the social contract could erode its legitimacy within the community and threaten its long-term survival, as the society could withdraw its license to operate by denying it vital resources.

Legitimacy is an important driver of sustainable business decisions. According to Zharfpeykan (2021), legitimacy is a crucial resource that could confer a competitive advantage to firms. The legitimacy theory provides the motivation for organizational sustainability practices and underscores management's responsiveness to evolving stakeholders' concerns (Islam et al., 2021; Zharfpeykan, 2021).

Independent Variables: Environmental, Social, and Governance Risk Management Scores

The independent variables for this study were the ESG risk rating scores. The ESG variable is a macro or compound construct depicting the dynamic exchange between an organization and the operating environment (Tien et al., 2020; Qureshi et al., 2021). Qureshi et al. (2021) indicated that researchers adopted different measurements and methodological approaches for organizational ESG activities. Tien et al. (2020) noted

that empirical measurement of corporate CSR, in most cases, involves tallying relevant organizational achievements on multiple criteria into a single indicator.

One of the ESG measurement approaches is the zero-one method, which involves the researcher using appropriate instruments to collect primary data and evaluate the comprehensiveness of corporate ESG practices compared to an identified benchmark (Khattak, 2021). Mahmood et al. (2021) applied the zero-one approach, using data generated from a survey of manufacturing companies listed on the Pakistan Stock Exchange, to investigate the relationship between CSR activities and CFP. Mahmood et al. proxied the ESG variables by CSR perception, measured using the questionnaire by Maignan and Ferrell, and CSR disclosure indicators, measured by the CSR disclosure index. Mahmood et al. assessed the validity and reliability of the CSR perception and CSR disclosure variables using Cronbach's alpha (Alpha = .915, .772), Composite Reliability (CR = .93, .79), Average variance Extracted (AVE = .71, .53), and Maximum Shared Variance (MSV = 391, .24). Brand et al. (2022) conducted a study partially focusing on the connection between CSR practices and financial performance among Swiss companies. Brand et al. measured CSR using an online survey questionnaire instrument based on a five-point Likert scale. Brand et al. tested the instrument's reliability and validity using a pilot test on an independent sample.

Another broad approach to ESG measurement in studies involves the wholesale adoption of data obtained from repositories maintained by public corporate sustainability rating firms. Database ESG scores are measurements of organizational performance, based on a set of predefined ESG criteria (de la Fuente et al., 2021). Lee and Suh (2022)

observed increasing use of public agencies' ratings to measure ESG variables in studies. In the study by Buallay et al. (2021) to investigate the relationship between sustainability reporting and CFP of banks operating in both developed and developing markets, the ESG scores obtained from the Bloomberg database were applied to measure the ESG variables. Daszyńska-Żygadło et al. (2021) applied the ESG scores from the Refinitiv database as the proxies for the CSP construct to evaluate the association between CSP and CFP of banks in the Americas, Europe, Middle East and Africa, and Asia Pacific. Duque-Grisales and Aguilera-Caracuel (2021) adopted the ESG scores from the Thomas Reuters EikonTM database to measure the ESG variables in the study to evaluate the ESG-CFP relationship among multinational companies across seven industry sectors in Brazil, Mexico, Chile, Peru, and Colombia.

Previous researchers who proxied ESG variables using the database ESG scores obtained from rating agencies did not conduct additional instrument validity and reliability checks. In addition to Buallay et al. (2021), Daszyńska-Żygadło et al. (2021, and Duque-Grisales and Aguilera-Caracuel (2021), the database ESG ratings obtained by Abdi et al. (2020), Bătae et al. (2020), and de la Fuente et al. (2021) from Refinitiv Eikon, and Yilmaz (2021) from Sustainalytics were not subjected to instrument validity checks. The wholesale adoption of rating agencies' data without added validity checks could be partly because researchers cannot access the rating firms' proprietary instruments and measurement approaches, and could also suggest implicit reliance on the agencies' instruments for deriving the ESG data.

Moderating Variable: Firm Size

The moderating variable for this research was bank size. Firm size drives business operational scope and could contribute to organizational performance. Duque-Grisales and Aguilera-Caracuel (2021) noted that business size is a relevant factor for evaluating CFP because of its inherent capacity-enhancing potential, such as leveraging scale economies for sustainable investments. Lin et al. (2021) indicated that company size is directly related to organizational financial ability or resource availability, which could impact the operating results. Khattak (2021) asserted that larger sized banks tend to have more operational stability, which could translate to better financial performance, compared to smaller banks.

Firm size is one of the common organization-specific attributes applied as a contingency variable in evaluating the relationship between organizational ESG and CFP (Huang, 2021; Lee & Suh, 2022). Lin et al. (2021) concluded that firm size had a negative moderating effect on the CSR–financial performance relationship. The findings from most studies demonstrated that the positive moderating role of firm size on the ESG-CFP linkage is higher for larger firms compared to smaller organizations (Lee & Suh, 2022). However, Huang (2021) noted that the results of a few studies suggested that the smaller the firm size, the stronger the ESG-CFP relationship.

Researchers adopted different variables to measure firm size. Daszyńska-Żygadło et al. (2021) applied market capitalization and sales growth as proxies for organizational size, and adopted them as the study's control variable. Duque-Grisales and Aguilera-Caracuel (2021) applied annual sales value to measure firm size as a control variable in

the research model. Tien et al. (2020) and Khattak (2021) adopted total assets as a proxy for firm size used as the control variable in their studies. The different measures for the firm size variable could result in divergences in the findings of the various studies.

Dependent Variable: Financial Performance

The study's dependent variable was financial performance. Financial performance has emerged as a valid and reliable indicator of organizational outcome. Lin et al. (2021) noted that financial performance is one of the universally accepted bases for evaluating the results of business activities. There are various broad classifications of CFP measurements. Huang (2021) identified the dimensions of CFP measures as market, accounting, and operational-based metrics. Lee and Suh (2022) identified three basic categories of the CFP variable: market-based, accounting, and perceptual measures. The fourth group, composite variables, is derived from the core market and accounting-based indicators, such as the operational, economic, and efficiency performance measures (Lee & Suh, 2022).

Lee and Suh (2022) noted that the market-based performance variables reflect corporate performance information from the financial markets. Huang identified the market-oriented financial performance proxies to include share prices, stock returns, Tobin's Q (Q), and the price-earnings ratio. Lee and Suh indicated that the accounting measures are derived from financial statements and depict profitability and value-adding achievements from organizational resource use efficiencies. Huang identified the following accounting-oriented performance variables usually adopted by banks: ROA, ROE, return on investment (ROI), earnings per share (EPS), and return on sales. For

banks, ROA is more reliable than ROE as a measure of profit performance, given that it is less susceptible to leveraging (Daszyńska-Żygadło et al., 2021). Lee and Suh identified other accounting measures usually applied in studies, including the return on capital (ROC) and return on capital employed (ROCE). The perceptual variables involve independent opinions and feedback on a firm's financial achievements from the management, workers, or customers, such as brand equity value measured by consumers' brand preferences, client loyalty, and shareholder loyalty metrics (Lee & Suh, 2022).

CFP variables could pose some challenges in evaluating ESG-CFP associations. Lee and Suh (2022) noted the complications from likely differences in the timing or occurrence of the ESG activities and financial outcomes applied to study the linkages. Huang (2021) and Lee and Suh indicated that the CFP variables represent firm-level measurements and a higher unit of analysis than the corresponding measures of ESG activities applied in studies. Lee and Suh recommended adopting, instead of CFP variables, first-order or sub-entity performance constructs, such as microcost- and revenue-based measures, which more closely align with the level of ESG activities and could give more relevant information on the ESG-CFP nexus. Using microperformance data has the risk that external stakeholders' access to such granular organizational cost and revenue information may be frustrated by firms' confidentiality considerations.

The accounting and market-based measures have been widely applied to proxy CFP, as the dependent variable, in several studies examining ESG-CFP linkages. Buallay et al. (2020) used ROA, ROE, and Tobin's Q, as dependent variables to investigate the relationship between sustainability reporting and CFP for banks operating in developed

and emerging societies. Khattak (2021) examined the association between CSR activities and the financial performance of banks within Muslim societies, using ROA and ROE to measure the dependent variable, CFP. Daszyńska-Żygadło et al. (2021) adopted Tobin's Q and ROA as CFP measures for the study on the CSP-CFP relations for banks operating across global regions. Daszyńska-Żygadło et al. noted that the study's results demonstrated that ROA was positively related to banking stability.

Transition

The introductory discussions in Section 1 of this study comprised the background to the business problem, problem and purpose statements, and the specific RQs and hypotheses that were addressed. The discussions in the problem and purpose statements of this quantitative ex-post facto study contained highlights of the business sustainability issues facing some international banks. Section 1 also contained discussions on the TBL and stakeholder theories adopted as the theoretical framework to ground the research problem. Lastly, the discourse in Section 1 covered the alternative theories, relevant study variables, and relevant measurement metrics to the research.

Section 2 contained the research methodology and design adopted for this study and the justifications for selecting the quantitative ex-post facto research design. Section 2 also included the measuring instrument, data collection, and statistical analysis technique chosen for the study. The presentations in Section 3 covered the research findings, application to professional practice, implications for social change, recommendations for action, and proposals for further research.

Section 2: The Project

Purpose Statement

The purpose of this quantitative ex post facto study was to examine the relationship between organizational ESG risk management and financial performance, as moderated by firm size. The independent variables were the ESG risk management ratings, and the dependent variable was financial performance. The organization-specific moderating variable was firm size. The target population for the study consisted of global banks located in the Americas, Europe, Africa, and Asia.

Role of the Researcher

A researcher's worldview underlies the decisions they make regarding the research process and defines their role with respect to data collection and ethical research concerns (Ehwi et al., 2022; Saunders et al., 2016). Adoption of the quantitative research method in studies suggests that the researcher subscribes to a positivist philosophy (Strijker et al., 2020). Saunders et al. (2016) noted that the positivist research paradigm involves studying observable, objective organizational reality to produce generally applicable principles, using empirical methods to generate factual data that are not subject to an individual's interpretation and biases. The role of a quantitative researcher is to collect accurate numerical data and apply suitable statistical procedures to objectively evaluate, explain, and predict social phenomena (Farmer & Farmer, 2021). I obtained and analyzed secondary numerical data for this quantitative research using independent procedures, which I believe minimized personal biases that might have affected participant selection, data collection, and interpretation. The combined application of a

structured methodology, quantifiable observations, and appropriate statistical techniques in a quantitative study supports the researcher's objective evaluation of the evidence and conclusions (Al-Ababneh, 2020).

The researcher's role extends to conducting research in an ethical manner (Knight, 2019). To address the relevant ethical concerns, I followed the plan approved by Walden University Institutional Review Board (IRB) and the protocol set forth in the *Belmont Report* in completing this study. A research ethics committee or IRB assesses a researcher's plan for adhering to required ethical codes and provides approval to proceed with the intended study (Braun et al., 2020). IRB processes cover the collection and application of secondary data (Keeler & Curtis, 2022); which is relevant to this study. The objective of research ethics is to safeguard research participants by preventing their ill treatment and fatigue during the research (Mrisho & Essack, 2021).

A critical ethical consideration in undertaking a study is the selection of suitable research subjects to ensure that the data collection procedures, as may be permitted by the ethical factors relevant to the study, generate valid data for analysis (Saunders et al., 2016). Saunders et al. (2016) explained that researcher bias relates to factors that introduce the researcher's prejudices into data collection and analysis, such as allowing subjective perspectives to influence accurate data recording and interpretation. Knight (2019) stated that observing ethics guidelines in studies involving human participants is more crucial when using interactive data collection techniques, such as interviews, workshops, and ethnographic observations. I did not maintain close relationships or interactions with the participants because I analyzed secondary data in this study and

therefore had no contact with participants. Knight noted other ethical issues in studies involving human participants, including confidentiality, anonymity, privacy, and consent. Analysis of publicly accessible secondary data could mitigate potential ethical concerns relating to the data and participants, such as anonymity and informed consent, sensitivity to information, and unintentional researcher bias (Stommel & de Rijk, 2021). I analyzed secondary data for the study. The focus of this study on nonhuman participants and using publicly available data could minimize the requirements for participants' privacy, confidentiality, and consent.

Participants

The participants in the study were international banks operating across global regions. The main eligibility criteria for the participants were that the banks have international operations across at least two countries and that ESG data be available in the Sustainalytics database. To access the participants' data, I paid subscription fees to the Sustainalytics database owners for 1 year commencing from December 2022, which covered the duration of the data collection phase for this study. I also paid subscription fees to access participants' data in the FitchConnect database relating to the financial performance and firm size variables.

This study did not require a strategy for instituting and sustaining a working relationship with participants and protecting them from harm because the data collection approach did not involve direct interaction with human participants. The participants for the study were corporate entities, and the data generated for analysis were preexisting

archival information. Saunders et al. (2016) and Edwards (2020) stated that consideration of the ethical issue of informed consent of participants is not imperative when the research does not involve human participants. Focusing the study on nonhuman subjects allayed the requirement to develop a plan for protecting the participants.

Research Method and Design

Research Method

Research methodology preferences influence decisions relating to the research processes, such as research design, sampling, and data collection and analysis, and reflect on the quality of the study results (Ehwi et al., 2022; Hitchman & Chetter, 2020). The RQs and theoretical framework for a study inform the choice of the research methodology (English, 2021). The broad classifications of research methodology used in business studies are quantitative, qualitative, and mixed methods (Draper et al., 2021; Ehwi et al., 2022; Scalcău, 2020; 2021). Ragin and Amoroso (2019) and Hitchman and Chetter (2020) noted that researchers who use the quantitative and qualitative methods follow distinct verifiable and systematic approaches to generate evidence and analyze data, consistent with the variations in their requisite data attributes and study goals.

Scalcău (2021) indicated that the quantitative methodology assumes the existence of a fixed, measurable, universal reality, which can be objectively established. Ragin and Amoroso (2019) stated that the quantitative method is suitable for understanding general trends, evaluating the associations among variables, testing hypotheses, and predicting outcomes. Buallay et al. (2021), Khatak (2021), and Lin et al. (2021) used the quantitative approach to evaluate the association between sustainable practices and CFP.

Hitchman and Chetter indicated that researchers apply the quantitative method to address RQs with reasonably accurate numerical measures. The quantitative research method supports research quality and credibility by enabling the researcher's control of the critical factors that enhance a study's validity and potential generalizability, including sampling, consistency of constructs, and statistical confidence (Ehwi et al., 2022).

The quantitative researcher uses statistical analysis of defined attributes of a phenomenon of interest, expressed in quantitative terms, to reach an objective and generalizable conclusion (Safranko & Hašková, 2021; Scalcău, 2021). The quantitative method was appropriate for this study because it supported the research goal to examine the relationship between variables and derive reasonably generalizable conclusions. The qualitative method involves exploring an individual's ideas, experiences, and perspectives on a phenomenon and its meanings within defined contexts (Baker et al., 2022; Hitchman & Chetter, 2020). Gabeshi (2021) and Ehwi et al. (2022) stated that qualitative research is associated with the interpretivist worldview. Delgado-Hito and Romero-Garcia (2021) and Ehwi et al. noted that the qualitative method enables the researcher to understand social phenomena in detail, develop data-driven theories using the inductive reasoning process, and gain insight into the essence and meanings of individual participants' experiences.

The goal of this research was not to understand the meaning of social constructs based on an individual's experience. Mixed-methods research entails the combination of quantitative and qualitative approaches in a single study (Al-Busaidi & Al-Muharrami, 2021; English, 2021; Hitchman & Chetter, 2020). The motivations for conducting mixed-

methods studies include addressing data insufficiency or fully explaining earlier findings, providing a more robust basis for generalizing the original results from one method, and ensuring an in-depth understanding of research objectives (Faems, 2020; Strijker et al., 2020; Zhang et al., 2021). The qualitative method, as a stand-alone or an aspect of the mixed method, was unsuitable for this study because the objective was not to understand the meaning of social constructs from participants' experiences or resolve data inadequacy in earlier studies. Therefore, I did not use the qualitative or mixed-methods approaches in this study. I adopted the quantitative method because the goal of this study was to examine the connection between variables.

Research Design

The research design of a study provides a coherent structure for the key procedures that are used to address the RQ (Farmer & Farmer, 2021). Research design reflects the strategies deployed for sampling, variable constructs and measurements, and data collection and analysis to achieve defined research objectives (Ehwi et al., 2022; Garg & Kumar, 2021). Draper et al. (2021) and Farmer and Farmer (2021) stated that each research method or the underlying type of RQ has a specific set of compliant research designs. Rooney and Evans (2019) and Lobmeier (2010) noted that the three broad classifications of research designs amenable to the quantitative study method are experimental, quasi-experimental, and nonexperimental designs.

Rooney and Evans (2019) and Lobmeier (2010) stated that experimental designs are applied to establish causal relationships among the research variables, and the researcher can manipulate the independent variables and randomly allocate participants to

study groups. Researchers adopt quasi-experimental designs for determining cause-and-effect relationships, and the researcher can only have some control over the independent variables but not assign members to study groups (Lobmeier, 2010; Rooney & Evans, 2019). The experimental and quasi-experimental designs were inappropriate for this study because the focus was not to establish causality among the variables and the research did not involve manipulating the independent variables.

Researchers apply nonexperimental designs to examine the relationships among the variables of study interest (Lobmeier, 2010). Farmer and Farmer (2021) noted that nonexperimental designs are also called correlational research designs and identified the underlining characteristics, including the researcher's inability to manipulate the independent variables, and no emphasis on causation. The nonexperimental research design involves the investigation of existing factors without manipulation and has inherent attributes of simplicity and low level of errors (Safranko & Hašková, 2021). Lobmeier (2010) indicated that the focus of nonexperimental designs on preexisting participants in their natural locations, instead of laboratory environments, supports the study's external validity, as the design could be replicated in other real-life settings to enhance the potential for generalization of the research findings.

A nonexperimental design was the most appropriate for this study to investigate the relationship between variables because it did not involve manipulation of the independent variables or determining causation. Lobmeier (2010) identified different types of nonexperimental designs, including comparative, developmental, one-group pretest posttest, posttest-only nonequivalent control group, and ex-post facto designs. The

ex-post facto design entails conducting a study after the event of research interest and could involve using secondary data (Silva, 2010). In the ex-post facto, also known as after-the-fact design, the researcher examines evidence of the uncontrolled facts of the dependent and independent variables in retrospect to establish the relationship between them (Silva, 2010). The ex-post facto design was the appropriate specific research design for this study because it involved using archival data to evaluate the relationship between banking ESG risk management and financial performance.

Population and Sampling

The population investigated in this study were global banks operating in a minimum of two countries across the Americas, Europe, Africa, and Asia, and whose ESG scores were available in the Sustainalytics organization's database. The selected population aligned with the RQ of whether international banks' adoption of sustainable practices is related to their financial performance. The availability of ESG data was the primary consideration for sample selection. Ragin and Amoroso (2019) noted that sample selection is vital in quantitative research, as researchers usually have constraints studying entire populations of interest. Ragin and Amoroso added that the selected sample for a quantitative study should be a suitable representative of the focal population to support the crucial requirements for generalization and parsimony, achieved by extrapolating explanations from a few members.

Researchers could adopt two broad sampling approaches, namely: probability and nonprobability sampling techniques (Banning, 2021; Curtis & Keeler, 2021). Probability sampling techniques involve the adoption of a selection rule in which the probability of

including a member of the population in the sample can be established (Diaz de Rada & Martinez, 2020). Probability sampling methods are more appropriate than nonprobability sampling when the objective is to select an adequately representative sample that provides a valid basis for drawing inferences on the population (Banning, 2021). Curtis and Keeler (2021) indicated that probability sampling is considered the benchmark sampling approach in quantitative research, based on the potential to improve generalizability and reduce sample bias, thereby enhancing overall study validity. I applied the probability sampling technique for this study because it supported the selection of an unbiased representative sample from the population.

The three dimensions of probability sampling are simple random, systematic, and stratified sampling techniques (Banning, 2021). Simple random probability sampling is a sample selection technique in which the chances of choosing each participant are equal (Banning, 2021; Curtis & Keeler, 2021). I adopted the simple random sampling technique for this study because it involved a simple approach to mitigating bias by providing all participants in the population a fairly uniform chance of selection. Curtis and Keeler (2021) identified the following means or processes for achieving random selection of participants: (a) random-digit-dialing telephone survey, (b) computerized randomizing device, (c) spreadsheet randomization mechanism, (d) random number table, and (e) manual coin-tossing or drawing from a hat. I used the Excel spreadsheet random number generator (RNG) tool for sample selection in this study. Elsayed et al. (2018) and Klefsjo et al. (2021) used the Excel RNG program to select the randomized samples for their studies.

I used the G*Power 3.1.9.7 program to determine the sample size for this study. The estimated minimum sample size for this multiple regression analysis with four predictor variables, a significance level of .05, an effect size of .15, and a statistical power of .9, was 108. Bougie and Sekran (2019) noted that 95% estimation confidence, translating to significance level (α), $p \leq .05$ is conventionally accepted as adequate in business studies. Zhan (2013) indicated that statistical power of .8 is usually applied in business research, whereas Miller et al. (2020) adopted a statistical power level of .95 and α of .05 for their study. Moler et al. (2021) noted that Cohen's f^2 effect size is applied in multiple regression analysis with continuous independent and dependent variables. Cohen's f^2 effect sizes $\geq .02$, $\geq .15$, and $\geq .35$ are reckoned as small, medium, and large correspondingly (Moler et al., 2021; Viruez-Soto et al., 2021). Miller et al. applied medium effect size of .15 in their research. The α level, $p \leq .05$, power level of .9, and effect size of .15 applied in this study were, therefore, adequate. The statistical test used in estimating the sample size was linear multiple regression: fixed model, R^2 deviation from zero. Figure 1 shows the sample size computation output from the G*Power analysis.

Ethical Research

Research ethics considerations are context-driven decision factors applied at all phases of a research project (Stommel & de Rijk, 2021). I applied relevant ethical factors in conducting this study. Cragoe (2019) identified notable ethical research oversight mechanisms, including *Belmont Report* and IRB. I considered the protocols highlighted in the *Belmont Report* and IRB processes in addressing the ethical concerns of the

research. The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) published the *Belmont Report*, in which it recommended three broad ethical research criteria: respect for persons, beneficence, and justice. As stated in the *Belmont Report*, respect for human persons include individual participant's autonomy and specific protection of research subjects with diminished autonomy, voluntary participation of subjects without pressure and their right to terminate the involvement without consequences, and obtaining and documenting participants' informed consent. Beneficence relates to ensuring the welfare and protection of participants. Justice entails fairness in allocating study benefits and related burden.

The IRB is responsible for ensuring that the institution's studies comply with requisite ethical criteria and US regulations (Tsan, 2019). For IRB approval, researchers are required to provide the proposed study's documentation on the objective of the research, informed consent or demonstrable reasons it may not be applicable, and risks/benefits accruable to the subjects (Cragoe, 2019). Stommel and de Rijk (2021) stated that researchers may not seek IRB's approval if the study involves textual evaluation and not human participants, and collection and review of secondary data from public depositories. Stommel and de Rijk further averred that the mere act of evaluating potential harm to research subjects constitutes an ethical concern and using publicly accessible data could qualify as an acceptable explanation for not emphasizing potential ethical research concerns relating to the data.

The data used for this study related to the activities of businesses and were publicly available information obtained from data repositories. Obtaining informed

consent of the research subjects, defining participant incentives and procedures for withdrawal, developing measures for ethical protection of participants, and plan for sharing summary of research findings with participants did not apply to this study because it was not focused on human subjects or their behavior and relied on publicly available secondary data. Using preexisting, publicly accessible data on nonhuman subjects reasonably minimized the ethical implications of this research.

The requirement for preapproval of business research for ethical integrity by institutional ethics committees or IRB is an essential step to enhancing scholarship ethics (Greenwood, 2016). As Walden University required, I obtained approval from the IRB and secured the confirmation number (02-03-23-1058288) before proceeding with data collection for this research. Ethical research responsibilities require researchers to ensure the safety, privacy, and confidentiality of the study subjects (Cragoe, 2019). I applied multiple regression analysis to address the RQs and anonymized the organizations to which the data related in the doctoral research manuscript. I will keep the study data in safe custody for up to 5 years before deleting them.

Data Collection Instruments

In this section, I identify the approaches applied for data collection in the study and their purposes. The variables examined in this study were the triple ESG risk management ratings, financial performance, and firm size. The objective was to understand the relationship between ESG risk management and financial performance measures within the contingency of firm size. For this ex-post facto study, I relied on preexisting data relating to the study constructs and did not apply primary data to

measure the study variables, using any tallying instrument. The aspects of primary data measuring instruments used for the study constructs and the developers or publishers, instrument administration tools, evaluating instruments' reliability and validity properties, and adjustments to the standardized instruments were not applicable to this study because I adopted archival or secondary data to measure the constructs. I discuss the various secondary data measurements for the study variables.

Measurement of Environmental, Social, and Governance Risk Management

The independent variables for this study were the selected banks' triple ESG risk management ratings. The proxies for ESG risk management constructs were the corresponding ESG cluster scores obtained from the ESG Risk database maintained by Sustainalytics, a public ESG rating organization. The ESG cluster scores data represented corporate sustainability risk management tallies, reflecting organization-specific ratings for unmitigated ESG risks, disaggregated by the individual thematic ESG pillars. Sustainalytics (2022) explained the methodology for computing corporate ESG cluster scores as detailed below. The starting point for determining the ESG cluster scores for a company was the consideration of the firm's value at risk, based on the ESG factors defined within the analytical framework incorporating relevant subindustry, business model, geographical, and historical risk elements. The framework's building blocks for calculating the ESG cluster scores were the exposures, risk management or mitigation, and unmanaged risks delineated into the ESG components.

The exposure scores depicted a company's assessed vulnerability to identified material systematic and idiosyncratic ESG issues. The risk management criteria reflected

the firm's assessed potential and past achievements in mitigating material ESG risks. A two-dimensional consideration of the firm's exposure and risk management ratings for each issue within the ESG clusters gave the unmanaged risk score at the issue level, comprising unmanageable risk and risk management gap components. The final ESG cluster scores for a company was the aggregate of the unmanaged risk scores across all relevant issues under each ESG pillar. The ESG cluster scores for a firm ranged from zero points and were categorized as: Negligible Risk (0 – 4); Low Risk (4 – 8); Medium Risk (8 – 12); High (12 – 16); Severe (16 and above). The value was an absolute, instead of relative scoring and facilitated cross-sectoral comparison of companies' performances. The high ESG cluster scores signified that the company faced an elevated risk of material financial impacts from the applicable ESG dimension. A higher ESG cluster score represented a relatively ineffective or worse ESG risk management performance rating and a lower score indicated improved effectiveness in ESG risk management. The Sustainalytics firm's database for ESG cluster scores contains data for 15,000 organizations, including over 355 banks.

An understanding of the scales of the measurements in quantitative studies is crucial to ensure the proper application. Bougie and Sekaran (2019) identified four scale classifications: nominal, ordinal, interval, and ratio data. The scale of the ESG cluster scores measuring the independent variables in this study was interval data. The interval scale is a measure of continuous data with meaningful equal differences between the values and an arbitrary, not absolute, zero value on the continuum (McKechnie & Fisher, 2019). Bougie and Sekaran stated that interval scale data provide more in-depth

information on variables and have more statistical strength and usefulness than nominal and ordinal scales.

Compared to the alternative for the researcher to individually measure study sample firms' ESG ratings, Lee and Suh (2022) noted that using the ESG scores from public rating agencies is affordable and convenient for stakeholders who may not have the resources to independently obtain the required data and evaluate firms' sustainable behaviors. Access to rating agencies' ESG data mitigates information asymmetry between businesses and their stakeholders (Huang, 2021; Lee & Suh, 2022). Lee and Suh recognized the potential drawback that the aspect of business sustainability phenomena reflected in public rating agencies' ESG tallies or measures may not align with a researcher's specific requirements or focus.

The ESG cluster scores by Sustainalytics measuring the level of unmitigated or unmanaged corporate sustainability exposures were suitable proxies for the ESG risk management constructs adopted as the independent variables for this study. Huang (2021) indicated that the inconsistencies in the rating firms' ESG measures have implications for the comparability of the corporate ESG performance scores and generalizing findings from empirical studies relying on the public agencies' ESG data. Daszyńska-Żygadło et al. (2021) stated that each rating agency achieves transparency and comparison of its data by applying consistent and standardized data collection and measurement approaches, noting that the fears about data inconsistency and incomparability would be valid when mixing the ESG data from different agencies in one study. The ESG data applied in this study were obtained from one agency's database at the same time. The Sustainalytics'

ESG cluster scores were appropriate measures for the ESG risk management rating construct adopted for this study because both variables have reasonable measurement alignment and the data were drawn from a single database source to enhance the consistency and comparability of the ratings.

Lee and Suh (2022) noted that researchers adopted public agencies' ratings of corporate sustainability practices to measure ESG variables in most studies from 2015 with the utilization rate of notable agencies' ESG tallies as follows: Thomas Reuters (34.7%); Bloomberg (30.6%); and others, including Sustainalytics (34.7%). Yilmaz (2021) applied the ESG scores from Sustainalytics company's database to measure ESG constructs in the study on the connection between sustainability activities and financial performance among nonfinancial companies operating within the BRICS economies. Poursoleyman et al. (2022) used ESG rating data from a public agency's database to proxy ESG variables in the study to investigate the association between business sustainability performance and CFP of corporations across emerging and developed economies, as mediated by corporate optimal investment decisions.

The researchers applied the rating agencies' ESG data wholesale without undertaking added validity and reliability checks partly because they could not access the rating agencies' proprietary instruments and measurement models. Sustainalytics (2022) conducted empirical back-testing of the ESG cluster scores with historical data to evaluate data validity and confirm the continued relevance of the framework used for the computations. Sustainalytics updated the corporate ESG cluster scores annually to reflect the results of regular researches on individual firms, using their voluntary reporting.

Sustainalytics also updated the scores following the assessment of nondisclosure-related events about the companies, monitored continuously. I will provide the ESG data I collected from Sustainalytics database for this study on request to maintain the data privacy and confidentiality terms of the subscription.

Measurement of Financial Performance

The dependent variable for this study was financial performance. The metrics used in measuring financial performance were ROA and ROE ratios obtained from FitchConnect, a publicly accessible database. ROA and ROE are profitability performance metrics, with ROA measuring efficiency in using a firm's assets to generate income, and ROE depicting the income generation rate from an organization's equity contribution (Bătae et al., 2020; Gopi & Momintaj, 2021). The scale of the proxies for the dependent variables, ROA and ROE was interval data. Banks commonly applied ROA and ROE ratios to evaluate their financial performance (Khattak, 2021). Researchers commonly used ROA and ROE to proxy bank performance in management and finance studies (Miller et al., 2020). ROA and ROE were appropriate measures of the financial performance of banks in this study because banks routinely used them in external and internal performance reports and researchers used them to measure bank performance constructs.

The formula for calculating ROA is net income divided by average total assets value, and ROE is net income divided by average shareholders' equity (Bătae et al., 2020; Buallay et al., 2021; Khattak, 2021). Bătae et al. (2020) adopted ROA and ROE as proxies for financial performance to study the ESG practices of European banks. ROA

measures a firm's operating efficiency without considering the financial structure (Abdi et al., 2020). ROA is more reliable than ROE as a measure of profit performance, given that it is less susceptible to the impact of leveraging (Daszyńska-Żygadło et al., 2021). Khattak (2021) stated that using two proxies enhances the credibility of research results. I conducted this study on two models using ROA and ROE as separate measures of the dependent variable, CFP. I will provide the study data on ROA and ROE from FitchConnect database on request to uphold the privacy and confidentiality conditions of the subscription.

Measurement of Firm Size

The moderating variable introduced for this study was firm size. The size of an organization constitutes a crucial factor impacting its operating performance. Larger firms generate economies of scale, have access to more financial resources, and could leverage big purchases to achieve cost reductions and operating efficiencies compared to smaller businesses (Abdi et al., 2020; de la Fuente et al., 2022). de la Fuente et al. (2022) noted that large corporations tend to be more bureaucratic with attendant costs and are more exposed to agency costs. Abdi et al. (2020) indicated that big corporations could achieve scale economies in deploying sustainability-oriented investments and projects compared to small firms.

The proxy adopted for the firm size variable in this study was the natural logarithm of total assets, with the total assets value obtained from the public database, FitchConnect. The scale of the original total asset values measuring the moderator variable, firm size, were ratio data, whereas the transformed natural logarithm equivalents

used for the statistical analysis were interval data, depicting proportions instead of absolute differences.

Kim and Li (2021) adopted the natural log of total assets to mitigate the issues of measuring and related scaling in their study. Olvera Astivia and Zumbo (2019) and Abdi et al. (2020) noted that logarithmic data transformation moderates the distortions caused by extreme values of variables in social studies' statistical analysis. The natural logarithm of total asset values was appropriate to measure firm size because it mitigated the impact of large values on the results of the data analysis. The total assets of a firm are calculated by adding the value of the fixed and current assets less provision for potential losses or impairments in value (Bătae et al. (2020). Bătae et al. (2020) used total assets as part of their study's measures for bank size variables. Abdi et al., de la Fuente et al., and Kim and Li applied the natural logarithm of total assets value to approximate firm size in their separate studies. I will provide the study data on banks' total assets from FitchConnect database on request to conform to the privacy and confidentiality terms of the subscription.

Data Collection Technique

Data collection in a quantitative study involves obtaining information on the relevant attributes of the selected sample that constitute the required data matrix for the adopted research model (Ragin & Amoroso, 2019). I collected secondary cross-sectional data for this research. In a cross-sectional study, the researcher obtains all the required data on several variables at a specific time (Farmer & Farmer, 2021; Rooney & Evans, 2019). Secondary or archival data are preexisting information or evidence originally

collected for a different purpose or by another researcher and adopted for the current study (Faems, 2020; Keeler & Curtis, 2022). Faems (2020) and Tight (2019) noted that secondary data are usually standardized historical data and have emerged as a rich source of valuable research information for quantitative studies.

I collected the archival data required for this study from the Sustainalytics and FitchConnect databases. The data collected from Sustainalytics company's database were the ESG cluster scores of the sampled banks. The Sustainalytics database is one of the most widely accepted sources of ESG data in studies (Lee & Suh, 2022). I obtained the financial data relating to the ROE, ROA, and total assets of the selected banks from the FitchConnect database. The FitchConnect database is a reliable information depository on financial institutions (Khattak, 2021). ESG data accessibility was the main criterion for sample selection for this study. Therefore, I collected the ESG data at the start, followed by the financial data. Yilmaz (2021) supported prioritizing the sequence of data collection based on the primary sampling criteria.

One of the advantages of secondary data is that it provides the researcher convenience and economy, in terms of time and cost of data collection and analysis (Polousky & Waller, 2019; Tight, 2019). Tight (2019) indicated that using secondary data facilitates replication of previous studies, helps in addressing participant fatigue, and enhances research standards and generalization potential. Faems (2020) noted that adopting secondary data helps researchers to overcome the drawback of subjective responses attributed to surveys. Tight indicated that the disadvantages of secondary data analysis include: poor storage and likely distortion of the archived data sets over time,

cost and resource requirements for data distribution, challenges of access restrictions and protection of original data owner's proprietary rights, and difficulties in securing informed consent.

Data Analysis

The RQs and hypotheses were

RQ1: What is the relationship between organizational ESG risk management ratings and financial performance?

$H_0$1: There is no statistically significant relationship between organizational ESG risk management ratings and financial performance.

H_A1: There is a statistically significant relationship between organizational ESG risk management ratings and financial performance.

RQ2: Does firm size moderate the relationship between organizational ESG risk management ratings and financial performance?

$H_0$2: Firm size does not moderate the relationship between organizational ESG risk management ratings and financial performance.

H_A2: Firm size moderates the relationship between organizational ESG risk management rating and financial performance.

The statistical technique selected to answer the RQs for this study was the multiple regression analysis, using the ordinary least squares (OLS) method. Researchers use multiple regression analysis to predict the value of the dependent variable in scenarios involving numerous independent variables (Alita et al., 2021; Frost, 2019). Frost (2019) noted that researchers flexibly apply multiple regression analyses to

understand the effect of added variables in a model. Alita et al. (2021) stated that Pearson's correlation analysis is applied to determine the association between two variables without focusing on the functional implications. The correlation analysis was inappropriate for this study because the test involves only two variables. The multiple regression analysis was appropriate for the study because the research involved a moderator and several independent variables.

Researchers apply preliminary data treatments to synthesize information from different sources and as groundworks to ensure that the data are accurate, complete, and suitable for detailed analysis (Bougie & Sekaran, 2019). Bougie and Sekaran (2019) indicated that data preparation activities include data editing, which involves detecting and correcting illogical, inconsistent, illegal, or missing data in the participants' responses. Aycock and Hayat (2020) stated that missing data could manifest as omitted values from a respondent's incomplete answers to an item or abrupt withdrawal from the survey and could engender unreliable conclusions from the diminished statistical power of a smaller sample size. The preexisting ESG score and financial outcome data sets examined in this study did not have missing data, as the sources were public databases, not participants' surveys. Using ESG data availability as the primary sample selection criterion in this study implied there was no chosen participant with missing data, except the special purpose financial vehicles or shell banking entities with no published financial statements eliminated from the study sample.

The critical assumptions of multiple regression analysis include normality, collinearity, homoscedasticity, linearity, independence of errors, and outliers (Frost,

2019; Halim et al., 2023; Laerd Statistics, 2018). Multiple regression models that meet the core assumptions generate unbiased estimates of coefficients and minimum residual errors (Frost, 2019; Olvera Astivia & Zumbo, 2019). The normality assumption is that the entire data set for the residual values conforms to a normal distribution (Alita et al., 2021; Frost, 2019). I tested the normality assumption for this study using the normal Predicted Probability (P-P) plot of the standardized residual and Shapiro-Wilk statistical test. The standardized or internally studentized residuals are easier to apply in residual plots than the raw residual values (Frost, 2019). Alita et al. (2021) and Shoukat and Babar (2020) applied the normal P-P plot of the standardized residual and Shapiro-Wilk statistical test, respectively, to test for normality in their separate studies.

The homoscedasticity assumption is the requirement for equality or homogeneity of the variances of the residual values, implying the absence of heteroscedasticity (Frost, 2019; Olvera Astivia & Zumbo, 2019). I conducted the heteroscedasticity check for this study using Breusch-Pagan Koenker statistical test. Researchers use the Breusch-Pagan Koenker test to validate a regression model's conformance to the homoscedasticity assumption (Lyon & Tsai, 1996/2019).

The collinearity assumption requires that the independent variables are uncorrelated, that is, the absence of multicollinearity (Dule et al., 2023; Frost, 2019). I applied the variance inflation factor (VIF) test to confirm the collinearity assumption for this study. The VIF test is appropriate for detecting multicollinearity among the independent variables in a multiple regression model (Alita et al., 2021; Dule et al., 2023; Shoukat & Babar, 2020).

The linearity assumption is that a straight-line relationship exists between the independent and dependent variables (Frankfort-Nachmias & Leon-Guerrero, 2018; Frost, 2019). I used scatterplots to test for linearity in this study. The linearity assumption of regression analysis could be determined by visually inspecting the scatterplot (Frankfort-Nachmias & Leon-Guerrero, 2018; Laerd Statistics, 2018).

The independence of errors assumption requires that the error term or residual values are uncorrelated with each other, implying that one residual value should not be predicted from observing the other (Dule et al., 2023; Frost 2019; Halim et al., 2023). I applied Durbin-Watson statistic to check for the independence of residuals assumption. Researchers use Durbin-Watson test to determine multiple regression's independence of errors assumption (Dule et al., 2023; Laerd Statistic, 2018).

The outlier assumption is that there should be no significant outlier in the data set adopted for regression analysis (Laerd Statistics, 2018). Outliers are unusually large residual values arising from the dependent variable values that do not fit into the regression model (Frost, 2019; Laerd Statistics, 2018). Outliers could negatively impact the accuracy of the regression model and conclusions from the statistical analysis (Laerd Statistics, 2018). To determine outliers in this study, I used scatterplots and casewise diagnostics (see Laerd Statistics, 2018).

Assessing the moderation impact of firm size in this study required additional assumptions: the change in the relationship between the independent and dependent variables based on the moderator variable is linear, and the interaction effect of the moderator is the product of the independent and moderator variables. Researchers

generally assume a linear relationship between the moderating and independent variables in regression models, and the assumption about the interaction of the moderator and independent variables is appropriate when both are continuous variables (Baron & Kenny, 1986). The independent variables for this study, the triple ESG factors, and moderating variable, firm size, are continuous variables.

Researchers apply various corrective measures when the assumptions underlying multiple regression analysis are violated (Frieman et al., 2018; Frost, 2019). I used the centering technique to address the breach of the collinearity assumption in the initial data. Olvera Astivia and Kroc (2019) indicated that centering is applied to address multicollinearity concerns in moderated regression analysis. To rectify violation of the assumption of homoscedasticity in the original data, I planned to adopt logarithmic data transformation by applying the natural logarithm values of the sample data for the analysis. Logarithmic data transformation moderates the distortions caused by extreme values in statistical analysis and is popularly applied to fix heteroscedasticity problems in social studies (Abdi et al., 2020; Laerd Statistics, 2018; Olvera Astivia & Zumbo, 2019).

I adopted *F*-test as the key parameter estimate for interpreting the inferential results of this study. *F*-test is used to establish whether the independent and dependent variables are related (Alita et al., 2021). van Ginkel (2019) noted that researchers apply *F*-test in multiple regression analysis to determine whether the population coefficient of determination, p^2 is 0 and if the sample coefficient of determination (R^2) had a significant change. Sanrang et al. (2022) and Turulja and Bajgoric (2020) used *F*-test for simultaneous multiple regression analysis in their studies. The SPSS software, Version 28

was used for the data analysis and generating the results of the descriptive statistics, which depicted the data set distribution's mean and standard deviation. The arithmetic mean and variance or standard deviation are the measures of central tendency and dispersion, respectively, for an interval scale (Bougie & Sekaran, 2019; Farmer & Farmer, 2021). The mean and standard deviation were suitable descriptive statistics because the proxies for the study variables were interval data.

Study Validity

Research validity threats could affect the accuracy of study results (Saunders et al., 2016). Internal validity is pertinent to experimental research designs to determine causal relationships between variables (Saunders et al., 2016; Urban & van Eeden-Moorefield, 2018). The research design for this study was nonexperimental and the objective was not to establish causal relationships between the research constructs. Internal validity threats, which apply to experimental designs, were irrelevant in this non-experimental research.

External validity emphasizes the consistency of research findings and the potential for generalizing the conclusions across the study population (Bougie & Sekaran, 2019; Haghani et al., 2021). The instrument validity aspect, comprising construct, content, and criterion dimensions, relate to the accuracy of criteria measurement (Bougie & Sekaran, 2019; Saunders et al., 2016). Instrument-related validity was not relevant to this study because I did not use any tallying instrument to collect primary data and measure the variables.

The emphasis in nonexperimental designs on participants' natural settings and attributes, as opposed to laboratory conditions, enhances the study's external validity, as the design could be applied in other real-life locations to improve the generalization potential (Lobmeier, 2010). Tight (2019) stated that secondary data supports researchers to replicate earlier studies and generalize the results. Adopting nonexperimental ex-post facto design and publicly available secondary data to measure the constructs for this study helped to improve the external validity. Further, Haghani et al. (2021) noted that the statistical efficiency of a study improves the external validity by generating reliable population estimates from a particular sample size. I applied SPSS statistical software for efficient data analysis and schematic representation to enhance the understanding of the data and the study's external validity.

Nonexperimental studies have other validity concerns (Urban & van Eeden-Moorefield, 2018). The statistical conclusion validity applies to this study. Bougie and Sekaran (2019) noted that the underlying risk that the conclusions reached about the population from sample data is inaccurate can occur in two ways: Type I error (α) and Type II error. Bougie and Sekaran described Type I error, also called the level of significance, as the probability of rejecting the null hypothesis (Ho) when it is true. Type II error (β) is the probability of failure to reject Ho when the alternative hypothesis (H_A) is correct (Veliz et al., 2017).

Researchers may improve the statistical conclusion validity by increasing the study design's statistical power (Bougie & Sekaran, 2019). Bougie and Sekran (2019) described statistical power as the complement of β (1- β), representing the likelihood of

correctly rejecting a false null hypothesis or the probability that statistical significance or effect will be indicated in a study, if an effect is present. Veliz et al. (2017) noted that statistical tests of significance with low or no statistical power do not help researchers draw statistical inferences as there is no distinction between the null and alternative hypotheses. The 90% statistical power level applied for this study, translating to a 10% likelihood of accepting Type II error, implied that if I repeated this study ten times, I would correctly reject the null hypotheses in nine cases, if an effect existed.

Selahudin et al. (2020) determined that a statistical power of .80 is adequate to detect effects, when present in a business research and applied a power level of 80% in their study. Miller et al. (2020) applied a statistical power level of .95 in their study. The 90% statistical power level adopted for this study was adequate. Bougie and Sekaran (2019) indicated that statistical power partly depends on the α level used in the test, as lower α levels closer to zero translate to decreased likelihood of finding an effect where there is one, implying diminished statistical power. Bougie and Sekaran noted that the alpha levels usually adopted for business research range between 1% and 5%. As such, the alpha level of .05 applied for this study was adequate.

Transition and Summary

In Section 2, I discussed the justifications for selecting the participants, the research method and design, data collection instruments and techniques, and the data analysis adopted for the study. I also addressed the ethical considerations and validity threats relevant to this study. I justified applying the OLS multiple regression analysis technique to evaluate the association between the independent and dependent variables.

In Section 3, I presented the findings of this quantitative ex-post facto study, discussed the applications to managerial practices, considered the implications for positive social change, and offered recommendations for further studies.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative ex-post facto study was to examine the relationship between banks' ESG risk management and financial performance within the contingency of firm size. The independent variables were ESG risk management, and the moderating variable was firm size. The dependent variables were ROE and ROA. The study findings indicated that the two models could significantly predict ROE and ROA ($p < .001$), respectively. I failed to reject the null hypotheses that there is no significant relationship between ESG risk management and ROE.

The results suggested nonsignificant relationships between environmental ($p = .124 > .05$, $\beta = .972$); social ($p = .299 > .05$, $\beta = -.127$); and governance ($p = .598 > .05$, $\beta = .151$) risk management and ROE. I rejected the null hypothesis that firm size does not moderate the association between governance risk management and ROE based on the significant interaction effect of firm size and governance risk ($p = .015 < .05$) on ROE. I rejected the null hypothesis that social risk management is not significantly associated with ROA. The results indicated a significant linkage between social risk management and ROA ($p = .034 < .05$, $\beta = -.028$). I failed to reject the null hypothesis that bank size has no moderating impact on the connection between environmental ($p = .138 > .05$), social ($p = .305 > .05$), and governance ($p = .191 > .05$) risk management and ROA. In this section, I present the research findings in more detail, discuss applications to professional practice, consider the implications for social change, and offer

recommendations for action and proposals for further study. I conclude with personal reflections on undertaking this study.

Presentation of the Findings

I applied SPSS Version 28 to run this research's moderated multiple regression analysis. Multiple regression analysis is used to determine the relationship between several independent variables and a dependent variable and potentially enhances the model's predictive power (Alita et al., 2021; Frost, 2019). The statistical analysis tools deployed in testing the research hypotheses with multiple linear regression comprised (a) descriptive statistics, (b) Shapiro-Wilk for the normality distribution assumption, (c) Breusch-Pagan Koenker for the homoscedasticity assumption, (d) VIF for the collinearity assumption, (e) Durbin-Watson for independence of residuals, and casewise diagnostics for outliers. I also applied visual inspection to test (a) normality assumption using normal P-P plot of the regression standardized residuals, (b) linearity assumption with partial regression plot, and (c) outliers with scatterplots.

I imported data relating to ESG cluster scores, natural log of total assets, ROE, and ROA from an Excel spreadsheet into SPSS Version 28, to conduct the multiple regression analysis. Lower ESG cluster scores represented superior effectiveness in managing the relevant ESG risk, whereas higher figures for total assets translated to larger size, and higher ROE and ROA values indicated improved financial performance. Based on the nature of the data, determining negative correlations between the ESG cluster scores and ROE and ROA indicated a positive relationship between the sampled banks' ESG risk management effectiveness and financial performance. The moderating

impact of total assets was determined by how the interaction effect with the respective ESG pillar risk scores enhanced or reduced the correlations between the individual ESG cluster scores and ROE and ROA.

The a priori determination for this study was an alpha level ≤ .05, effect size (f^2) of .15, and power size of .90, with a sample size of 226, compared to the minimum sample size of 108 suggested by G*Power analysis. The research findings suggested that the regression models could significantly predict ROE and ROA, correspondingly ($p <$ .001). From the results of the statistical data analysis, I had mixed conclusions on the relationships between ESG risk management and financial performance within the contingency of bank size. The study findings indicated no statistically significant values for ESG risk management concerning ROE. I failed to reject the null hypotheses that ESG risk management is unrelated to ROE. I also concluded from the results that, for ROE, there were significant interaction effects between firm size and governance risk management and no significant interactions between firm size and environmental and social risk management. Concerning ROA, the results indicated that social risk management has a significant value, whereas environmental and governance risk management were insignificant. Additionally, the interaction values of firm size and ESG risk management ratings were not significant in relation to ROA. I concluded to fail to reject the null hypotheses that the sampled banks' sizes had no moderating impact on the relationship between ESG risk management and ROA.

Descriptive Statistics

I collected publicly available secondary data for this study from the Sustainalytics and FitchConnect databases. The data collected from the Sustainalytics repository were the ESG cluster scores, the measures for the independent variables. I obtained the data relating to the moderating variable, total assets, and the dependent variables, ROE and ROA, from the FitchConnect database. The reporting, not collection, date for the data obtained on all the variables was December 31, 2021. ESG activities should logically precede corporate performance because of the normal gestation period between investment outlays and the related returns (Martinez & Mesa, 2021). However, accurately determining the gestation period to establish the appropriate timing differences between firms' ESG activities and the financial outcomes to be considered for evaluating the linkages could be problematic (Lee & Suh, 2022).

The denominations of the total asset figures obtained from the FitchConnect database were the different reporting currencies of the sampled banks. To ensure uniform, comparative measurement in this analysis, I translated the total asset values reported in other currencies into euros, using the FX reference rates for the reporting date published by the European Central Bank. In cases where the European Central Bank reference rate for a given currency was unavailable, I applied the specific currency's reference rate for euros published by the relevant central or reserve bank. I used the Excel spreadsheet RNG to randomly select a sample size of 226 banks for this study, based on the availability of the ESG data from the Sustainalytics repository. I eliminated from the random sample financial vehicles and special-purpose banking entities that did not

publish periodic financial statements and banks whose year-end reporting dates fell on months other than December. Selecting only banks with a year-end reporting date of December 2021 ensured that the reported financial figures for all the sampled banks related to the same period.

Table 1 shows the mean and standard deviation for the independent, moderating, and dependent variables relevant to this study. The mean for the environmental risk score was 1.6808, and the standard deviation was .6338. The social risk score had a mean of 11.0942 and a standard deviation of 3.5288. The mean for governance risk rating was 11.2137, and the standard deviation was 3.3957. Total assets values had a mean of 2.3530 and a standard deviation of .4030. The mean scores for ROE and ROA were 10.5202 and .9011, and the standard deviations were 4.5550 and .6363, respectively.

Table 1

Descriptive Statistics for Research Variables

Variable	*M*	*SD*	Minimum	Maximum	Range
Environmental risk	1.6808	.6338	0	2.970	2.970
Social risk	11.0942	3.5288	.9859	21.7596	20.7737
Governance risk	11.2137	3.3957	1.5454	18.7025	17.1571
Total assets	2.3530	.4030	.4353	2.9287	2.4934
Return on equity	10.5205	4.5550	.7300	27.1000	26.3700
Return on assets	.9011	.6363	.0400	3.2400	3.2000

Note. $N = 226$.

Tests of Assumptions

The assumptions evaluated for this study were the independence of residuals, linearity, outlier tests, normality distribution, homoscedasticity, and collinearity.

Independence of Residuals Assumption Test

I used the Durbin-Watson statistic for the independence of residuals assumption test. The Durbin Watson test is applied to determine the independence of error terms in a regression model (Dule et al., 2023; Laerd Statistics, 2018). Durbin-Watson scores can assume a range between 0 and 4 with values approximating to 2 indicating absence of correlation between the residuals (Laerd Statistics, 2018). The Durbin-Watson test results are shown in Table 2.

Table 2

Durbin-Watson Test Results

Model	*R*	R^2	Adjusted R^2	*SE*	Durbin-Watson
Return on equity	.344	.118	.102	4.32	1.734
Return on assets	.352	.124	.108	.51	1.881

From Table 2, the Durbin-Watson statistics of 1.734 and 1.881 for the ROE and ROA models, respectively, closely approximate to 2. There was independence of residuals.

Linearity Assumption Test

The linearity assumption to determine whether linear relationships existed between the independent and dependent variables can be tested by partial regression plots for each independent and dependent variable (Frankfort-Nachmias & Leon-Guerrero, 2018; Laerd Statistics, 2018). Figures 2–5 and Figures 6–9 depict the partial regression plots for the dependent variables of ROE and ROA, respectively, against each of the independent and moderating variables of the study.

Figure 2

Partial Regression Plot of Environmental Risk Scores and ROE

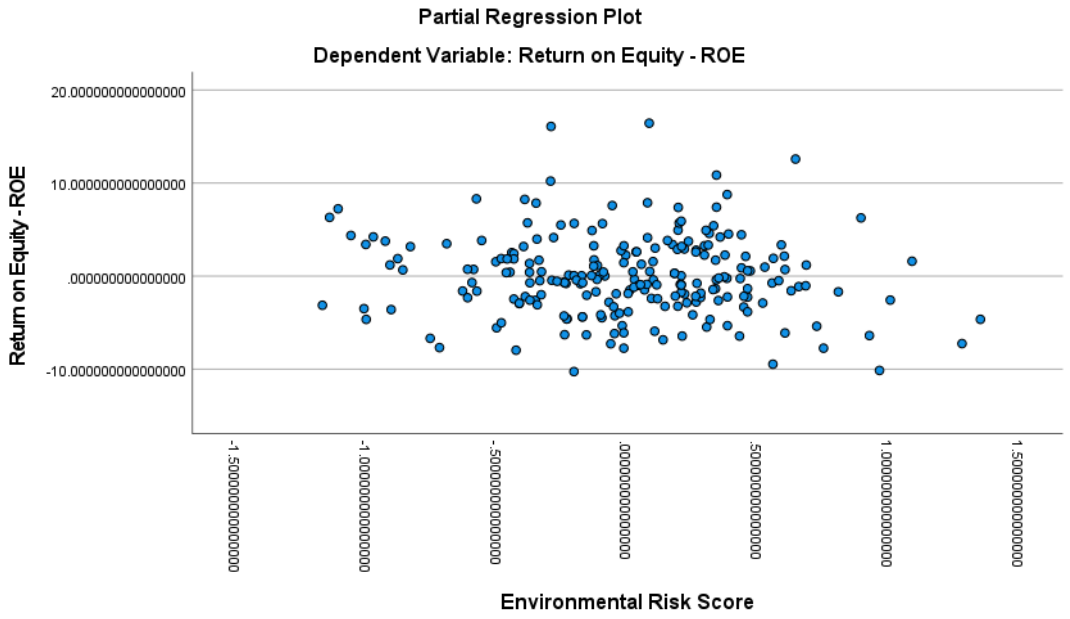


Figure 3

Partial Regression Plot of Social Risk Score and ROE

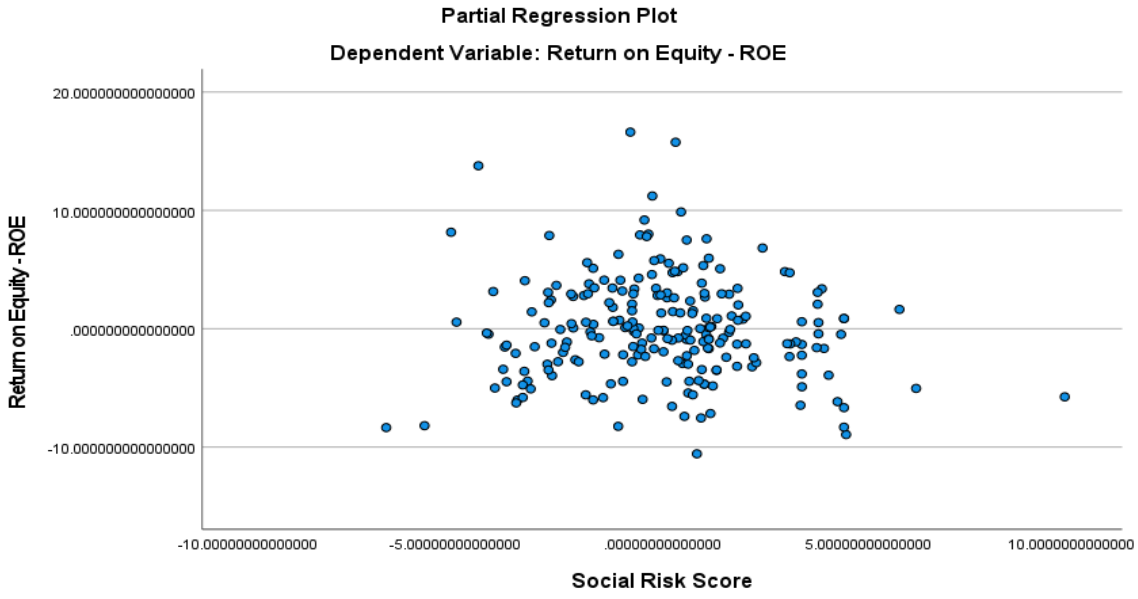


Figure 4

Partial Regression Plot of Governance Risk Score and ROE

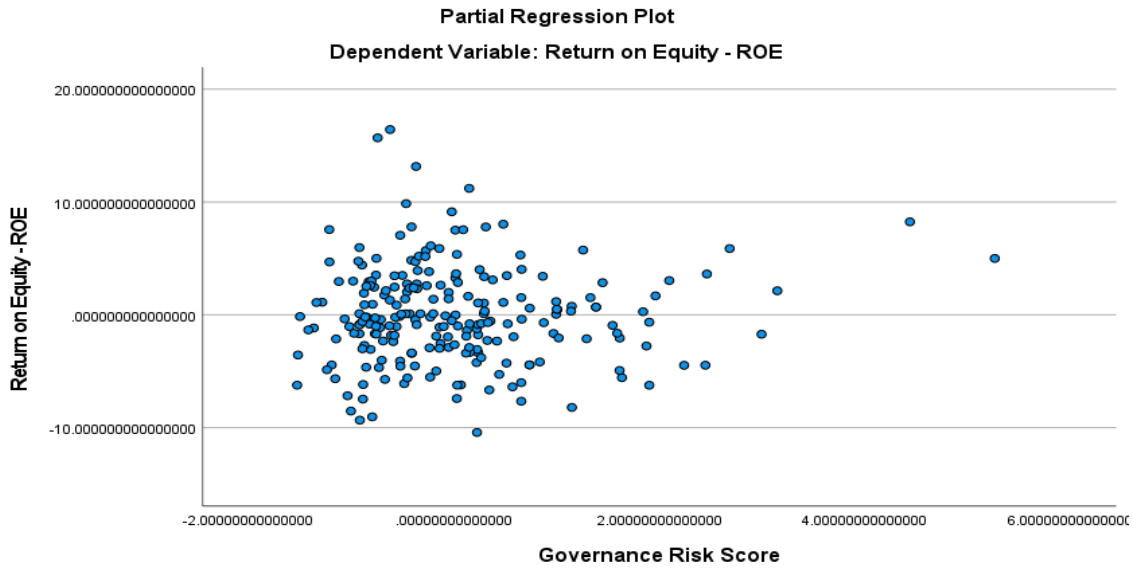


Figure 5

Partial Regression Plot of Total Assets and ROE

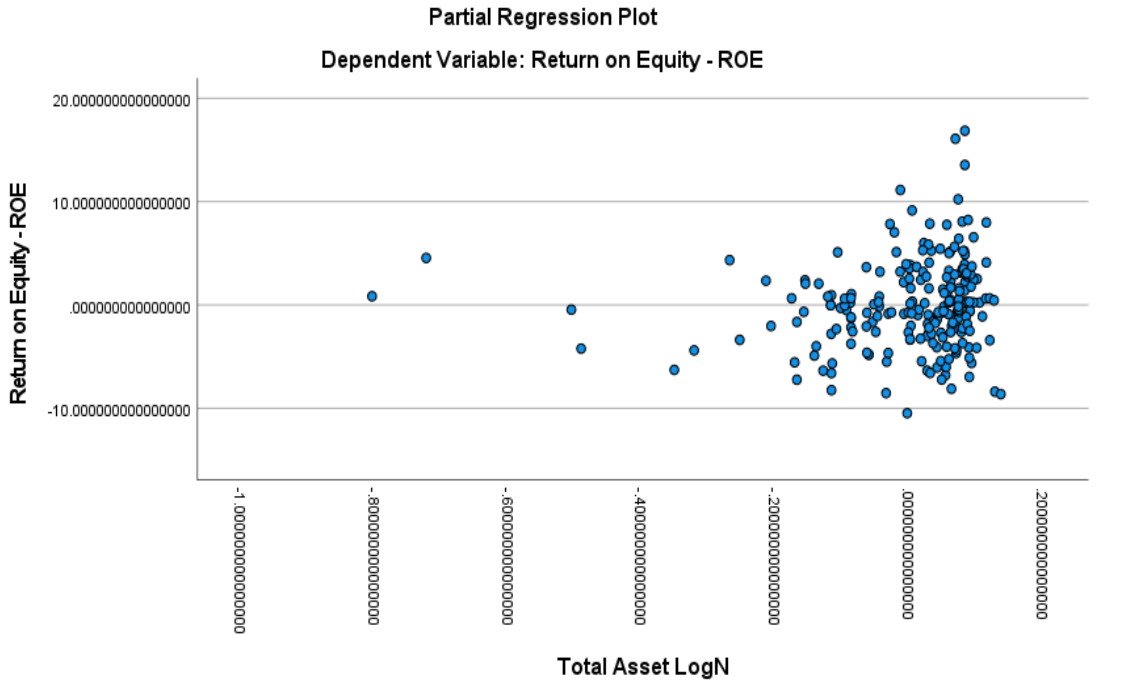


Figure 6

Partial Regression Plot of Environmental Risk Score and ROA

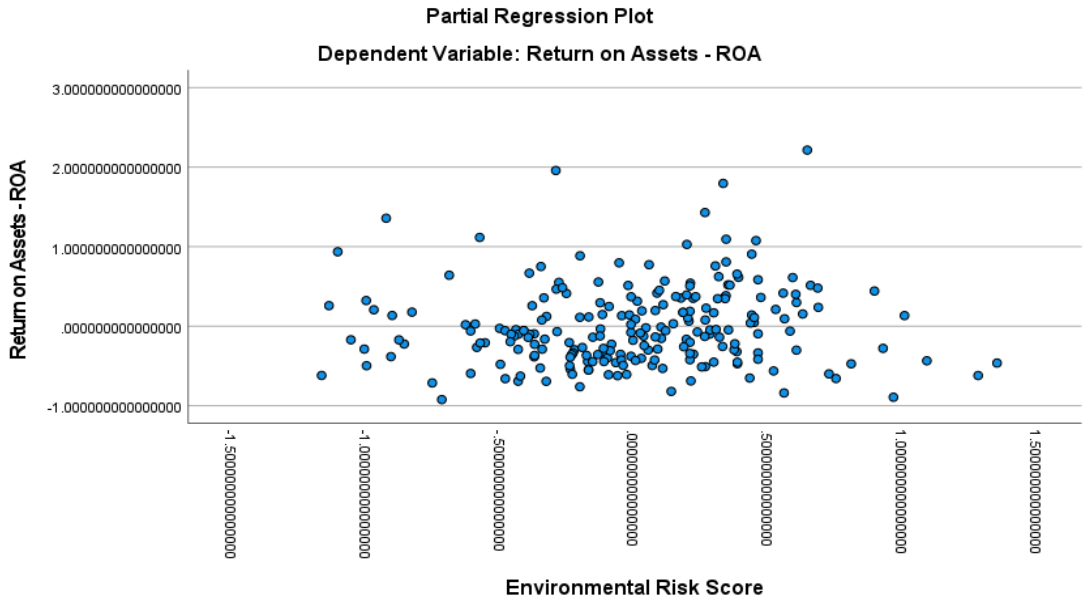


Figure 7

Partial Regression Plot of Social Risk Score and ROA

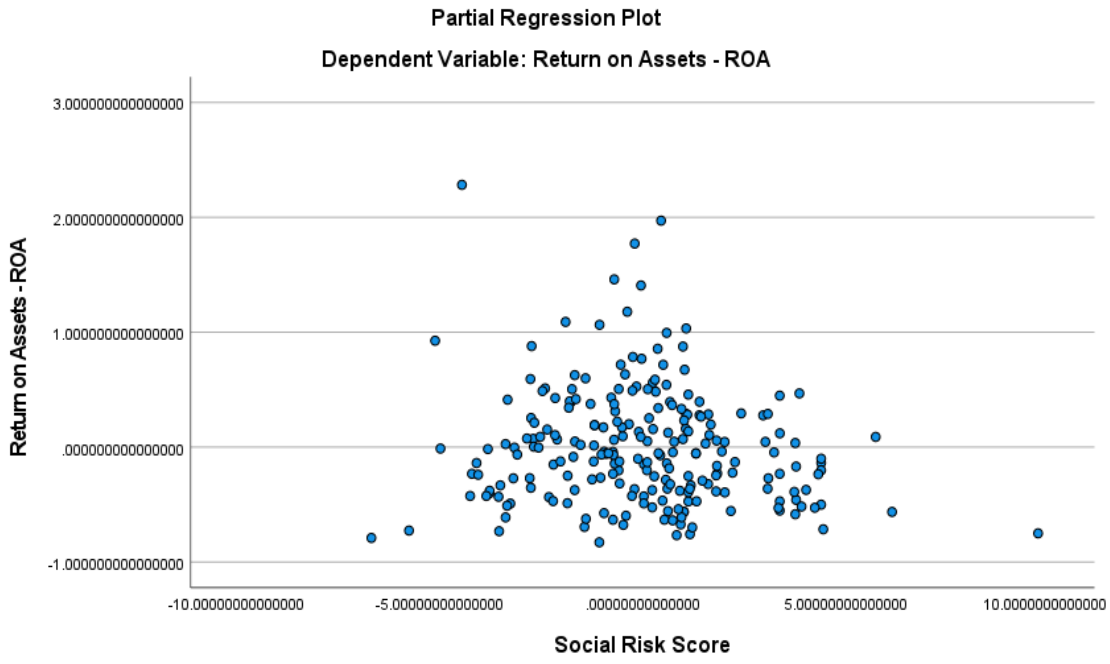


Figure 8

Partial Regression Plot of Governance Risk Score and ROA

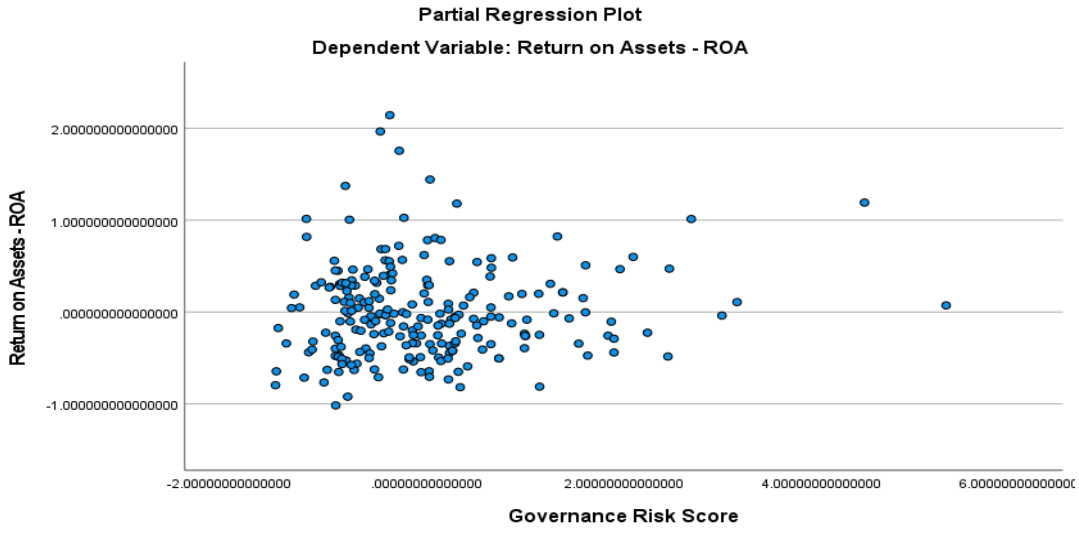
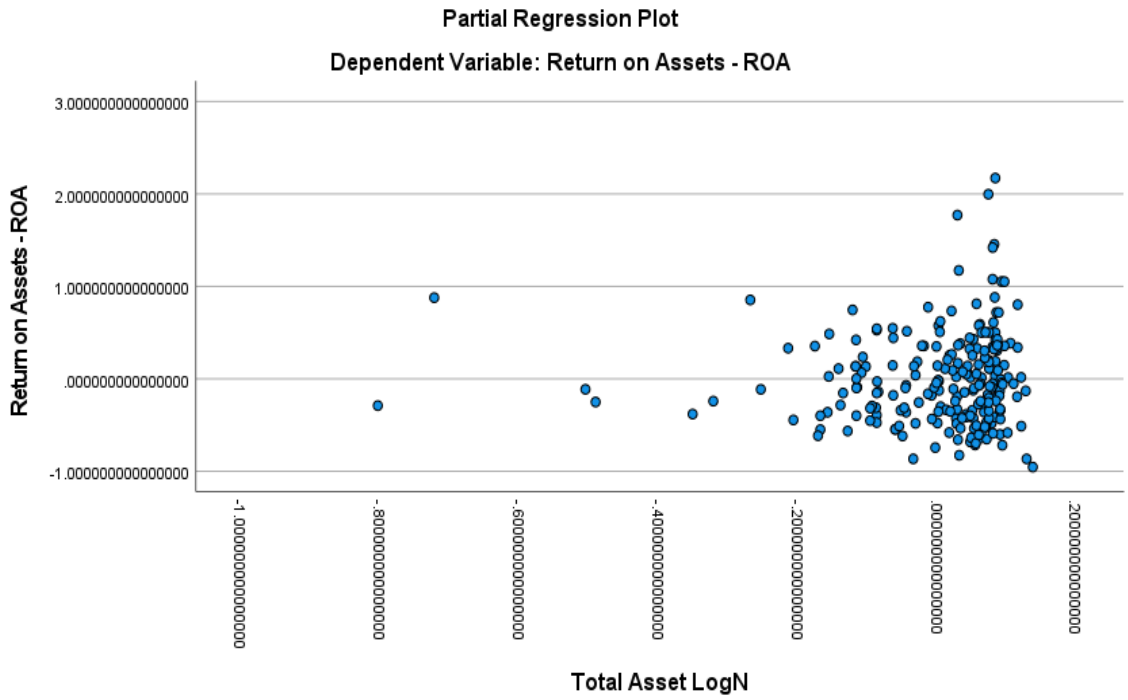


Figure 9

Partial Regression Plot of Total Assets and ROA



Figures 2–9 show that approximately linear relationships exist between each of the independent variables, ESG risk scores, and the dependent variables of ROE and ROA. Based on graphical inspection, all the variables satisfied the linearity assumption.

Outliers Assumption Test

To test outliers, I reviewed a scatterplot of standardized residuals and predicted values and used casewise diagnostics tools. When multiple independent variables are involved, outliers are detected using standardized residual plots (Frost, 2019). The scatterplots for the ROE and ROA models of the study are presented in Figures 10 and 11, respectively.

Figure 10

Scatterplot for ROE

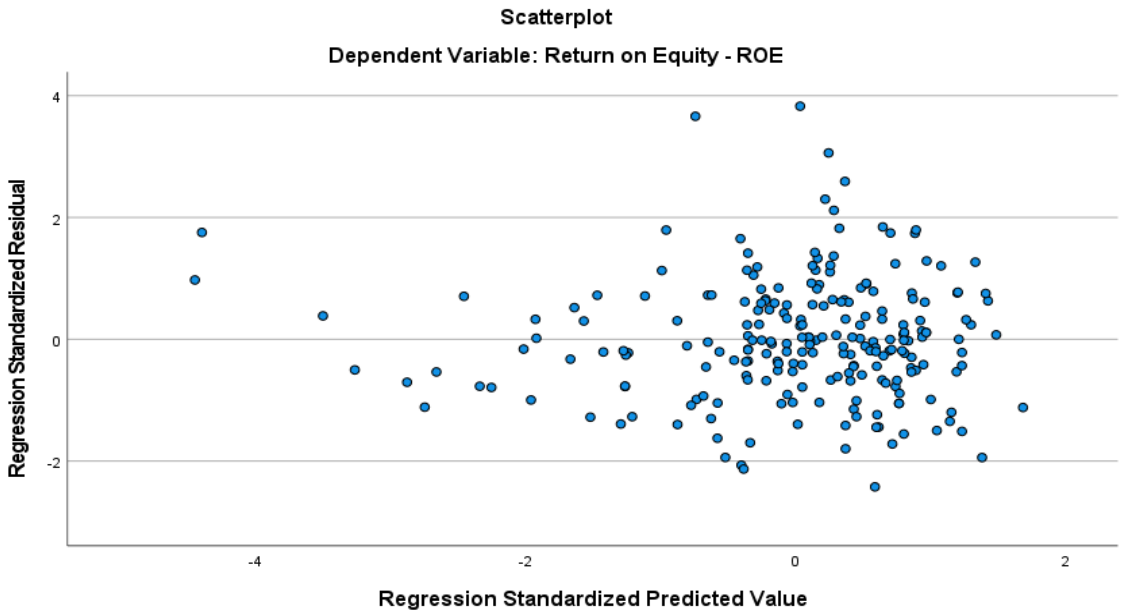
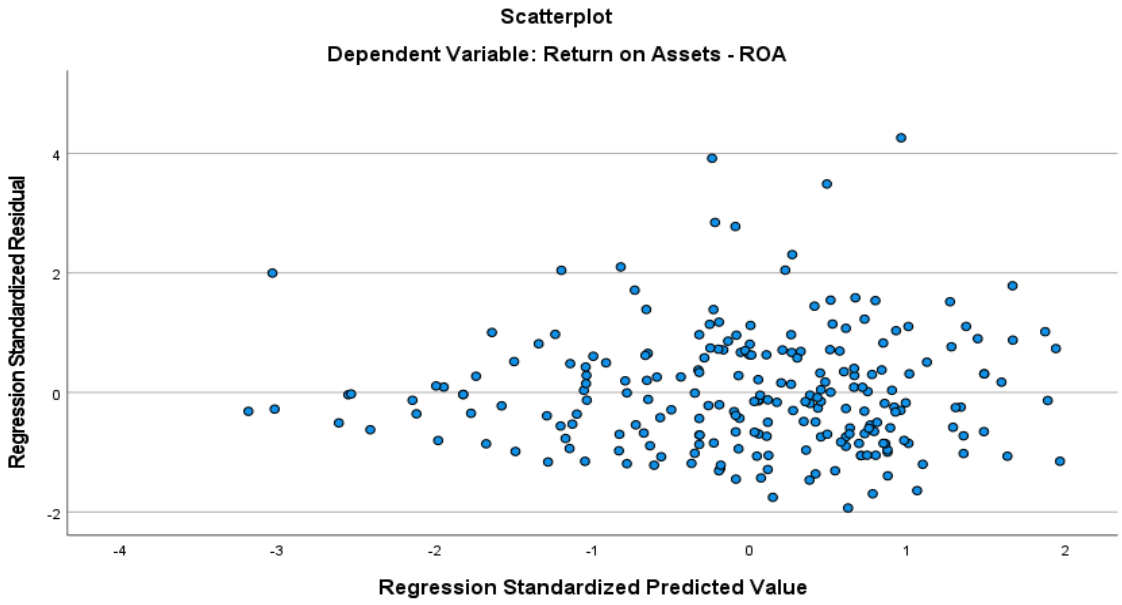


Figure 11

Scatterplot for ROA



A visual inspection of Figures 10 and 11 indicated that most of the data points are within +/-3 standard deviations (SD) range used to determine outliers. Only about five items appeared to be outliers, being located outside the range of +/-3 SD, for each of the ROE and ROA models. Based on the visual evaluation of the scatterplots, I concluded that there were no significant outliers in the study data set.

I applied casewise diagnostics to identify the specific data items presented as outliers in the scatterplots. The results are shown in Tables 3 and 4 for the ROE and ROA models, respectively.

Table 3

Casewise Diagnostics Results for ROE Model

Case Number	Std. Residual	Return on Equity	Predicted Value	Residual
24	3.828	27.10	10.58	16.52
89	3.061	24.12	10.91	13.21
193	3.662	25.17	9.36	15.81

Table 4

Casewise Diagnostics for ROA Model

Case Number	Std. Residual	Return on Assets	Predicted Value	Residual
89	4.26	3.24	1.08	2.16
157	3.49	2.76	.99	1.77
186	3.91	2.84	.85	1.98

I identified a total of five outliers in the ROE and ROA models from the casewise diagnostics, as one data point appeared in both. Outliers in a data set may be caused by data entry or measurement errors, or valid unusual data values (Frost, 2019; Laerd Statistics, 2018). I double-checked the original data sources and reconfirmed that the identified outliers were genuine unusually large values. Laerd Statistics (2018) indicated that removing outliers should be a last resort, only in proven cases where the outliers would compromise the results of the analysis. Laerd Statistics (2018) noted that transforming the independent variables is an effective option to address genuine outlier problems because it could disproportionately reduce the outliers compared to the other data points. I included the outliers in the analysis because I transformed the original values of the independent variables to address potential multicollinearity problem and the applicable cases were few. The identified outliers were acceptable for the analysis.

Normality Distribution Assumption Test

I used the normal predicted-probability (P-P) plot of standardized residual to test for the assumption of normality distribution of residuals. The solid diagonal line of the P-P plot represents the normal distribution, and study data points that fall on or closely follow the diagonal line in a linear trajectory are normally distributed (Alita et al., 2021). Figure 12 shows the P-P plot for ROE and Figure 13 for ROA. The data points appear to only marginally depart from the normal distribution line, suggesting that a reasonable level of normality could exist for both regression models with ROE and ROA as the respective dependent variables.

Figure 12

P-P Plot for ROE

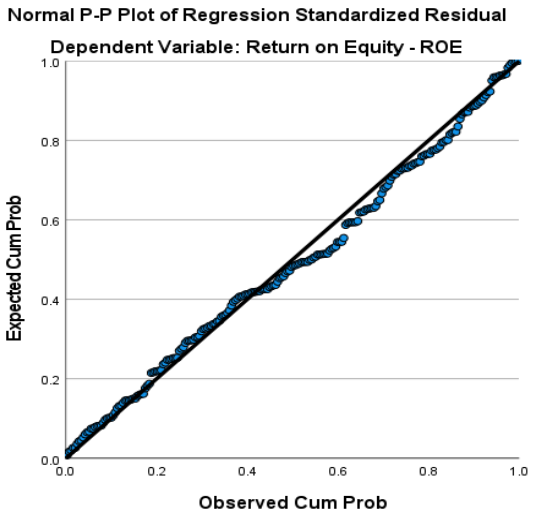
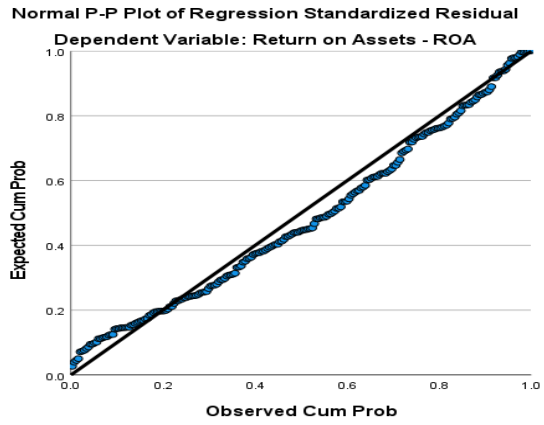


Figure 13

P-P Plot for ROA



I also evaluated the normality assumption using the Shapiro-Wilk statistical test. Shapiro-Wilk test is a reliable measure of normality of the distribution of variables with results of the *p* values > .05 deemed significant, leading to failure to reject the null

hypothesis that the residual values are normally distributed (Shoukat & Babar, 2020). Table 5 depicts the results of the Shapiro-Wilk normality distribution statistical tests.

Table 5

Normality Assumption Statistical Tests

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	*P* - Value	Statistic	*df*	*P* - Value
Return on equity	.044	226	.200	.985	226	.014
Return on assets	.069	226	.011	.945	226	<.001
Environmental risk	.088	226	<.001	.968	226	<.001
Social risk	.073	226	.005	.982	226	.005
Governance risk	.064	226	.027	.980	226	.003
Total assets	.154	226	<.001	.833	226	<.001

Note: N = 226.

The Shapiro-Wilk statistical test values indicated nonsignificant results ($p < .05$) for all the study variables, suggesting a potential violation of the assumption of normal distribution of the residuals. The central limit theorem, which states that variable data distribution tends to normality as the sample size increases implies that the breach of the normality assumption in large samples does not compromise the validity of the results in parametric studies (Pituch & Stevens, 2016; Politi et al., 2021). Pituch and Stevens defined large sample sizes as (≥ 50) and Politi et al. as (≥ 100), which indicate the sample size baseline that support adopting regression analysis, irrespective of the distribution of the residuals. Buallay (2019) and Buallay et al. (2021) applied data sets that violated the normality assumption in multiple regression analysis based on the large sample sizes they

adopted for their studies. Further, I adopted the fixed effects option in the G*Power computations of the sample size. Fixed effects are frequently used in banking performance studies (Al-Ajmi et al., 2023). Man et al. (2022) noted that fixed effects are unbiased in parameter and error estimates from data sets that breach normal distribution. I concluded that the nonnormal distribution of the residuals from the data sets applied in this multiple regression study would not constrain the validity of the test results because of the large sample of 226 and fixed effects adopted in the data analysis.

Homoscedasticity Assumption Test

I used the Breush-Pagan Koenker tests to check the homoscedasticity assumption. The Breusch-Pagan Koenker test is applied to check for heteroscedasticity in regression models with $p > .05$ results suggesting compliance with the homoscedasticity assumption (Shoukat & Babar, 2020). I used the Excel spreadsheet to calculate the Breusch-Pagan Koenker statistic because the functionality does not directly exist in SPSS. The Excel spreadsheet is a convenient tool for conducting the Breusch-Pagan statistical test (Bobbitt, 2020). Table 6 shows the results of the Breusch-Pagan Koenker test.

Table 6

Breusch-Pagan Koenker Test of Homoscedasticity

Regression Model	Lagrange Multiplier (Critical Value)	*df*	Alpha	*P*-Value
Return on equity	2.9418	4	.05	.5676
Return of assets	5.8909	4	.05	.2074

Note. N = 226.

The computed Breusch-Pagan Koenker *p*-values of .5676 and .2074 for the ROE and ROA regression models, respectively, exceeded the significance level ($p > .05$), and I failed to reject the null hypothesis that there is homoscedasticity. I did not have sufficient evidence to assume that heteroscedasticity potentially existed in the original regression equations and concluded that the homoscedasticity assumption was satisfied.

Collinearity Assumption Test

I adopted the VIF to assess the collinearity assumption. The cut-off point for VIF is 10, with a VIF score ≤ 10 suggesting the absence of potential multicollinearity (Alita et al., 2021; Buallay et al., 2021). Table 7 presents the VIF computations for the independent variables adopted in this study. The results indicated that the environmental and social risk scores, with VIF values of 1.928 and 2.242, respectively, met the collinearity assumption. I concluded that there is insufficient evidence to assume that the environmental and social risk variables potentially correlated with the other independent variables of the study.

Table 7

VIF Computation

Independent Variable	Tolerance	VIF
Environmental risk	.519	1.928
Social risk	.446	2.242
Governance risk	.087	11.435
Total asset	.093	10.765

Note. N = 226; dependent variables: ROE and ROA.

The VIF values of 11.435 for governance risk management and 10.765 for total assets suggested potential multicollinearity problem involving the variables. I applied the centered values of the independent variables in conducting the moderated multiple regression analysis for this research to address the breach of the collinearity assumption relating to the variables. Centering involves subtracting the mean of each continuous independent variable from all the observed values of the variable, and using the centered values of the variables in the analysis (Frost, 2019; Olvera Astivia & Kroc, 2019). Researchers effectively used centering for mitigating multicollinearity between the independent variables in a moderated multiple regression analysis and to generate more reliable estimates of the model coefficients (Frost, 2019; Olvera Astivia & Kroc, 2019). Centering has the advantage of maintaining the same interpretation of the resulting coefficients as the average change in the dependent variable from a unit change in the independent variable (Frost, 2019). I concluded that using the centered values of the independent variables in the regression analysis would not significantly impact the validity of the results.

Moderated Multiple Regression Analysis

I applied the moderated multiple regression analysis (OLS method), with two-tailed alpha = .05, to examine the moderating impact of total assets on the relationship between ESG risk management and the financial performance of banks. The independent variables were ESG risk management, and the dependent variables were financial performance measures of ROE and ROA. The moderating variable was bank size. The first null hypothesis was no statistically significant relationship between ESG risk

management and financial performance. The related alternative hypothesis was a statistically significant relationship between ESG risk management and financial performance. The second null hypothesis was no statistically significant moderating impact of bank size on the relationship between ESG risk management and financial performance. The second alternative hypothesis was a statistically significant moderating impact of bank size on the relationship between ESG risk management and financial performance.

Regression Analysis on Return on Equity

Table 8 depicts the results of the moderated regression analysis with ROE. The nonmoderated *F*-test is statistically significant at alpha level of .05 ($F = 7.395$; $df = 4, 221$; $p < .001$). Further analysis of the regression model can proceed. The coefficient of determination (R^2) of .118 suggests that 11.8% of the variation in the dependent variable of ROE is attributable to the predictor variables of the regression model comprising the ESG risk management effectiveness and bank size.

Summary Analysis of Environmental, Social, and Governance Risk Management Variables on Return on Equity. The results of the regression analysis indicate that the independent variables of environmental ($\beta = -.972$) and social ($\beta = -.127$) risk are negatively related to ROE, implying that lower environmental and social risk scores, which translate to improved effectiveness in environmental and social risk management, are associated with enhanced financial performance. Conversely, governance risk ($\beta = .151$) positively relates to ROE. The relationship between the individual ESG risk management variables and ROE are nonsignificant with

environmental risk ($p = .124 > .05$), social risk ($p = .299 > .05$), and governance risk ($p = .598 > .05$). I failed to reject the null hypothesis that there is no significant relationship between ESG risk management and the financial performance measure of ROE. The conclusion of no significant association between ESG risk management and ROE suggests that some other variables in the banks' operations explain their performance, and bank leaders adopted sustainable models for other goals, such as image enhancement, regulatory compliance, or adapting to isomorphic practices.

Summary Analysis of the Moderation Effect of Firm Size on Return on Equity. Table 8 depicts the results of the moderated regression analysis with ROE. The moderated *F*-test is significant at alpha level of .05 ($F = 5.155$; $df = 7, 218$; $p < .001$). Table 5 shows that by incorporating the interaction effect of total assets into the linkage between the ESG risk management variables and ROE, the values of R^2 increased from .118 to .142 and Adjusted R^2 from .102 to .114. The Adjusted R^2 value indicates that the ESG risk management variables under the moderating impact of total assets explain about 11.4% of the variation in ROE compared to an explanatory power of 10.2% in ROE under the nonmoderated model. The reduction in the *F*-ratio from 7.395 in the nonmoderated analysis to 5.155 under the moderated model suggests decreased predictive accuracy of ROE with the incorporation of the interaction impacts. However, reliable predictions could still be derived (*F*-ratio > 1).

Table 8

Moderated Regression Analysis on ROE

Variables	Coefficient	*T* - Statistic	*P* - Value	R^2	Adjusted R^2	*F*- Ratio	*df*
Model without moderation effect based on centered values:							
Constant	10.520	36.643	<.001	.118	.102	7.395	4, 221
Environmental risk	-.972	-1.542	.124				
Social risk	-.127	-1.042	.299				
Governance risk	.151	.528	.598				
Total assets	4.172	1.781	.076				
Model with moderation effect based on centered values:							
Constant	15.415	7.552	<.001	.142	.114	5.155	7, 218
Environmental risk	-.909	-1.424	.156				
Social risk	-.124	-1.014	.312				
Governance risk	6.673	2.459	.015				
Total assets	-65.353	-2.264	.025				
Interaction of values:							
Environmental*Assets	.732	.354	.724				
Social*Assets	-.262	-.736	.463				
Governance*Assets	-3.664	-2.442	.015				

Note. Dependent variable: ROE; centered variable values were used for computations.

The *p*-values under the moderated model show nonsignificant interaction effects of total assets with environmental ($p = .724 > .05$) and social ($p = .463 > .05$) risk aspects. I failed to reject the null hypotheses that there is no significant moderating impact of total assets on the relationships between environmental and social risk management and ROE. However, the interaction effect of total assets and governance risk management is significant ($p = .015 < .05$). I rejected the null hypothesis that bank size has no significant moderating impact on the relationship between governance risk management and financial performance. I accepted the alternative hypothesis that bank size significantly moderates the relationship between governance risk management and ROE. The *p*-value of total assets in the nonmoderated model is more than the significance level for the study ($p = .076 > .05$). Bank size may be individually insignificant as an independent variable in explaining the financial performance measure of ROE but could work as an effective moderating variable with governance risk management to influence ROE.

Regression Analysis on Return on Assets

Table 9 shows the results of the regression model on ROA. The nonmoderated *F*-test is statistically significant at alpha level of .05 ($F = 7.831$; $df = 4, 221$; $p < .001$). The coefficient of determination (R^2) of .124 indicates that 12.4% of the variation in the dependent variable of ROA is related to the predictor variables, consisting of ESG risk management and bank size.

Summary Analysis of Environmental, Social, and Governance Risk Management Variables on Return on Assets. The results in Table 9 indicated that social risk scores have a significant negative linkage ($\beta = -.028$; $p = .034 < .05$) with

ROA, suggesting that improved social risk management effectiveness among the banks is positively related to the CFP variable of ROA. I rejected the null hypothesis that there is no significant relationship between social risk management and CFP. The other independent variables of environmental (p =.229 > .05) and governance (p = .187 > .05) risk are not significant. I failed to reject the null hypothesis that environmental and governance risk are not significantly associated with the CFP variable of ROA.

Summary Analysis of the Moderation Effect on Return on Assets. Table 9 depicts the results of the moderated regression analysis on ROA. The moderated F-test is significant at alpha level of .05 (F = 5.086; df = 7, 218; p < .001). From Table 9, the interaction effects of total assets and the ESG risk management increased R^2 statistic from .124 to .140 and Adjusted R^2 from .108 to .113. The Adjusted R^2 value indicated that the moderating impact of total assets enhanced the variation in ROA explained by the ESG risk management to about 11.3% from 10.2% under the nonmoderated model.

The p-values from the moderated analysis show that the interaction effects of total assets and environmental (p = .138 > .05), social (p = .305 > .05), and governance (p =.191 > .05) risks were not significant. I failed to reject the null hypotheses of no significant moderating impact of total assets on the relationship between ESG risk management and ROA. The significant relationship between social risk management and ROA in the nonmoderated model was rendered insignificant with the interaction effect of total assets. As a stand-alone, total asset was a nonsignificant predictor (p = .504) under the nonmoderated model. Thus, bank size has no potential influence on the ROA of the sampled banks as an independent or moderating variable.

Table 9

Moderated Regression Analysis on ROA

Variables	Coefficient	*T*-Statistic	*P* – Value	R^2	Adjusted R^2	*F*-Ratio	*df*
Model without moderation effect based on centered values:							
Constant	.901	26.750	<.001	.124	.108	7.831	4, 221
Environmental Risk	-.089	-1.206	.229				
Social Risk	-.028	-2.128	.034				
Governance Risk	.423	1.322	.187				
Total Asset	.184	.669	.504				
Model with moderation effect based on centered values:							
Constant	1.186	4.929	<.001	.140	.113	5.086	7, 218
Environmental Risk	.114	1.512	.132				
Social Risk	-.031	-1.014	.312				
Governance Risk	6.673	2.459	.015				
Total asset	-3.900	-1.146	.253				
Interaction of values:							
Environmental*Asset	.363	1.489	.138				
Social*Asset	-.043	-1.028	.305				
Governance*Asset	-.232	-1.313	.191				

Note. Dependent variable: ROA; centered variable values were used for computations.

Findings in Relation to Existing Literature and the Theoretical Framework

This study's results presented mixed conclusions consistent with previous studies. La Torre et al. (2021) and Johnson et al. (2019) noted that there is no consensus on the associations between banks' ESG activities and CFP. The findings of this research that indicated nonsignificant associations between banks' ESG risk management and ROE aligned with the results of the study by La Torre et al., which suggested the absence of relationships between ESG activities and both ROE and ROA. The aspect of the results of this study that indicated a significant positive relationship between banks' social risk management effectiveness and ROA contrasted with the findings by La Torre et al. The research findings of no connections between banks' ESG risk management and CFP supported the conclusions by Qureshi et al. (2021) that there were no relationships between business ESG performance and CFP. The results of this study suggesting no associations between banks' environmental risk management and ROE and ROA contradicted the conclusions by Al-Ajmi et al. (2023) that banks' environmental disclosure activities are negatively associated with ROE and ROA. Additionally, the findings by Al-Ajmi et al. that banks' total assets size had a positive moderating effect on the relationships between environmental disclosure and ROE, and ROA contradicted the part of this study's results suggesting a nonsignificant moderating impact of firm size on the connections between banks' environmental risk management and ROE, and ROA. This study's findings of no associations between banks' ESG risk management and ROE, and ROA, as well as that social risk management effectiveness is positively related to ROA, were inconsistent with the results of the research by Buallay et al. (2021)

suggesting that banks' ESG activities have significant negative relationships with ROE and ROA.

The aspect of results of this research indicating that there is no relationship between banks' environmental risk management and ROE and ROA contradicted the findings by Banani and Sunarko (2022), which suggested that banking environmental CSR activities comprising green investment, green credit, and creativity were positively related to ROE. The results of the study by Buallay (2019) depicting that banks' climatic activities are positively related to ROE, and social and governance practices had negative associations with ROE and ROA misaligned with this study's findings of no linkages between banks 'ecological risk control and ROE, and ROA as well as a positive association between social risk management and ROA. Banani and Sunarko, Dat et al. (2022), and Buallay also concluded that the banks' total assets had positive links with ROE and ROA in contrast to this study's findings of no relationship between bank size and ROE, and ROA.

Several factors could account for the inconclusive results of studies on the relationship between ESG variables and the CFP of banks. The lack of consensus from empirical studies on the relationship between banking sustainability practices and financial performance suggests that banking ESG strategies are motivated by other considerations than financial returns (Al-Ajmi et al., 2023; Buallay, 2019; Ziolo et al., 2021). The differences in ESG conceptual and measurement methodologies and approaches to evaluating the link with CFP could significantly affect reasonable empirical consensus that organizational ESG investments could improve CFP (Qureshi et

al., 2021). The ESG framework has become a comprehensive tool for addressing the multifaceted concerns of banks' stakeholders and provides a diverse benchmark for evaluating their performance (La Torre et al., 2021). Additionally, the positive moderating impact of asset size indicates that economies of scale support banks ' profitability improvements and diversification (Buallay, 2019; Al-Ajmi et al., 2023).

Part of the findings from this study negates the TBL and stakeholder theories by indicating nonsignificant connections between banks' effectiveness in managing ESG risks and financial performance. The absence of significant positive relationships between ESG variables and CFP measures detracts from the TBL and stakeholder theories (Al-Ajmi et al., 2023; Buallay, 2021; Qureshi et al., 2021). The aspect of the research results that suggested a significant positive association between social risk management and ROA supports the TBL and stakeholder theories. Based on stakeholder theory, ESG-oriented business strategies should generate positive values for all the stakeholders, including improving the CFP for shareholders by supporting lower operational costs, enhanced operating efficiency and employee productivity, market share and new market access, corporate image and brand loyalty, and profitability resilience (Al-Ajmi et al., 2023; La Torre et al., 2021).

Banks play critical socioeconomic roles and are becoming increasingly interdependent with the immediate societies in which they operate and other remotely connected global players and societies. The results from this study, which essentially demonstrated no significant relationships between banks' ESG risk management and financial performance, do not necessarily imply that banks should not adopt sustainable

finance strategies. Negative ESG-CFP linkage suggests a tradeoff between banking CSR activities and CFP in the short run; in contrast, sustainable models could improve banks' long-term financial performance by strengthening the competitive advantage from lower costs, improved risk mitigation, and profit optimization (Al-Ajmi et al., 2023). Banks are more exposed to sustainability risks than the other capital market players, who mainly have indirect exposures (Ziolo et al., 2021). Additionally, banks' sustainability models improve their internal practices and could create positive chain ESG reactions from their external stakeholders (Soumya, 2021; Tóth et al., 2021). Strategically-driven sustainability investments enable businesses to do well by doing good (Johnson et al., 2019; Qureshi et al., 2021). Adopting enlightened sustainable finance models has become a strategic imperative for banks (Banani & Sunarko, 2022).

Applications to Professional Practice

The objective of this study was to ascertain the likely relationship between sustainability practices and the financial performance of global banks within the contingency of bank size to reject or fail to reject the null hypotheses. The results mainly showed statistically nonsignificant relationships between sampled banks' ESG risk management and the financial performance variables of ROE and ROA, leading to the failure to reject the applicable null hypotheses. The research findings also indicated a statistically significant association between social risk management and the CFP variable of ROA, based on which I rejected the relevant null hypothesis. The study results depicted a significant moderating impact of bank size on the relationship between governance risk management and the financial performance variable of ROE, for which I

rejected the relevant null hypothesis. The findings of this research could assist global bank managers with the understanding and information to develop appropriate rationale and objectives for deploying sustainable banking initiatives and the relevant criteria for evaluating the outcomes. The results could support bank leaders in determining how to leverage operating scale to determine the appropriate level of investments in sustainability initiatives that optimize the defined corporate ESG objectives.

The findings of this study could support global bank leaders with the awareness and data for adopting sustainability-oriented internal and external practices that could translate to competitive advantage for the banks. The internal sustainability dimension includes equitable employment and health policies that could improve staff morale and productivity (Soumya, 2019). The externally focused practices include adopting sustainable service delivery models such as online/mobile banking, digitalized/customer self-service channels, and agency banking (Zahid et al., 2021). The research results could assist global bank leaders in adopting climate-friendly internal operational policies and deploying innovative sustainability-oriented lending and investment practices to attract low-cost sustainability-oriented investors and bondholders, penetrate new markets, create brand differentiation, and consolidate customer loyalty in the face of increasing competition and narrowing margins. Applying ESG criteria in lending and investment decisions is critical for the veracity of a bank's sustainability credentials (Soumya, 2019). The study's findings could also provide global bank managers with the understanding and information to deploy sustainable initiatives that facilitate appropriate collective competencies for balanced and optimal resource allocation decisions. Sustainability

measurement and evaluation processes could support firms in developing institutional knowledge for improved organizational decision making (Lopez et al., 2020).

Implications for Social Change

The findings from this research could support a potential positive social change by providing the information and awareness that empowers international bank leaders to infuse a sense of belonging and multicultural tolerance among the workers. Such openness and cohesion in the work environment could enhance the employees' mutual co-operation, job satisfaction, and resourcefulness. Banking CSR activities could support employee engagement and work safety, which enhance employee creativity and could translate to competitive advantage (Ahmad et al., 2022). An equitable multicultural work environment could foster physical and psychological workplace safety and foster a highly skilled and diversified talent pool that enhances teamwork and collective problem-solving.

This study has implications for positive social change relating to the potential for bank managers to reduce their banks' carbon footprint and support the sustainability practices of external stakeholders in the global quest for attaining low-carbon societies. Banks can leverage their financial intermediation roles to influence the sustainability behaviors of their customers and permeate appropriate sustainable practices and values across society (Lopez et al., 2020; Soumya, 2021).

The implications for positive social change from this research include the potential to promote financial inclusion and poverty reduction in society. Bank managers could apply sustainable finance models to extend banking services and financing to

remote areas and the unbanked segments of the population (Forcadell et al., 2019; Zahid et al., 2021). Access to sustainable banking products and services and technical support could enable the underbanked or unbanked and poor segments of society to move from the informal to formal economic sectors by enhancing their wealth-creation and earnings capability, product quality and compliance with international standards, access to a broader market, and integration into the global value chains.

Recommendations for Action

The results from this study suggest that sustainable banking practices are mainly not significantly associated with the financial performance of the banks and that bank size mostly has an insignificant moderating impact on the relationships between banking ESG risk management and financial performance. Part of the study results indicated that banks' improved effectiveness in social risk management is positively related to financial performance, and bank size moderates the association between governance risk management and financial performance.

The findings from prior studies showed a lack of consensus on the relationship between ESG strategies and financial performance in the banking sector and the contingent effect of bank size on the relationship. La Torre et al. (2021) evaluated whether banks can find sufficient financial motivation to adopt ESG practices voluntarily or require regulatory interventions to externally compel their compliance. They found no relationships between ESG initiatives and financial performance in the banks, and that bank size has a negative relationship with financial performance variables.

Banani and Sunarko (2022) investigated the linkages between sustainable finance models and the financial performance of banks operating in emerging economies. Banani and Sunarko concluded from the study that banking CSR practices are positively related to financial performance, and bank size, measured by total assets, is positively associated with financial performance. The findings from the study by Al-Ajmi et al. (2023) indicated that bank size has a positive moderating effect on the relationship between sustainability practices and financial performance.

This study will enhance existing knowledge and data on the potential financial and nonfinancial motivations underlying global banking sustainability practices by highlighting increasing stakeholders' interests in banks' operations. The recommendation for action is that bank managers incorporate sustainability risk considerations into their existing ERM frameworks and business strategies to address the multifarious conflicting stakeholder pressures. Adopting sustainable finance models alters the corporate risk dynamics, requiring enhanced ERM framework and strategies for merging banking ESG and conventional risks (Nițescu & Cristea, 2020; Scholtens & van't Klooster, 2019).

Global bank leaders should identify the financial and nonfinancial objectives that drive their sustainability strategies in the various CSR-oriented communications to stakeholders. Clarity of corporate sustainability-oriented goals could reduce the ambiguity surrounding the core drivers of sustainable banking strategies and provide a valid benchmark for evaluating a bank's sustainability performance. Another proposed action is to enhance the measurement and reporting of sustainable banking models

through the convergence of practices, taxonomies, objectives, and performance metrics, at least among industry cluster players.

The results of this research could support bank managers and other financial management professionals, researchers, investors, and regulators. I plan to submit an article for publication in business sustainability or ethics, banking and finance, and business management journals. In addition, I intend to present the findings from this study at conferences or seminars attended by business managers, financial experts, and banking regulators.

Recommendations for Further Research

The recommendations for further study include using other ESG measures that consider an organization's transparency in managing and reporting financial and nonfinancial information. ESG performance measures that more realistically reflect banks' sustainability practices could address the potential drawbacks of greenwashing, enhance the accuracy and reliability of sustainability performance data applied in studies, and validate the results of this research.

Another recommendation for further study relates to using panel data, which incorporates both cross-sectional and longitudinal information, to investigate the relationship between sustainable banking practices and financial performance. The 2021 data applied in this cross-sectional study related to a period of low financial performance for banks and other economic sectors globally because of the disruptive effects of the COVID-19 pandemic. Adopting panel data that reflect historical performance records could smoothen the potential negative impacts of such black-swan events and provide

insight into the association between banks' ESG activities and long-term financial outcomes.

In this study, I considered the moderating impact of only bank size on the relationship between ESG activities and the financial performance of global banks. Since the sampled banks operate across different countries, other relevant macroeconomic and sociocultural variables that could affect their performances include GDP growth rate, inflation rate, interest and foreign exchange rates, stakeholder composition and influence, and regulatory framework (La Torre et al., 2021). Further studies incorporating these variables could better explain the association between sustainable banking practices and financial performance.

The data on the ESG and CFP variables applied in this study related to the same period. Additional researches using a lagged analysis of the relationship between ESG variables and CFP may improve the validity of the findings. A lagged analysis would adequately consider the view that corporate investments in ESG initiatives may result in enhanced financial performance after some gestation periods (see Martinez & Mesa, 2021; Miller ret al., 2020; Scholtens & van't Klooster, 2019).

In this research, I made no distinction between the sampled banks' possible focus on financial versus stakeholder sustainability materiality approaches. Delgado-Ceballos et al. (2023) identified potential businesses managers' bias ESG practices and reporting towards financial materiality, emphasizing investor-focused financial risks and returns versus stakeholder materiality, focused on the external ecological and stakeholder impacts, or double materiality, combining both. Further studies accounting for the

financial and stakeholder materiality dichotomy or their combination may provide additional perspectives on how the nucleus of banks' ESG practices and the related data could affect the linkages between ESG activities and financial performance.

Reflections

I commenced this study to gain insight into the complex business problem of organizational sustainability and leverage the understanding to provide an evidence-based rationale for adopting sustainable strategies, or otherwise, by bank managers. This study accorded me new perspectives on the inherent positive social changes derivable from banking sustainability practices at individual employee, corporate and societal levels.

My review of previous studies on business sustainability revealed enormous complexities in researching the subject, deriving from the amorphous conceptualization, conflicting stakeholders' concerns, divergent motivations and sustainability objectives of businesses leaders, and the proliferation of enabling ESG standards and frameworks. These challenges led to divergences in sustainable practices, jurisdictional regulatory interventions and requirements, measurement models, and reporting formats across industry sectors and geographical regions, further compounding the evaluation of the sustainability activities of global banks. I partly mitigated this problem by adopting the sampled banks' publicly accessible ESG performance information derived using a uniform measurement model from a single database. This study exposed me to the complications and inherent paradoxes of implementing business sustainability strategies, the intricacies of the sustainability initiatives and the drivers, and the outcome criteria underlying global bank managers' decisions to adopt sustainable finance models.

Along this study's undulating and engaging journey, I acquired critical academic, professional, and personal organizational skills that would guide me beyond the research requirements. I also enhanced some other preexisting rudimentary skills. I became increasingly adept in critically evaluating and synthesizing ideas to reach evidence-based conclusions while gaining increased confidence in my enhanced presentation skills and professionalism in using the APA format in research writing. The added skills will be handy in the subsequent studies and reporting I undertake. I gained crucial work-life balance and multitasking skills, which enabled me to navigate between work, study, and family to meet the stringent timelines for this study and cope with other commitments that I could not delay or further postpone after some point. I devoted substantial study and practice time to acquire the requisite skills for statistical analysis and a better understanding of quantitative test procedures, which I applied to analyze the data and report the results of this research.

I adopted publicly available secondary data for this study. The efforts to obtain the data when needed for analysis exposed me to the reality of licensing restrictions and costly subscription fees attached to accessing some of the databases, which could make this type of study cost prohibitive. The key lesson I took away from the data collection experience in this study is to proactively determine, during the research planning and design phases, the exact subscription costs for the required data and the affordability to make a timely decision on whether to use primary data, if the secondary data option is deemed cost ineffective. I also learned late in the research process that some database owners provide free data access for academic studies. However, it involves a lengthy

authentication and authorization process to verify the researcher and the research purpose. Some database owners may also provide free access based on existing partnership arrangements with Walden University. Students may first explore the free database access options before going for paid subscriptions, but this also should be done early in the research journey.

Conclusion

This quantitative ex-post facto study was applied to examine the relationship between the effectiveness of ESG risk management and the financial performance of global banks within the contingency of bank size. I deployed SPSS Version 28 to test the hypotheses involving computing the descriptive statistics, evaluating the underlying assumptions, and conducting moderated multiple regression analysis (OLS method) simultaneously to validate the results. I tested one of the assumptions using an Excel spreadsheet because the functionality does not directly exist in SPSS. The findings suggested that sustainable banking practices are not significantly related to financial performance in most cases, and firm size has no moderating impact on the relationship between sustainable banking initiatives and financial performance. Aspects of the research findings indicated that social risk management effectiveness is associated with the financial performance of global banks, and bank size moderates the relationship between governance risk management and financial performance. This study is vital because global bank leaders need to understand how ESG practices relate to their bank's profitability and other potential beneficiary stakeholders in deciding to implement sustainable finance models. Compared to the findings from previous and recent studies,

the overall results of this study further highlighted the lack of consensus on how the strategic sustainable approach relates to global banks' profitability.

The research findings contradicted the TBL and stakeholder theories by identifying nonsignificant relationships between banking sustainability practices and financial performance. The part of the study findings suggesting a positive relationship between banks' social risk management effectiveness and financial performance supports the TBL and stakeholder theories. This study will provide valuable insight to international bank managers in deploying sustainable finance models that could positively affect staff morale and productivity, foster low-cost operations and ESG-compliant values within the society, and ensure their banks' long-term survival by generating financial and nonfinancial outcomes that address the multifarious concerns of the stakeholders.

References

Abdi, Y., Li, X., & Càmara-Turull, X. (2020). Impact of sustainability on firm value and financial performance in the air transport industry. *Sustainability, 12*(23), Article 9957. https://doi.org/10.3390/su12239957

Ahmad, N., Ullah, Z., AlDhaen, E., Han, H., & Scholz, M. (2022). A CSR perspective to foster employee creativity in the banking sector: The role of work engagement and psychological safety. *Journal of Retailing and Consumer Services, 67,* Article 102968. https://doi.org/10.1016/j.jretconser.2022.102968

Al-Ababneh, M. M. (2020). Linking ontology, epistemology and research methodology. *Science & Philosophy, 8*(1), 75–91. https://doi.org/10.23756/sp.v8i1.500

Al-Ajmi, J., Saudagaran, S., Kukreja, G., & Fadel, S. (2023). Does it pay to be green? Evidence from banks in emerging markets. *Competitiveness Review: An International Business Journal, 33*(1), 85–106. https://doi.org/10.1108/CR-11-2021-0151

Al-Busaidi, K. A., & Al-Muharrami, S. (2021). Beyond profitability: ICT investments and financial institutions performance measures in developing economies. *Journal of Enterprise Information Management, 34*(3), 900–921. https://doi.org/10.1108/JEIM-09-2019-0250

Ali, S., Zhang, J., Naseem, M. A., & Ahmad, F. (2019). Moderating role of ownership in relationship between CSRD and firm performance. *The Journal of Developing Areas, 53*(3), 213–228. https://doi.org/10.1353/jda.2019.0048

Alita, D., Putra, A. D., & Darwis, D. (2021). Analysis of classic assumption test and

multiple linear regression coefficient test for employee structural office recommendation. *Indonesian Journal of Computing and Cybernetics Systems, 15*(3), 295–306. https://doi.org/10.22146/ijccs.65586

Alsharari, N. M. (2020). Accounting changes and beyond budgeting principles (BBP) in the public sector: Institutional isomorphism. *International Journal of Public Sector Management, 33*(2/3), 165–189. https://doi.org/10.1108/IJPSM-10-2018-0217

Amis, J., Barney, J., Mahoney, J. T., & Wan, H. (2020). Why we need a theory of stakeholder governance—And why this is a hard problem. *Academy of Management Review, 45*(3), 499–503. https://doi.org/10.5465/amr.2020.0181

Antoncic, M. (2021). The global core indicators: A sustainability risk management and reporting framework. *Journal of Risk Management in Financial Institutions, 14*(3), 224–228. https://hstalks.com/article/6341/the-global-core-indicators-a-sustainability-risk-m/

Aycock, D. M., & Hayat, M. J. (2020). Strategies for the planning and handling of missing data in nursing research. *Journal of Nursing Education, 59*(5), 249–255. https://doi.org/10.3928/01484834-20200422-03

Baker, C., Knepil, G., & Courtney, P. (2022). The role of qualitative research in oral and maxillofacial surgery. *British Journal of Oral and Maxillofacial Surgery, 60*(7), 910–914. https://doi.org/10.1016/j.bjoms.2022.01.005

Banani, A., & Sunarko, B. (2022). Nexus between green finance, creativity, energy accounting and financial performance: Banks sustainability analysis from

developing country. *International Journal of Energy Economics and Policy, 12*(6), 447–455. https://doi.org/10.32479/ijeep.13806

Banning, E. B. (2021). Sampled to death? The rise and fall of probability sampling in archaeology. *American Antiquity, 86*(1), 43–60. https://doi.org/10.1017/aaq.2020.39

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037//0022-3514.51.6.1173

Bătae, O. M., Dragomir, V. D., & Feleagă, L. (2020). Environmental, social, governance (ESG), and financial performance of European banks. *Accounting and Management Information Systems, 19*(3), 480–501. http://doi.org/10.24818/jamis.2020.03003

Benkert, J. (2021). Reframing business sustainability decision-making with value-focused thinking. *Journal of Business Ethics, 174*(1), 441–456. https://doi.org/10.1007/s10551-020-04611-4

Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses' Association, 22*(2), 27–30. https://doi.org/10.33235/jarna.22.2.27-30

Bobbit, Z. (2020, March 26). How to perform a Breusch-Pagan test in Excel. *Statology Study*. https://www.statology.org/breusch-pagan-test-excel/

Bougie, R., & Sekaran, U. (2019). *Research methods for business: A skill building*

approach (8th ed.). John Wiley and Sons.

Brand, F. S., Blaese, R., Weber, G., & Winistoerfer, H. (2022). Changes in corporate responsibility management during Covid-19 crisis and their effects on business resilience: An empirical study of Swiss and German companies. *Sustainability, 14*(7), 1–18. https://doi.org/10.3390/su14074144

Braun, R., Ravn, T., & Frankus, E. (2020). What constitutes expertise in research ethics and integrity? *Research Ethics, 16*(1), 1–16. https://doi.org/10.1177/1747016119898402

Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal, 30*(1), 98–115. https://doi.org/10.1108/MEQ-12-2017-0149

Buallay, A. (2020). Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. *International Journal of Productivity and Performance Management, 69*(3), 431–445. https://doi.org/10.1108/IJPPM-10-2018-037

Buallay, A., Fadel, S. M., Alajimi, J., & Saudagaran, S. (2021). Sustainability reporting and bank performance after financial crisis: Evidence from developed and developing countries. *Competitiveness Review: An International Business Journal, 31*(4), 747–770. https://doi.org/10.1108/CR-04-2019-0040

Bugandwa, T. C., Kanyurhi, E. B., Akonkwa, D. B. M., & Mushigo, B. H. (2021). Linking corporate social responsibility to trust in the banking sector: Exploring

disaggregated relations. *International Journal of Bank Marketing*, *39*(4), 592–617. https://doi.org/10.1108/IJBM-04-2020-0209

Carbon Disclosure Project. (2020). *The time to green finance: CDP financial services disclosure report*. https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/741/original/CDP-Financial-Services-Disclosure-Report-2020.pdf?1619537981

Ceptureanu, S. I., Ceptureanu, E. G., Popescu, D., & Orzan, O. A. (2020). Eco-innovation capability and sustainability driven innovation practices in Romanian SMEs. *Sustainability*, *12*(17), 1–18. https://doi.org/10.3390/su12177106

Champagne, C., Coggins, F., & Sodjahin, A. (2021). Can extra-financial ratings serve as an indicator of ESG risk? *Global Finance Journal*, *54*(10), 1–25. https://doi.org/10.1016/j.gfj.2021.100638

Chen, B., & Zhang, A. (2021). How does corporate social responsibility affect the cost of equity capital through operating risk? *Borsa Istanbul Review*, *21*(1), S38–S45. https://doi.org/10.1016/j.bir.2021.01.005

Ciulei, O. (2021). Bank risk management case study: Transilvania bank. *Journal of Information Systems & Operations Management*, *15*(2), 51–63. http://jisom.rau.ro/

Cragoe, N. G. (2019). Oversight: Community vulnerabilities in the blind spot of research ethics. *Research Ethics*, *15*(2), 1–15. https://doi.org/10.1177/1747016117739936

Curtis, A. C., & Keeler, C. (2021). Sampling Design in Nursing Research. *The American Journal of Nursing*, *121*(3), 53–57.

https://doi.org/10.1097/01.NAJ.0000737304.14564.51

Daszyńska-Żygadło, K., Słoński, T., & Dziadkowiec, A. (2021). Corporate social performance and financial performance relationship in banks: Sub-industry and cross-cultural perspective. *Journal of Business Economics and Management, 22*(2), 424–444. https://doi.org/10.3846/jbem.2020.13892

Dat, N. M., Dai, N. Q., & Ngoc, P. B. (2022). The impact of corporate social responsibilities (CSR), entrepreneurship, and financial factors on the financial performance of the banks in ASEAN countries. *Contemporary Economics, 16*(2), 227–240. https://doi.org/10.5709/ce.1897-9254.479

de la Fuente, G., Ortiz, M., & Velasco, P. (2022). The value of a firm's engagement in ESG practices: Are we looking at the right side? *Long Range Planning, 55*(4), 1–26. https://doi.org/10.1016/j.lrp.2021.102143

Delgado-Ceballos, J., Ortiz-De-Mandojana, N., Antolín-López, R., & Montiel, I. (2023). Connecting the Sustainable Development Goals to firm-level sustainability and ESG factors: The need for double materiality. *Business Research Quarterly, 26*(1), 2–10. https://doi.org/10.1177/23409444221140

Delgado-Hito, P., & Romero-García, M. (2021). Elaboration of a research project using qualitative methodology. *Enfermería Intensiva, 32*(3), 164–169. https://doi.org/10.1016/j.enfi.2021.03.001

Déséglise, C., & Freijido, D. L. (2019). Financing sustainable infrastructure at scale. *Journal of International Affairs, 73*(1), 33–48. https://www.jstor.org/stable/26872777

Díaz de Rada, V., & Martínez, V. (2020). Household sampling designs: Differences and similarities between probability sampling and route and quota sampling. *Revista Española de Investigaciones Sociológicas, 171*, 23–42. https://doi.org/10.5477/cis/reis.171.23

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147–160. https://doi.org/10.2307/2095101

Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review, 20*(1), 65–91. https://doi.org/10.5465/amr.1995.9503271992

Dong, S., Xu, L., & McIver, R. (2021). China's financial sector sustainability and "green finance" disclosures. *Sustainability Accounting, Management and Policy Journal, 12*(2), 353–384. https://doi.org/10.1108/SAMPJ-10-2018-027

Draper, J., Liu, Y., & Young, L. (2021). Research methods, data collection, and data analysis in meetings, expositions, events, and conventions journals. *Journal of Convention & Event Tourism, 22*(5), 429–447. https://doi.org/10.1080/15470148.2021.1906373

Dule, A., Abdu, Z., Hajure, M., Mohammedhussein, M., Girma, M., Gezimu, W., & Duguma, A. (2023). Facebook addiction and affected academic performance among Ethiopian university students: A cross-sectional study. *PLoS ONE, 18*(2), 1–10. https://doi.org/10.1371/journal.pone.0280306

Duque-Grisales, E., & Aguilera-Caracuel, J. (2021). Environmental, social

and governance (ESG) scores and financial performance of Multilatinas: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics, 168*(2), 315–334. https://doi.org/10.1007/s10551-019-04177-w

Dziawgo, D. (2019). Sustainable finance as a new financial investment model. *Research Papers of Wroclaw University of Economics and Business, 63*(12), 23–34. https://doi.org/10.15611/pn.2019.12.02

Edwards, J. R. (2020). The peaceful coexistence of ethics and quantitative research. *Journal of Business Ethics, 167*(1), 31–40. https://doi.org/10.1007/s10551-019-04197-6

Ehwi, R. J., Oti-Sarpong, K., Shojaei. R., & Burgess, G. (2022) Offsite manufacturing research: A systematic review of methodologies used. *Construction Management and Economics, 40*(1), 1–24. https://doi.org/10.1080/01446193.2021.2007537

Elalfy, A., Weber, O., & Geobey, S. (2021). The Sustainable Development Goals (SDGs): A rising tide lifts all boats? Global reporting implications in a post SDGs world. *Journal of Applied Accounting Research, 22*(3), 557–575. https://doi.org/10.1108/JAAR-06-2020-0116

Elkington, J. (1998). *Cannibals with forks: The triple bottom line of 21st century business*. New Society. (Original work published 1997) https://www.worldcat.org/title/39658832

Elsayed, H. M., Elmekkawi, S. F., Elkotb, A. M., Abdelhady, R. M., & Elhossary, H. M. A. (2018). Transverse Supraumbilical versus Pfannenstiel Incision for cesarean

section in morbidly obese women: A randomized controlled trial. *The Egyptian Journal of Hospital Medicine, 72*(7), 4780–4785. https://doi.org/10.1093/qjmed/hcaa056.031

English, L. D. (2021). Reporting on qualitative components of a research project. *International Journal of Pedagogy and Teacher Education, 5*(2), 50–53. https://doi.org/10.20961/ijpte.v5i2.55896

Faems, D. (2020). Moving forward quantitative research on innovation management: A call for an inductive turn on using and presenting quantitative research. *R&D Management 50*(3), 352–363. https://doi.org/10.1111/radm.12406

Fares, J., Chung, K. S. K., & Abbasi, A. (2021). Stakeholder theory and management: Understanding longitudinal collaboration networks. *PLoS ONE, 16*(10), 1–28. https://doi.org/10.1371/journal.pone.0255658

Farmer, A. Y., & Farmer, L. G. (2021). *Research methods for social work: A problem-based approach*. SAGE Publications. https://doi.org/10.4135/9781071878873

Farooq, Q., Fu, P., Liu, X., & Hao, Y. (2021). Basics of macro to micro-level corporate social responsibility and advancement in triple bottom line theory. *Corporate Social Responsibility and Environmental Management, 28*(3), 969–979. https://doi.org/10.1002/csr.2069

Forcadell, F. J., Aracil, E., & Úbeda, F. (2019). The influence of innovation on corporate sustainability in the international banking industry. *Sustainability, 11*(11), 1–15. https://doi.org/10.3390/su11113210

Forcadell, F. J., Aracil, E., & Úbeda, F. (2020). The impact of corporate sustainability

and digitalization on international banks 'performance. *Global Policy*, *11*(1), 18–27. https://doi.org/10.1111/1758-5899.12761

Frankfort-Nachmias, C., & Leon-Guerrero, A. (2018). *Social statistics for a diverse society* (8th ed.). SAGE Publishing. https://edge.sagepub.com/frankfort8e

Frecea, L.G. (2017). The people-oriented approach of CSR for the banking industry in Romania. *European Journal of Interdisciplinary Studies*, *9*(1), 1–16. https://www.ejist.ro/files/pdf/414.pdf

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman. https://www.worldcat.org/title/9685996

Frieman, J., Saucier, D. A., & Miller, S. S. (2018). *Principles & methods of statistical analysis*. SAGE Publications. https://doi.org/10.4135/9781071878903

Frost, J. (2019). *Regression analysis: An intuitive guide for using and interpreting linear models* (1st ed.). Statistics by Jim Publishing. https://statisticsbyjim.com/store/

Gabeshi, K. (2021). The role and financial performance of banks in the Western Balkans. *Revue des Sciences Politiques*, *70*, 129–139. https://www.ceeol.com/search/article-detail?id=1055709

Garg, A., & Kumar, J. (2021). Social media marketing influence on Boutique Hotel customers 'purchase intention in Malaysia. *Tourism & Management Studies*, *17*(3), 51–62. https://doi.org/10.18089/tms.2021.170304

Gopi, K. T., & Momintaj, M. (2021). Effect of corpus composition on financial performance: A study of NSE listed energy sector companies. *International Journal of Recent Research Aspects*, *8*(4), 1–6.

https://www.academia.edu/64666297/Effect

Greenwood, M. (2016). Approving or improving research ethics in management journals. *Journal of Business Ethics, 137*(3), 507–520. https://doi.org/10.1007/s10551-015-2564-x

Guo, J., Tang, B., Huo, Q., Liang, C., & Gen, M. (2021). Fuzzy programming of dual recycling channels of sustainable multiobjective waste electrical and electronic equipment (WEEE) based on triple bottom line (TBL) theory. *Arabian Journal for Science and Engineering, 46*(10), 10231–10244. https://doi.org/10.1007/s13369-021-05705-5

Haghani, M., Bliemer, M. C. J., Rose, J. M., Oppewal, H., & Lancsar, E. (2021). Hypothetical bias in stated choice experiments: Part II. Conceptualization of external validity, sources and explanations of bias and effectiveness of mitigation methods. *Journal of Choice Modelling, 41*(2), 1–30. https://doi.org/10.1016/j.jocm.2021.100322

Halim, G. A., Agustin, P., Adiwijayanto, E., & Ohyver, M. (2023). Estimation of cost of living in a particular city using multiple regression analysis and correction of residual assumptions through appropriate methods. *Procedia Computer Science, 216*, 613–619. https://doi.org/10.1016/j.procs.2022.12.176

Hann, T., Pinkse, J., Preuss, L., & Figge, F. (2015). Tensions in corporate sustainability: Towards an integrative framework. *Journals of Business Ethics, 127*(1), 297–316. https://doi.org/10.1007/s10551-014-2047-5

Hitchman, L., & Chetter, I. (2020). Research methods for the clinical surgeon. *Surgery,*

38(10), 648–652. https://doi.org/10.1016/j.mpsur.2020.07.008

Huang, D. Z. X. (2021). Environmental, social, and governance (ESG) activity and firm performance: A review and consolidation. *Accounting & Finance, 61*(1), 335–360. https://doi.org/10.1111/acfi.12569

Igbudu, N., Garanti, G., & Popoola, T. (2018). Enhancing bank loyalty through sustainable banking practices: The mediating effect of corporate image. *Sustainability*, *10*(11), Article 4050. https://doi.org/10.3390/su10114050

Islam, M. T., Kokubu, K., & Nishitani, K. (2021). Corporate social reporting in the banking industry of Bangladesh: A test of legitimacy theory. *Social Responsibility Journal*, *17*(2), 198–225. https://doi.org/10.1108/SRJ-05-2019-0185

Jaba, E., Sandu, C. B., Mihai, O., & Roman, M. D. (2020). Statistical assessment of the profile of literature reviews of research articles in economic studies. *Economic Computation and Economic Cybernetics Studies and Research*, *54*(4), 71–85. https://doi.org/10.24818/18423264/54.4.20.05

Ji, A., Zhang, J., He, X., & Zhang, Y. (2022). Fixed effects panel interval-valued data models and applications. *Knowledge-Based Systems*, *237*(3), Article 107798. https://doi.org/10.1016/j.knosys.2021.107798

Johnson, R., Mans-Kemp, N., & Erasmus, P.D. (2019). Assessing the business case for environmental, social, and corporate governance practices in South Africa. *South African Journal of Economic and Management Sciences*, *22*(1), 1–13. https://doi.org/10.4102/sajems. v22i1.2727

Jones, T. M., Harrison, J. S., & Felps, W. (2018). How applying instrumental stakeholder

theory can provide sustainable competitive advantage. *Academy of Management Review*, *43*(3), 371–391. https://doi.org/10.5465/amr.2016.0111

Jum'a, L., Zimon, D., Ikram, M., & Madzík, P. (2022). Towards a sustainability paradigm; the nexus between lean green practices, sustainability-oriented innovation and triple bottom line. *International Journal of Production Economics*, *245*, Article 108393. https://doi.org/10.1016/j.ijpe.2021.108393

Keeler, C., & Curtis, A. C. (2022). Secondary data in nursing research: Advantages and potential drawbacks, and how and when to use these data. *American Journal of Nursing*, *122*(4), 58–61. https://links.lww.com/AJN/A204

Khattak, M. A. (2021). Corporate sustainability and financial performance of banks in Muslim economies: The role of institutions. *Journal of Public Affairs*, *21*(1), 1–10. https://doi.org/10.1002/pa.2156

Kılıç, M., Uyar, A., Kuzey, C., & Karaman, A.S. (2021). Does institutional theory explain integrated reporting adoption of Fortune 500 companies? *Journal of Applied Accounting Research*, *22*(1), 114–137. https://doi.org/10.1108/JAAR-04-2020-0068

Kim, S., & Li, Z. (2021). Understanding the impact of ESG practices in corporate finance. *Sustainability*, *13*(7), 1–15. https://doi.org/10.3390/su13073746

Klefsjo, U., Kantzer, A. K., Gillberg, C., & Billstedt, E. (2021). The road to diagnosis and treatment in girls and boys with ADHD – Gender differences in the diagnostic process. *Nordic Journal of Psychiatry*, *75*(4), 301–305. https://doi.org/10.1080/08039488.2020.1850859

Knight, J. (2019). The need for improved ethics guidelines in a changing research landscape. *South African Journal of Science*, *115*(11/12), 13–15. https://doi.org/10.17159/sajs.2019/6349

Laerd Statistics (2018). *Linear regression analysis using SPSS Statistics*. Lund Research Ltd. https://statistics.laerd.com/spss-tutorials/

La Torre, M., Leo. S., & Panetta, I.C. (2021). Banks and environmental, social, and governance drivers: Follow the market or the authorities? *Corporate Social Responsibility and Environmental Management*, *28*(6), 1620–1634. https://doi.org/10.1002/csr.2132

Lau, C. K., & Chen, H. (2022). Stakeholder perceptions on the risk factors, challenges, and benefits of business sustainability practices in the Singapore construction industry. *Property Management*, *40*(2), 149–168. https://doi.org/10.1108/PM-02-2021-0014

LeBlanc, B., Leitsch, J., & Pearl, R. (2021). The evolution of sustainability reporting. *The Corporate Citizen*, *35*, 32–35. https://ccc.bc.edu/content/ccc/research/corporate-citizen-magazine.html

Lee, M. T., & Suh, I. (2022). Understanding the effects of environment, social, and governance conduct on financial performance: Arguments for a process and integrated modelling approach. *Sustainable Technology and Entrepreneurship*, *1*(1), Article 100004. https://doi.org/10.1016/j.stae.2022.100004

Lin, C. W., Tan, W. P., Lee, S. S., & Mao, T. Y. (2021). Is the improvement of CSR helpful in business performance? Discussion of the interference effects of

financial indicators from a financial perspective. *Complexity*, *2021*(12), 1–9. https://doi.org/10.1155/2021/4610097

Lobmeier, J. H. (2010). Nonexperimental designs. In N. J. Salkind (Ed.), *Encyclopedia of research design* (2010 ed., pp. 911–914). SAGE Publications. https://doi.org/10.4135/9781412961288

Lopez, B., Torres, A., Ruozzi, A., & Vicente, J. A. (2020). Main factors for understanding high impacts on CSR dimensions in the finance industry. *Sustainability*, *12*(6), Article 2395. https://doi.org/10.3390/su12062395

Lyon, D. J., & Tsai, C.-L. (2019). A comparison tests for heteroscedasticity. *Journal of the Royal Statistical Society*, *45*(3), 337–349. (Original work published 1996) https://doi.org/10.2307/2988471

Mahmood, F., Qadeer, F., Saleem, M., Han, H., & Montes, A. A. (2021). Corporate social responsibility and firms 'financial performance: A multi-level serial analysis underpinning social identity theory. *Economic Research-Ekonomska Istraživanja, 34*(1), 2447–2468. https://doi.org/10.1080/1331677X.2020.1865181

Man, K., Schumacker, R., Morell, M., & Wang, Y. (2022). Effects of compounded non-normality of residuals in hierarchical linear modeling. *Educational and Psychological Measurement, 82*(2), 330–355. https://doi.org/10.1177/00131644211010234

Mans-Kemp, N., & Van der Lugt, C. T. (2020). Linking integrated reporting quality with sustainability performance and financial performance in South Africa. *South African Journal of Economic and Management Sciences 23*(1), 35–72.

https://doi.org/10.4102/sajems.v23i1.3572

Martinez, S. S., & Mesa, A. P. (2021). An in-depth look at the status of environmental financial accounting in Mexico from the point of view of stakeholder theory: Myth or reality? *Revista Brasileira De Gestão De Negócios*, *23*(2), 318–336. https://doi.org/10.7819/rbgn.v23i2.4107

Martínez-Campillo, A., Wijesiri, M., & Wanke, P. (2020). Evaluating the double bottom-line of social banking in an emerging country: How efficient are public banks in supporting priority and non-priority sectors in India? *Journal of Business Ethics, 162*(2), 399–420. https://doi.org/10.1007/s10551-018-3974-3

McKechnie, D., & Fisher, M. J. (2019). Considerations when choosing a statistical method for data analysis. *Journal of the Australasian Rehabilitation Nurses' Association, 22*(3), 20–29. https://doi.org/10.33235/jarna.22.3.20-29

Mendez, A., & Houghton, D. P. (2020). Sustainable banking: The role of multilateral development banks as norm entrepreneurs. *Sustainability, 12*(3), Article 972. https://doi.org/10.3390/su12030972

Michaelowa, K., Michaelowa, A., Reinsberg, B., & Shishlov, I. (2020). Do multilateral development bank trust funds allocate climate finance efficiently? *Sustainability, 12*(14), Article 5529. https://doi.org/10.3390/su12145529

Miller, S. R., Eden, l., & Li, D. (2020). CSR reputation and firm performance: A dynamic approach. *Journal of Business Ethics, 163*(1), 619–636. https://doi.org/10.1007/s10551-018-4057-1

Moler, E. R. V., Page, G., FloresRentería, L., Garms, C. G., Hull, J. B., Cooper, H. F.,

Swenson, J., Perks, S., Waring, K. M., & Whipple, A. V. (2021). A method for experimental warming of developing tree seeds with a common garden demonstration of seedling responses. *Plant Methods, 17*(1), 1–12. https://doi.org/10.1186/s13007-020-00700-7

Moufty, S., Clark, E., & Al-Najjar, B. (2021). The different dimensions of sustainability and bank performance: Evidence from the EU and the USA. *Journal of International Accounting, Auditing and Taxation, 43,* Article 100381. https://doi.org/10.1016/j.intaccaudtax.2021.100381

Mrisho, M., & Essack, Z. (2021). Understanding constraints and enablers of turnaround time for ethics review: The case of IRBs in Tanzania. *Journal of Empirical Research on Human Research Ethics, 16*(5), 514–524. https://doi.org/10.1177/15562646211026855

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979, April 17). *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research*. https://www.hhs.gov/ohrp/sites/default/files/the-belmont-report-508c_FINAL.pdf

Nițescu, D. C., & Cristea, M. A. (2020). Environmental, social, and governance risks – New challenges for the banking business sustainability. *Amfiteatru Economic, 22*(55), 692–706. https://doi.org/10.24818/EA/2020/55/692

Nobanee, H., Al Hamadi, F. Y., Abdulaziz, F. A., Abukarsh, L. S., Alqahtani, A. F., AlSubaey, S. K., Alqahtani, S. M., & Almansoori, H. A. (2021). A bibliometric analysis of sustainability and risk management. *Sustainability, 13*(6), Article

3277. https://doi.org/10.3390/su13063277

Okanga, B., & Groenewald, D. (2017), Leveraging effects of triple bottom lines business model on the building and construction small and medium-sized enterprises ' market performance. *Acta Commercii*, *17*(1), 1–14. https://doi.org/10.4102/ac.v17i1.457

Olvera Astivia, O. L., & Kroc, E. (2019). Centering in multiple regression does not always reduce multicollinearity: How to tell when your estimates will not benefit from centering. *Educational and Psychological Measurement*, *79*(5), 813–826. https://doi.org/10.1177/0013164418817801

Olvera Astivia, O. L., & Zumbo, B. D. (2019). Heteroskedasticity in multiple regression analysis: What it is, how to detect it and how to solve it with applications in R and SPSS. *Practical Assessment, Research & Evaluation*, *24*(1), 1–16. http://pareonline.net/getvn.asp?v=24&n=1

Omran, M. A. (2014). Theoretical perspectives on corporate disclosure: A critical evaluation and literature survey. *Asian Review of Accounting*, *22*(3), 257–286. https://doi.org/10.1108/ARA-01-2014-0013

Ozanne, L. K., Phipps, M., Weaver, T., Carrington, M., Luchs, M., Catlin, J., Gupta, S., Santos, N., Scott, K., & Williams, J. (2016). Managing the tensions at the intersection of the triple bottom line: A paradox theory approach to sustainability management. *Journal of Public Policy & Marketing*, *35*(2), 249–261. https://doi.org/10.1509/jppm.15.143

Paiva, B. M. R., Ferreira, F. A. F., Carayannis, E. G., Zopounidis, C., Ferreira, J. J. M.,

Pereira, L. F., & Dias, P. J. V. L. (2021) Strategizing sustainability in the banking industry using fuzzy cognitive maps and system dynamics. *International Journal of Sustainable Development & World Ecology, 28*(2), 93–108. https://doi.org/10.1080/13504509.2020.1782284

Paraschivescu, A. O. (2021). Triple bottom line versus TQM. *Economy Transdisciplinarity Cognition, 24*(1), 5–17. www.ugb.ro/etc

Park, J., & Park, M. (2016). Qualitative versus quantitative research methods: Discovery or justification? *Journal of Marketing Thought, 3*(1), 1–7. https://doi.org/10.15577/jmt.2016.03.01.1

Pascual, J.A.V., Lopez, A.R., Marín, A. J. T., & Vázquez, B. V. (2021). Multiple paths for being recognized as a high impact firm in the banking sector. *Economic Research-Ekonomska Istraživanja, 34*(1), 2790–2811. https://doi.org/10.1080/1331677X.2020.1842224

Paula-Carmen, R., & Dorin-Paul, B. (2019). Sustainability reporting process: Benefits, limits, and achievements. *The Annals of the University of Oradea, Economic Sciences, 1*(2), 60–70. http://anale.steconomiceuoradea.ro/volume/2019/n2/6.pdf

Pituch, K. A., & Stevens, J. P. (2016). *Applied Multivariate Statistics for the Social Sciences* (6th ed.). Routledge.

Politi, M. T., Ferreira, J. C., & Patino, C. M. (2021). Nonparametric statistical tests: Friend or foe? *Jornal brasileiro de pneumologia : publicacao oficial da Sociedade Brasileira de Pneumologia e Tisilogia, 47*(4), Article e20210292. https://doi.org/10.36416/1806-3756/e20210292

Polonsky, M. J., & Walle, D. S. (2019). *Data gathering*. SAGE Publications. https://doi.org/10.4135/9781544316499

Poursoleyman, E., Mansourfar, G., Homayoun, S., & Rezaee, Z. (2022). Business sustainability performance and corporate financial performance: the mediating role of optimal investment. *Managerial Finance, 48*(2), 348–369. https://doi.org/10.1108/MF-01-2021-0040

Qureshi, M. A., Akbar, M., Akbar, A., & Poulova, P. (2021). Do ESG endeavors assist firms in achieving superior financial performance? A case of 100 best corporate citizens. *SAGE Open, 11*(2), 1–18. https://doi.org/10.1177/21582440211021598

Rabia, F., Iustina, A., & Rosella, C. (2021). How many shades are there in sustainable finance? A bibliometric review. In I. Y. Gok (Ed.), *Handbook of research on global aspects of sustainable finance in times of crises* (pp.1–26). IGI Global. https://doi.org/10.4018/978-1-7998-8501-6

Ragin, C., & Amoroso, L. (2019). Strategies of social research. In *Constructing social research: The unity and diversity of method* (pp. 99–100). SAGE Publications. https://doi.org/10.4135/9781071878798

Rooney, B. J., & Evans, A. N. (2019). Nonexperimental research: Finding relationships among variables. In *Methods in psychological research* (pp. 217–247). SAGE Publications. https://doi.org/10.4135/9781506384955

Saeudy, M., Atkins, J., & Barone, E. A. V. (2022). Interpreting banks 'sustainability initiatives as reputational risk management and mechanisms for coping, re-embedding, and rebuilding societal trust. *Qualitative Research in Financial*

Markets, 14(1), 169–188. https://doi.org/10.1108/QRFM-02-2021-0024

Safranko, C., & Hašková, A. (2021). Methodology of quantitative research application in context of branch didactics. *Journal of Technology and Information Education, 13*(1), 116–134. https://doi.org/10.5507/jtie.2021.012

Sanrang, L. N., Septiani, T. A., Saputri, A. E., Aprilia, Y. N., Faidirrahman, M., & Amalia, S. (2022). Effect of system work from home (WFH) and communication on employee performance at Pt. Ultra Jaya Milk Industry & Trading Company TBK. *Central Asia and the Caucasus, 23*(1), 4724 – 4734. https://doi.org/10.37178/ca-c.23.1.370

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Pearson Education.

Scalcău, A. (2021). Research methods in discourse analysis: Quantitative, qualitative, and mixed-methods approaches. *Professional Communication and Translation Studies, 14*, 114–122. https://dspace.upt.ro/xmlui/handle/123456789/5346

Scholtens, B., & van't Klooster, S. (2019). Sustainability and bank risk. *Palgrave Communications, 5*(1), 1–8. https://doi.org/10.1057/s41599-019-0315-9

Selahudin, N. F., Salleh, S. M., Azman, N. A. N., & Mohaiyadin, N. M. (2020). Food waste self-reported behavior: An investigation among Malaysian youth. *Global Business and Management Research: An International Journal, 12*(4), 130–138. http://www.gbmrjournal.com/pdf/v12n4/V12N4-1

Shim, J. M., Lee, W. S., Moon, J., & Song, M. (2021). Coffee shop corporate social responsibility (CSR) and reuse intention using triple bottom line theory. *British*

Food Journal, *123*(12), 4421–4435. https://doi.org/10.1108/BFJ-12-2020-1134

Shimura, A., Yokoi, K., Sugiura, K., Higashi, S., & Inoue, T. (2022). On workdays, earlier sleep for morningness and later wakeup for eveningness are associated with better work productivity. *Sleep Medicine, 92*(8), 73–80. https://doi.org/10.1016/j.sleep.2022.03.007

Shoukat, S., & Babar, M. N. (2020). An empirical analysis of demand for health care facilities using PSLM data in Pakistan. *Pakistan Journal of Social Sciences, 40*(3), 1291–1298. http://pjss.bzu.edu.pk/index.php/pjss/article/view/933

Silva C. N. (2010). Ex post facto study. In N. J. Salkind (Ed.), *Encyclopedia of research design* (2010 ed., pp. 466–468). SAGE Publications. https://doi.org/10.4135/9781412961288

Soumya, S. (2019). Green banking: A sustainable banking for environmental sustainability. *International Journal of Research in Commerce & Management, 10*(7), 21–24. http://ijrcm.org.in

Stewart, D. W. (2012). Secondary analysis and archival research: Using data collected by others. In H. Cooper (Ed.), *APA handbook of research methods in psychology* (Vol. 3, pp. 473–484). American Psychological Association. https://doi.org/10.1037/13621-024

Stommel, W., & de Rijk, L. (2021). Ethical approval: None sought. How discourse analysts report ethical issues around publicly available online data. *Research Ethics, 17*(3), 275–297. https://doi.org/10.1177/1747016120988767

Strijker, D., Bosworth, G., & Bouter, G. (2020). Research methods in rural studies:

Qualitative, quantitative, and mixed methods. *Journal of Rural Studies 78*, 262–270. https://doi.org/10.1016/j.jrurstud.2020.06.007

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, *20*(3), 571–610. https://doi.org/10.2307/258788

Sustainable Infrastructure Alliance (2020). *International Standards for Sustainable Infrastructure: An Overview*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Gmb, Bonn. https://sdghelpdesk.unescap.org/sites/default/files/2020-06/International_

Sustainalytics (2021). *ESG risk ratings: Methodology abstract* (Version 2.1). Sustainalytics. https://globalaccess.sustainalytics.com/#/research/risk

Theofanidis, D., & Fountouki, A. (2018). Limitations and delimitations in the research process. *Perioperative Nursing*, *7*(3), 155–162. http://doi.org/10.5281/zenodo.2552022

Tien, N. H., Anh, D. B. H., & Ngoc, N. M. (2020). Corporate financial performance due to sustainable development in Vietnam. *Corporate Responsibility and Environmental Management*, *27*(2), 694–705. https://doi.org/10.1002/csr.1836

Tight, M. (2019). *Secondary Data Research*. SAGE Publications. https://doi.org/10.4135/9781529716559

Tóth, B., Lippai-Makra, E., Szládek, D., & Kiss, G. D. (2021). The contribution of ESG information to the financial stability of European banks. *Public Finance Quarterly*, *66*(3), 429–450. https://doi.org/10.35551/PFQ_2021_3_7

Tsan, M. (2019). Measuring the quality and performance of institutional review boards.

Journal of Empirical Research on Human Research Ethics, 14(3), 187–189. https://doi.org/10.1177/1556264618804686

Turulja, L., & Bajgoric, N. (2020). Comparison of structural equation modelling and multiple regression techniques for moderation and mediation effect analysis. *Sarajevo Business and Economics Review* (*Zbornik Radova*), *38*, 29–50.

United Nations Inter-Agency Task Force on Financing for Development. (2021). *Financing for Sustainable Development Report 2021*. United Nation, New York. Retrieved from https://developmentfinance.un.org/fsdr2021

Urban, J. B., & van Eeden-Moorefield, B. M. (2018). *Designing and proposing your research project*. American Psychological Association. http://doi.org/10.1037/0000049-009

Valor, C., Antonetti, P., & Zasuwa, G. (2022). Corporate social irresponsibility and consumer punishment: A systematic review and research agenda. *Journal of Business Research, 144*(1), 1218–1233. https://doi.org/10.1016/j.jbusres.2022.02.063

van Ginkel, J. R. (2019). Significance tests and estimates for R^2 for multiple regression in multiply imputed datasets: A cautionary note on earlier findings, and alternative solutions. *Multivariate Behavioral Research, 54*(4), 514–529. https://doi.org/10.1080/00273171.2018.1540967

Veliz, D., Duchesne, P., Rojas-Hernandez, N., & Pardo, L. M. (2017). Statistical power to detect multiple paternity in populations of highly fertile species: How many females and how many offspring should be sampled? *Behav Ecol Sociobiol,*

71(12), 1–6. https://doi.org/10.1007/s00265-016-2240-x

Viruez-Soto, J., Delgado Bolton, R.C., San-Martín, M., & Vivanco, L. (2021). Inter-professional collaboration and occupational well-being of physicians who work in adverse working conditions. *Healthcare*, *9*(9), 1–9. https://doi.org/10.3390/healthcare9091210

Wang, J., Ge, J., & Lu, Q. (2012, October 20–21). *A review of stakeholder analysis* [Conference session]. 3rd International Conference on System Science, Engineering Design and Manufacturing Informatization, Chengdu, China. https://doi.org/10.1109/ICSSEM.2012.6340802

Wan-Rosli, W. R., Kamaruddin, S., Mohamad, A. M., Saufi, N. N., & Hamin, Z. (2021). Governing cyber espionage threats via the integration of the risk society-cyber securitisation theory. *2021 Innovations in Power and Advanced Computing Technologies (i-PACT)*, 1–7. https://doi.org/10.1109/i-PACT52855.2021.9696812

Watson, R. T., & Webster, J. (2020). Analysing the past to prepare for the future: Writing a literature review a roadmap for release 2.0. *Journal of Decision Systems*, *29*(3), 129–147. https://doi.org/10.1080/12460125.2020.1798591

Yanru, Z. (2011, October 17 - 18). *The analysis of shareholder theory and stakeholder theory* [Conference session]. Fourth International Conference on Business Intelligence and Financial Engineering, Hubei, China. https://doi.org/10.1109/BIFE.2011.117

Yilmaz, I. (2021). Sustainability and financial performance relationship: International evidence. *World Journal of Entrepreneurship, Management and Sustainable*

Development, 17(3), 537–549. http://doi.org/10.1108/WJEMSD-10-2020-0133

Zahid, M., Rahman, H. U., Ullah, Z., & Muhammad, A. (2021). Sustainability and branchless banking: The development and validation of a distinct measurement scale. *Technology in Society, 67*, 1–10. https://doi.org/10.1016/j.techsoc.2021.101764

Zarghami, S. A., & Dumrak, J. (2021). Reimaging stakeholder analysis in project management: Network theory and fuzzy logic applications. *Engineering, Construction and Architectural Management, 28*(9), 2426–2447. http://doi.org/10.1108/ECAM-06-2020-0391

Zhan, G. (2013). Statistical power in international business research: Study levels and data types. *International Business Review, 22*(4), 678–686. https://doi.org/10.1016/j.ibusrev.2012.10.004

Zhang, W., Xu, R., & Wang, L. (2021). Investigating the complex relationship between financial performance and company's green behavior: A comparative analysis. *Discrete Dynamics in Nature and Society, 2021*(8), 1–14. https://doi.org/10.1155/2021/9979835

Zharfpeykan, R. (2021). Representative account or greenwashing? Voluntary sustainability reports in Australia's mining/metals and financial services industries. *Business Strategy and the Environment, 30*(4), 2209–2223. https://doi.org/10.1002/bse.2744

Zimmermann, S. (2019). Same same but different: How and why banks approach sustainability. *Sustainability, 11*(8), 1–20. https://doi.org/10.3390/su11082267

Zioło, M., Bąk, I., Cheba, K., Spoz, A., & Niedzielski, P. (2021). Sustainable financial systems toward sustainability in finance. Institutional and managerial approach. *Procedia Computer Science, 192*(1), 4237–4248. https://doi.org/10.1016/j.procs.2021.09.200