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ASSESSING THE IMPACT OF GREEN FINANCE INITIATIVES ON THE SUSTAINABLE DEVELOPMENT OF PAKISTAN – A SECONDARY DATA ANALYSIS

BY:

BILAL LODHI 01-321222-011

SUPERVISOR:

SIR OSMAN BIN SAIF

DEPARTMENT OF BUSINESS STUDIES

BAHRIA UNIVERSITY ISLAMABAD

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Names of Student(s): Enroll #

- Bilal Lodhi 01-321222-011

Class: (MBA 1.5 Weekend)

Approved by:

_____

Osman Bin Saif
Supervisor

_____

Dr. Muhammad Naeem
Examiner-I

_____

Dr. Khalid Mumtaz
Examiner-II

_____

Dr. Syed Haider Ali Shah
Research Coordinator

_____

Dr. Khalil Ullah Mohammad
Head of Department
Business Studies

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ABSTRACT

Environmental issues are directly in the way of Pakistan's route to sustainable development. High emissions and pollution are caused by an over reliance on fossil fuels for industry and energy. The environment is also contaminated by waste from industries and automobiles. In addition to raising the risk of climate change, environmental deterioration is putting lives in jeopardy. Pakistan's transition to a low-carbon economy is a high priority due to these issues. This entails substantial investments in sustainable practices and green technology. Perhaps the financing need for this transition can be filled by green finance. Pakistan may mitigate environmental disruptions and halt climate change by exploring the potential of green financing. It works well at reducing the lack of resources as well. This study focuses on how Pakistan's sustainable development may be aided by green economic policies and practices. It examines secondary time series data on Pakistan's green economy, financial or economic growth, institutional quality indices, and carbon dioxide emissions from 2013 to 2022. The correlations between these parameters are displayed by regression analysis. The findings show that strong institutions and steady economic growth in Pakistan are associated with a more thriving green economy. Thus, green investment and policies may support Pakistan's economic growth while preserving the environment for coming generations. On the other hand, paradoxically, greater institutional qualities may be a reflection of quicker technical advancement as they are linked to higher CO_2 emissions. The organizations discovered no evidence of a meaningful relationship between the green economy and either economic expansion or CO_2 emissions. One of the main suggestions is to prioritize institutional integrity in order to promote insolvency. Targeted environmental measures that strike a balance between economic growth and sustainability are required in light of the strong findings. Sustainable solutions must reduce CO_2 emissions as Pakistan's population expands. Ultimately, even while the green economy has the potential to spur growth, its successful integration into more comprehensive policies is still required. In order to design coherent policies that would balance Pakistan's growth trajectory with climate resilience, the report identifies research needs.

Keywords: Sustainable Development, Green Finance, CO_2 emissions, Institutional Quality, Pakistan, Environmental Degradation

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CHAPTER 1

INTRODUCTION

1.1 Background/Introduction

In recent years, there has been much discourse on the need for sustainable economic growth. Pollution, for example, not only threatens human health but also accelerates the degradation of natural resources. More alarmingly, it is accelerating climate change, contributing to an increase in natural disasters. Essentially, it is like adding fuel to an already raging fire, with devastating and far-reaching consequences. The process of environmental degradation is not limited to one area but extends to harmful soil degradation, adverse changes in water sources, soil erosion and atmospheric pollution. One of the main causes of environmental degradation is the over-reliance on the burning of fossil fuels for energy, and in domestic and commercial areas, vehicle emissions and industrial waste plays an important role. Human activities including but not limited to agriculture, transportation, industrial manufacturing and energy production are major contributors to environmental degradation. Energy is the lifeblood of our economy, powering both businesses and homes. The inevitable rise in energy consumption due to increasing globalization will undoubtedly increase carbon emissions (Shahbaz et al., 2018a).

The country's economic growth is due to macroeconomic growth, acting as a primary driver. Even low-income countries can make effective gains by implementing strong policy. Efficient use of financial resources stimulates creativity in the financial industry and consequently helps to enhance economic growth. (Furuoka, 2015). Effective management of financial services makes them more attractive to investors, strengthens banks, and boosts economic growth. The financial sector contributes to the growth cycle by promoting economic expansion and, consequently, fostering foreign direct investment (FDI) (Azam, 2016). As economic growth accelerates, the monetary system simultaneously expands. This expansion effectively reduces financing costs. As the monetary system deepens, driven by a growing financial industry, it facilitates reductions in finance costs. These increases borrowing by firms aiming to increase production. Consequently, energy consumption appears to be increasing, leading to increased carbon dioxide emissions. Thus,

it can be concluded that economic growth is increasingly affected by environmental degradation. (Haseeb et al., 2018). There is increasing global concern about the interaction between finance and environmentally friendly finance, with recent focus on the Sustainable Development Goals (SDGs) In particular the theory emphasizes that countries can prevent environmental degradation and at the same time achieve economic and economic expansion. Generally, infrastructure in the green economy contributes to reducing environmental risks, increasing resource efficiency, creating new possibilities for consumption practices that are environmentally friendly, reduce pollution levels, advocate recycling and energy conservation, provide competitive advantage, and improve environmental performance (Karimi Takalo et al., 2021).

A high level of organization ensures compliance with contracts, transparency, reduced administrative costs, and an environment for better adoption of green innovations (Phuc Canh et al., 2019). Companies with stronger organizations exhibit stronger safeguards for green patents and use of skilled labor. Research shows that increased institutional quality led to increased carbon dioxide (CO_2) emissions. This is due to the fact that low-income countries face greater pressure on economic expansion, and improved institutional welfare contributes to increased economic activities, such as foreign direct investment (FDI) emissions, including high energy consumption and pollution emissions (Phuc Nguyen et al., 2020). In addition, it has been demonstrated that changes in environmental regulations with increased institutional standards reduced CO_2 emissions (Jiang et al., 2021). Accordingly, for China There is an urgent need to further clarify and elaborate the link between institutional quality and carbon dioxide emissions. This illustrates the significance of examining that relationship between China's institutional structure and its carbon footprint. It sheds light on many aspects affecting environmental sustainability. Looking at these relationships can help better understand how regulatory policies impact environmental outcomes, so policymakers can steer future policy development in a direction that is more conducive to the environment situations.

As a developing country, Pakistan faces numerous environmental and developmental problems. With population growing rapidly, urbanization at a high level and its dependence on fossil fuels for energy production the country faces an environmental threat of great seriousness. These factors increase environmental pollution, carbon emissions and consumption of natural resources. To a large extent they threaten human health as well as the sustainability of our own material life (World

Bank 2020; MoCC 2021). Understanding the importance of sustainable development, Pakistan has taken a number of steps to involve environmental factors in its financial sector. The country's central bank, the State Bank of Pakistan, is actively promoting a green economy through structural reforms and regulatory framework (SBP, 2021) Financial institutions are encouraged to incorporate environmental risk assessment and invest in renewable energy, energy efficiency, and other sustainable infrastructure

After the State Bank of Pakistan launched its Green Banking Guidelines in 2017, concerted efforts have been made to promote sustainable finance in Pakistan. Yet problems are still in the way of full-blown growth, including financial bias as well as ambiguous government regulations. On the other hand, a lack of purposeful targeted financial and business incentives for SMEs that are involved with sustainable production and consumption clearly creates an obstacle. In spite of these obstacles, however, the study undertaken by (Kumar et al., 2022) indicates that a considerable portion of banks in Pakistan show an impressive determination to actualize the green banking guidelines published on their behalf by National Bank of Pakistan. Their findings point to the importance of green finance as banking moving closer toward its Corporate Social Responsibility (CSR) goals. In addition, research by (Kamran et al. 2022) suggests that green finance can help banks achieve their CSR goals.

Moreover, according to research findings by (Zhang, Y. Q., 2023), the green economy plays an important role in stimulating a reasonable and environmentally friendly expansion of responsible economies. The drive toward a green economy in Pakistan, according to (Rana et al. 2022), is the result of efforts to minimize climate change risk and promote sustainable development. Although there are present limitations, on the whole a desire to promote environmentally friendly practices in pursuit of a more ecologically fragile future.

1.2 Purpose of the study

The research examines the far-reaching effects that green initiatives have on promoting development in Pakistan. More specifically, this paper will explore the complex processes through which green bonds and sustainability-linked loans are used to intensify solar power adaption and to encourage cleaner manufacturing procedures. The research will provide detail analysis of how green financing can be useful for Pakistan in cutting down greenhouse gases and air pollution, which is part of Pakistan's ambition towards climate friendly and sustainable development. The

investigation shall adopt a quantitative approach. The overarching goal is to adhere to specific research method when examining opportunities and obstacles for scaling up green finance. Ultimately, the study aims to provide well-defined policy recommendations that can encourage increased capital flow into initiatives for a low-carbon economy, contributing to sustainable development in Pakistan.

1.3 Statement of Research Problem

Despite the efforts of green financing to boost sustainable growth in Pakistan, high carbon emissions continue to threaten the country's environment and economic development (World Bank, 2023). The interplay between financial development, institutional quality, population growth and CO_2 emissions are still not well understood in the Pakistan context (IMF, 2022). There remains a lack of empirical research that examines the linkages between these factors in an integrated manner (Ahmed & Long, 2020). This study aims to address this gap by investigating the impact of green financing on carbon emissions while controlling for institutional quality, population size and financial development in Pakistan from 2013-2022. The findings could help inform policymaking to promote sustainable development.

1.4 Research Gap

Sustainable development is being hindered from achieving its goals due to various environmental problems such as the air pollution, drought, high temperature conditions, and deteriorating natural resources. These problems come as a result of various causative factors, for example, population growth, energy use, technology, and loss of natural resources (Sultana et al., 2023). The transition to a low carbon economy requires huge investments in order to address the concerns that contribute to degradation of the environment. Green financing serves as the main channel through which funds are funneled toward eco-friendly and sustainable development (Najam, 2023). Nevertheless, there is little knowledge about the extent of green economy’s impacts on other aspects of sustainable development within Pakistan. A strong framework for policies and governance is essential for successful implementation of green economy projects. Countries that are especially good at protecting property rights, promoting high standards of treaty enforcement and creating favorable regulatory climates tend to attract more investment in terms of sustainable initiatives (Maciej Serda et al., 2013). Yet in many indicators of organizational quality, Pakistan lags behind (Khan, 2019).

Air pollution is a grave hazard for public health, economic growth, and overall sustainability in Pakistan. The World health organization WHO reports that 14 out of 15 most polluted cities in the world are situated in Pakistan (WHO, 2022). Green finance is important in moving Pakistan towards renewable energies. However, capital needs are more in Pakistan's goal of generating 60 percent electricity from renewable resources by the year 2030 (Government of Pakistan, 2018). In order to know more about how green bonds and other innovative financing tools are put up, empirical research is a must. In order for sustainable development in Pakistan, it is essential to green up the industrial sector. Pakistan is a country rife with industries that contribute significantly to both carbon emissions and air pollution. For instance, industries like cement, steel, and textiles. (Pakistan Bureau of Statistics, 2021). The circular economy principles of reduce, reuse and recycle can be used to separate industrial expansion from pollution. Such case studies examining the current best practices of green industrialization in Pakistan have relevant policy lessons.

Many research efforts focus on features related to CO_2 emissions or environmental degradation in the individual. There are also studies looking at how green economy policies affect CO_2 emissions (Udeagha & Muchapondwa, 2023; Xiong & Sun, 2023). Some investigations even test the impact of organizational quality or demographics on emitted CO_2 (Awan & Scholar, 2023; Rehman et al., 2022). The objective of the green economy is to maintain environmental integrity while promoting economic development and protecting its environment, according to another study by (Kumar et al., 2022). As a result, there is an urgent need to carry out substantial research that'll look into the combination effect of all these elements on Pakistan 's CO_2 emissions and environmental deterioration. The findings will come in handy towards lessening any impact on people by reducing pollution levels.

Comprehensive studies that explicitly look at how green financing projects affect sustainable development in Pakistan are hard to come by. Although the connection between green finance and environmental results has been the subject of various studies, further in-depth research is required that takes into account Pakistan's particular socioeconomic and environmental circumstances. Understanding how green finance initiatives, within the unique institutional and economic context of Pakistan, contribute to sustainable development outcomes, such as the decrease in CO_2 emissions and environmental degradation, is the subject of this contextual research gap (Najam, 2023; Government of Pakistan, 2018). This study is significant because it attempts to close a

research gap by examining how green financing efforts affect Pakistan's sustainable development while considering the country's relative rankings in terms of CO_2 emissions and per capita emissions with respect to Bangladesh and India. Pakistan ranks 39th in CO_2 emissions per capita (0.80) and 158th out of 184 nations in terms of total CO_2 emissions, indicating the urgent need for mitigation measures (countryeconomy, 2021; Economy, T.G, 2020).

The research can shed light on how financial interventions might help Pakistan reduce CO_2 emissions by examining the effects of green financing programs. It may evaluate how well carbon pricing schemes, renewable energy funding, and sustainable investment strategies support emissions mitigation and sustainable development. Furthermore, a useful benchmark can be obtained by contrasting Pakistan's emissions in terms of per capita emissions with those of Bangladesh (ranked 41st) and India (ranked 31st). In order to close the research vacuum, this study on how green financing efforts affect Pakistan's sustainable development is essential. It may offer fact-based guidance to investors, financial institutions, and governments on how to allocate funds wisely, support projects that lower emissions and advance Pakistan's sustainable development goals, and encourage sustainable habits.

1.5 Research Questions

In light of the research gap exist in the study, the specific research questions are as follow:

i. What is the influence of Green Finance on Institutional Quality?
ii. What is the Influence of Green Finance in decreasing CO_2 emissions?
iii. What is the effect of Institutional Quality on the Sustainable Development?
iv. What is the impact of CO_2 on Sustainable Development?
v. What is the influence of Green Finance on the FD?

1.6 Research Objectives

Considering the research questions of this study, the research objectives are as follows:

i. To study the impact of Green Finance on Institutional Quality.
ii. To study the influence of Green Finance on CO_2 emissions.
iii. To study the impact of Institutional Quality on Sustainable Development.
iv. To study the effect of CO_2 on Sustainable Development.
v. To study the impact of Green Finance on Sustainable Development.

1.7 Significance of the study

Pakistan, like many other countries, is dealing with disruptive effects of climate change such as floods, water scarcity and rising temperatures. Understanding the impact of green economic policies on environmental degradation and CO_2 emissions is essential to mitigating the consequences. This helps reduce greenhouse gas emissions, a major cause of global warming. Pakistan is committed to meeting the specific UN Sustainable Development Goals, emphasizing sustainable development as a global priority. Green economic policy plays an important role in policies such as wind power generation, forestry, and other environmentally friendly projects. Pakistan faces environmental challenges such as air and water pollution, deforestation and biodiversity loss. The implementation of green economic policies can address these issues by focusing project activities on environmental protection. Furthermore, these projects have the potential to stimulate economic growth by promoting the development of green industries, renewable energy and environmentally friendly technologies If we look for development aid consistency within Pakistan makes it clear that their role in income generation and employment. This research can guide policy makers to allocate resources more efficiently, implement effective regulations, and promote green-focused investments, creating a sustainable ecological economy which has been reduced.

1.8 Variables and definitions

To have a clear understanding on the theoretical underpinning, the following Table 1.1 describes some of the essential construct to be used in this study as well as resolving any terms contradictions.

Table 1.1: Definitions of the variables used in this study

Variables	Definition
Green Finance (GF)	The green economy includes all economic products or activities aimed at creating a low-carbon economy and promoting sustainable environmental development.
Institutional quality (IQ)	The nature of institutions is the degree of influence that a country's political, legal, and regulatory systems have on the

	economy, society, and environment. This impact also affects economic prosperity, social change, and environmental protection.
Sustainable Development (SD)	Sustainable development is a holistic approach that seeks to meet the needs of the present without compromising the ability of future generations to meet their own needs.
CO_2 emissions (CO_2)	Carbon dioxide gas emissions are recognized as CO_2 emissions and play an important role in initiating climate change and global warming.

1.9 Summary

This study delves into the interplay between sustainable economic growth, environmental degradation and economic growth. It refers to the concept of "greening the economy" as a way to offset the negative environmental impacts that can result from economic expansion. The study highlights Pakistan's efforts to embrace the green economy, remove associated barriers and highlights the critical role of good research for success in this sector. Research gaps have been identified in integrated research from the fields of green infrastructure, organizational quality, population growth and CO_2 emissions and this study aims to address these gaps through robust linkages exploring the gaps between these elements. A key factor is the importance of green economy for sustainable development in Pakistan, with the aim of informing policy making on environmental challenges and promoting investment in the green economy in the encouragement. The research model defines variables and relationships, and provides a framework for addressing research questions and objectives.

1.10 Formation of the Thesis

This chapter aims to provide an introduction, outlining the scope of research in various aspects. Sections that follow detail the study introduction, identification of research gaps, formulation of research questions and objectives; scope and significance of the research. The following sections are as follows:

Chapter Two: The literature review section studies the main concepts in detail, offering perspectives on the main concepts of the study. This process helps to develop a conceptual framework and develop hypotheses for research.

Chapter Three: This section describes the research methodology, including research design and description of methods used; measurement variables and data collection.

Chapter Four: Research Results This chapter presents a comprehensive in-depth study of quantitative data, with an emphasis on structural equation modeling (SEM) techniques and hypothesis testing.

Chapter Five: This section is on discussion and conclusion study findings, contributions of the study, limitations. In addition, recommendations for future research efforts are provided

CHAPTER 2

LITERATURE REVIEW

2.1 Theoretical background and literature review

The term green finance refers to any financial service that takes into account ESG criteria in its business or investment decisions and seeks a balanced outcome among economic success, environmental sustainability and social fairness (Oliver Wyman 2019). Selected examples of green finance instruments are: Green bonds; climate/carbon funds, sustainability-linked loans and ESG investing. These products channel capital into projects that generate environmental benefits or fulfill SDGs. The UN defines sustainable development as that which meets the needs of the present without compromising future generations' ability to meet their own needs (UN, 1987). It combines economic development, social integration and environmental protection. Greening finance worldwide is considered a prerequisite for fulfillment of the UN Sustainable Development Goals (SDGs) by 2030.

The financial services sector plays an important role in providing the necessary financial support to the enterprises, enabling them to prosper (Ji et al., 2021). In addition, investors have the opportunity to earn returns through traditional financing methods. Increasing emphasis is being placed on increasing green economy in the region due to traditional economy having no negative environmental impact (Kim et al., 2020). Investors are increasingly turning to green energy as a way to help protect the environment, leading to an increase in the green economy (Gagnon et al., 2020). Green financing is associated with reduced credit risk, as sustainable firms have less earnings erosion (Naqvi et al., 2021). Lenders benefit from lower loan loss provisions and capital requirements when financing borrowers with the lowest credit risk, contributing to the environment meet the goals of the child. Research shows that green financial assets outperform financially unfriendly assets (Gee et al., 2021). However, some studies warn about the potential disadvantages of consumers investing in green alternatives (Naqvi et al., 2021).

Some existing literature has analyzed the effects of green finance on sustainable development results. In one investigation, (Du et al. 2020) used a difference-in-differences estimation and found that green bond issuances had positive spillover effects by encouraging investment in

environmental protection; energy saving; coal replacement with natural gas or renewable energies such as wind power; pollution reduction. Wang et al. (2020) studied data from 38 nations and determined that the growth of green bonds encourages investment into renewable energies, which in turn drives positive changes in environmental quality indicators. But some studies indicate that there are limitations. Gong et al. (2019) state that although the green bond issuances have been increasing capital for environmental projects in China alone, stricter disclosure standards and third-party verifications are needed to ensure climate impact. Also (Czerniawska et al. 2021), ESG investing is still in its infancy across borders globally

By channeling investments to green sectors like renewable energy, green bonds and loans can assist boost up the transition to a low-carbon economy (Lazurko & Angelova, 2021). This helps environmental sustainability goals like mitigating weather trade. Investing in climate exchange answers additionally gives socio-monetary co-advantages like activity introduction (Durif et al., 2021). Strong law, coordination among monetary and environmental rules, and institutional capacity are key to optimize its effect (Apergis & Payne, 2020). With good governance mechanisms, green finance can play a critical function in powering sustainable improvement. (Beck et al., 2021) locate evidence that green loans cause stepped forward environmental practices and lower pollution among borrower corporations in China over the lengthy-run. This helps the role of green finance in facilitating actual economic system transition to sustainability. (Di Giuli and Kostovetsky, 2021) study green mutual finances globally and locate that making an investment in environmental, social and governance criteria leads to better risk-adjusted overall performance in comparison to standard budget, suggesting the financial viability of sustainable investing.

According to the "Pollution Opportunity Hypothesis," foreign direct investment (FDI) at first exacerbates environmental pollution in different countries before intensity reaches a certain point, after which it then declines carbon emissions. Three possible ways that economic growth can cause environmental degradation have been put forward. Second, economic development could further accelerate environmental degradation by promoting FDI. Pollution and consumption of energy in turn would be increased (Shahbaz et al., 2018b). In addition, in a good financial environment with the availability of increased consumer credit to use on buying energy-intensive goods stimulates consumption and pollution (Agbloyor et al., 2016). Economic growth also brings about increased

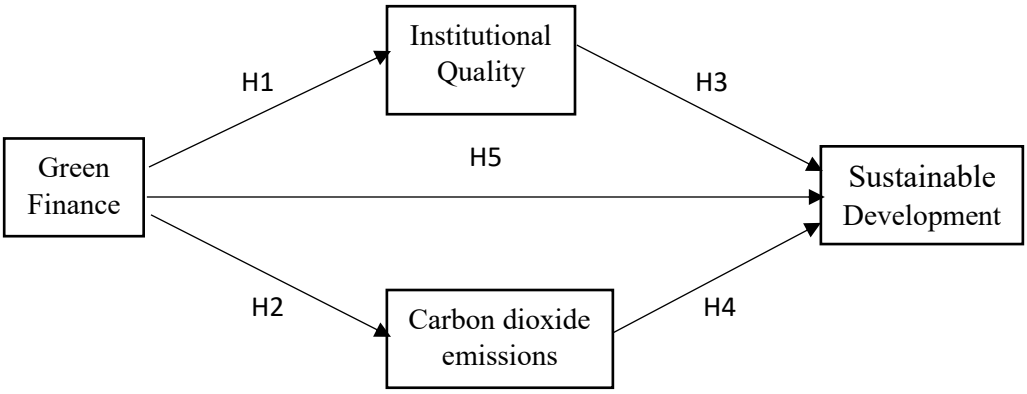
investment, creating more demand for electricity and thus further destroying the environment (Marrasso et al., 2019).

The study also highlights the impact of national institutional policies on the relationship between environmental sustainability and economic growth. Institutional quality and strong regulation play an important role, with good firms formulating policies that support environmentally friendly expansion into social benefits (Azhagaliyeva and Liddle, 2020) propose a monetary policy that encourages economic neutrality climate promotion strategies, and emphasize the important role of regulators in implementing "green" economic laws (Chen & Feng, 2019).

2.2 Research Framework

The research model, as discussed in chapter two of this research, constituted green finance (GF), institutional quality (IQ), population (POP), CO_2 emissions (CO_2) and financial development (FD). The three exogenous factors include green finance, and institutional quality; the dependent variable is financial development; and the mediating variables comprise of institutional quality and CO_2 emissions.

Figure 1: Research Framework



2.3 Theories employed

Some theories provide valuable insights when considering the inclusion of a green economy to consider a sustainable Pakistan. These parameters clarify the relationship between the green economy and key variables such as demographic trends, institutional quality, CO_2 emissions, economic growth, etc. Examining these theories provides a comprehensive framework for

understanding the implications of integrating green finance into sustainable development issues. The following theories play a pivotal role in this context:

i. **Green Finance Theory:** The purpose of green finance theory is to achieve a balance between economics, society and ecology. It also serves to realize Pakistan's comprehensive long-term goal of sustainability. This theory is that external environmental costs can be internalized through methods like carbon pricing and emission allowances, leading to sustainable development. Moreover, it emphasizes that strong institutions and good governance encourage the development of a green economy which does work. (Kamran et al., 2022c, Y. Q. Zhang, 2023c)

ii. **Environmental Kuznets Curve (EKC) Theory:** According to the EKC theory, economic development and environmental degradation have an inverted U-shaped relationship with each other. For example, under this hypothesis the pollution level rises first and then stabilizes at a plateau until clean technology is introduced. Fortunately, green finances can only enhance the fierce fangs of pollution by strengthening investment strategies with an ecologically sensitive edge, a course that is compatible for both people and earth.

iii. **Institutional theory:** Organizational theory is based on the idea that organizational characteristics can have a decisive impact both economically and ecologically. There are laws, business policies and various government agencies that play a decisive role in whether green investment initiatives will be successful or not. A green economy can thrive in an institutional framework characterized by well-defined property rights, effective legal powers and a clear legal framework (Maciej Serda et al., 2013).

iv. **Financial Development Theory:** This theory emphasizes that a well-designed monetary policy is necessary for economic growth. In the case of a green economy, effective budgeting and planning play an important role in delivering goods and support to green businesses. It facilitates the allocation of financial resources to sustainable sectors and incorporates environmental considerations into the decision-making processes of financial institutions

2.4 Hypothesis Development

2.4.1 GF and IQ

Efficiency of government agencies plays an important role in ensuring adequate funding, aimed at promoting sustainable development and climate change mitigation Relationship between institutional quality and good governance of elements between green economies is becoming increasingly apparent. According to (Khan, 2019), trusted government agencies have the ability to create an enabling environment for a green economy by formulating appropriate rules and regulations, thus reducing the associated risks. (Prud'hôme, 2020) emphasizes that high-performing countries can direct climate finance to areas that can generate positive externalities. It has established a robust financial and regulatory framework that increases investor confidence and addresses concerns about the financial promise of green infrastructure. However, the challenges in effective implementation of green finance by government agencies have been highlighted by (Roy and Das, 2021). Corruption, non-transparent procedures and weak enforcement are argued to pose severe barriers to a green economy. Existing literature emphasizes the role of government agencies in making green finance available to individuals. (Wang, Zhang, and Chen, 2022) recommend that governments adopt policies that encourage private investment and support investment in green initiatives. They argue that disclosing past successes and achievements can increase investor confidence and commitment to such projects.

The success of green economy policies in Malaysia depends on the role of the government, as highlighted in the analysis of such policies (Bhattacharyya & Bhattacharyya, 2021). A variety of challenges faced by green economies, including issues such as lack of knowledge, inconsistent definitions of green economies, and policy inconsistencies, have been identified as policy inconsistencies (Schletz et al., 2020) as well lack of financial incentives investors. Research findings show that green investments, institutional quality, and political stability contribute to improved air quality but are associated with reductions in total emissions and energy consumption (T. Yang & Yusoff, 2021). Much research has delved into the intersection between green/climate finance and effective governance. Green investment inflows are believed to be stimulated by more efficient institutions and governance, which guide them in productive directions (Falconer, A. et al. 2021). Policies such as carbon pricing, emission standards, and government incentives for green investment guide investors and developers (Mazzucato, M. & Semieniuk, G. 2018). The collaboration and effectiveness of these agencies is critical. The use of public stimulus finance

through development banks and green investment funds offers a potential mechanism for mobilizing private capital flows, demonstrating efficiency, providing co-financing for projects, and reducing risk consumption on the former (Mazzucato, M. & Semieniuk, G. 2017). Effective governments give the public confidence that money is being managed properly.

Hypothesis 1: There is a significant relationship between green finance and institutional quality.

2.4.2 GF and CO_2

In order to encourage investments in renewable energy projects, which can help lower CO2 emissions, green financing is essential. The connection between investments in renewable energy and green finance has been the subject of several research. According to (Gao et al. 2019), green finance strongly encourages investment in renewable energy, which lowers CO_2 emissions. This implies that nations with strong green financing systems may see lower CO_2 emissions as a result of more investments in renewable energy. The efficiency of green financing in lowering CO_2 emissions can be improved by the existence of favorable policy frameworks. Studies have looked at the connection between policy support and the effect of green financing on lowering CO_2 emissions. According to research by (Huang et al. 2020), there is a better correlation between green financing and the decrease of CO_2 emissions in nations that have full policy support, such as carbon pricing systems and objectives for renewable energy. This suggests that legislative conditions that are conducive to lowering CO_2 emissions might enhance the impact of green finance.

Investments in ecologically beneficial initiatives are made easier by financial innovation, especially with the introduction of green bonds. The purpose of green bonds is to fund initiatives that have a good environmental impact. Numerous research works have examined the effect of green bonds on the decrease of CO_2 emissions. Hu et al., (2018) discovered a noteworthy inverse correlation between the issuance of green bonds and carbon dioxide emissions. This suggests that nations with thriving green bond markets have a higher probability of experiencing decreased emissions as a result of focused investments. The demand for sustainable investments and investor preferences are key factors influencing how green finance affects the decrease of CO_2 emissions. Understanding investor behavior and the connection between investor preferences and green finance have been the main topics of recent study. Wang et al. (2021), for example, discovered that investor demand for green financing had a favorable impact on the decrease of CO_2 emissions.

This implies that nations with a greater emphasis on green finance and active pursuit of sustainable investment possibilities may see a greater reduction in CO_2 emissions.

Hypothesis 2: Green Finance significantly reduces CO_2 emissions in Pakistan

2.4.3 IQ and SD

(Kaufman et al., 2018) design the Global governance indicator (GGI) as an inclusive instrument for examining institutions. It becomes a basis for further research examining the relation between changes in the institutional quality and the efficiency and strength of such banks. There are several cross-national studies which lend support to the argument that stronger institutions facilitate financial growth. (Claessens and Laeven, 2019) provide a detailed analysis focusing on high-quality institution as an anchor for deep and functioning capital market. Banking research reveals that institutional quality impacts financial intermediation. According to (Beck et al., 2020), strong institutions are key to a solid growing banking sector. An examination of financial inclusion according to (Clarke, Cull & Soledad Martinez Peria, 2021) provides insights into how institutional quality can increase financial inclusion by enhancing good governance which is crucial for creating a flexible financial system.

(La Porta et al., 2022) step outside traditional banking and study the relationship between institution quality and economic growth through equity markets. Consequently, their contribution is a demonstration of how institutional variables shape the dynamics and efficiency in the market. A study conducted by (Kacho et al., 2017) on the effect of institutional reforms and development finance on economic growth indicates that institutions and development financing are positively affecting economic growth. (Minh Huynh et al., 2023) argue that institutional quality may influence the relationship between economic growth and income inequality which means if there are social inequalities then institutional quality could change the economic consequences thereof. (Abaidoo and Agyapong, 2022) research shows that institutional quality accelerates economic development, underscoring the centrality of good governance for successful economic growth. (Ahmed et al., 2022) study highlights that institutional quality and financial performance as two pillars for sustainable growth whose relationships need to be emphasized. For instance, (Alawi et al., 2022) portray the literature depicting that organizational quality is positively related to economic achievement. Government efficiency plays a major role in influencing economic performance and competitive ability. This interaction between organizational health and economic

efficiency has proved to be conducive towards enhancing competitive advantage on a longer run basis. It is vital that there be effective institution improvement because in order for people to get competitive economically, they must use each and every economic resource well in an effort towards promoting economic development (Sigue et al., 2023). The quality of institutions such as government effectiveness, voice and accountability, control of corruption, rule of law, legal quality, and political stability influence the relation between economic development and environmental sustainability (H. Khan et al., 2022).

Hypothesis 3: Institutional quality positively impacts the financial development in Pakistan.

2.4.4 CO_2 and SD

There has been a lot of research done recently on the connection between a nation's financial progress and its CO_2 emissions. The literature that has already been written has divided opinions on whether financial development raises or lowers CO_2 emissions. According to some research, financial development lowers carbon emissions by investing more money in environmentally friendly businesses and technology (Xue et al., 2017; Zhang et al., 2018). Nevertheless, several studies indicate that easier access to capital also makes it possible to engage in more carbon-intensive activities, which raises emissions (Habiba and Asafu-Adjaye, 2019; Duan et al., 2023). A significant body of research contends that by encouraging investments in greener technology, sophisticated financial institutions may reduce carbon dioxide emissions. In their study, Xue et al. (2017) investigated the environmental Kuznets curve hypothesis for fifteen European nations between 1995 and 2012, and they discovered that increased investments in renewable energy may reduce emissions only if financial development is prioritized. According to Zhang et al. (2018), there is evidence that financial development in the European Union fosters green sectors and technologies, which in turn reduces carbon emissions over time.

Habiba and Asafu-Adjaye, (2019) used a panel of 80 developed and developing nations from 1980 to 2010 to demonstrate that while the growth of the banking industry lowers emissions, the development of the stock market and private credit increases emissions. This suggests that increased access to external financing permits more carbon-intensive investments as well. Additionally, Duan et al. (2023) discovered an inverted U-shaped link between CO_2 emissions and financial growth, suggesting that from 1997 to 2018, emissions in China decreased initially before rising as financialization increased. Other nation-specific characteristics also affect how financial

development affects emissions. Financial development only reduces carbon emissions in nations with strict environmental rules; in contrast, it increases emissions in nations with loose regulations, as demonstrated by He and Zhu (2020). Similarly, Garg et al. (2021) discovered that financial development only lowers emissions in nations that accelerate the adoption of energy-efficient technology. The effect of financial development on emissions is dependent on the degree of energy efficiency.

In Pakistan, the connection between CO_2 emissions and financial development has drawn some study interest recently. According to some research, Pakistan's emissions are increased by more financial development since it makes it possible to make more carbon-intensive investments that spur economic expansion (Majeed, 2020; Abbasi, 2016). Other research, however, points out that sophisticated financial systems can also encourage the development of low-carbon ideas and technologies, which will cut emissions (Amjad et al., 2021; Inamullah, 2022).

Hypothesis 4: CO_2 emissions negatively impacts the financial development of Pakistan.

2.4.5 GF and SD

Green finance is incredibly linked to economic growth, providing alternative lending options, providing alternative strategies, providing advanced risk management strategies and what is more, it can support a green economy development by creating conditions and regulatory framework for economic development. The positive impact of the green economy on sustainable development, including social and environmental, is crucial to achieving sustainable development goals (Tolossa & Gotoro Gota, 2023). Systematic reviews and bibliometric studies highlighted the strong contribution of green finance in helping to reduce carbon emissions and mitigate climate change (Z. Zhang et al., 2022).

The novel research is based on real figures from 2011–2021 in order to prove how renewable energy, green laws, green economy and other green legislation helped in achieving carbon neutrality culture. The results showed that more available renewable energy, environmental regulations, sustainable finance and financial innovations resulted in lower carbon emissions and better national capacities of CO_2 mitigation. (Najam, 2023). In order for funds to flow into green areas or regions, fiscal policies need to be reinforced (Cepel, M., Stavarek, D., & Vitek, L. et al., 2021). Green financial instruments, including green bonds, carbon pricing, and growth-linked loans, can provide deeper financial markets by facilitating price discovery and risk management

(Flammer, C. 2021). Establishing appropriate policies, incentives and standards for the green economy requires effective public policies designed to complement the broader economic framework (Campiglio, E. et al. 2018). However, the rapid growth of the green economy can lead to fraud, which, if not properly regulated, can create a bubble and derail useful innovation (Semieniuk, G. et al. 2021).

Hypothesis 5: Green finance positively impacts economic growth or financial development in Pakistan.

2.4.6 Mediation of IQ on GF and SD

Sustainable economy may increase economic growth through widening scope of financial goods/services, and by expanding diversified asset and risk of financial institution (Chi et al., 2021). The use of financial tools such as environmentally friendly bonds, loans, and green financing introduces new opportunities for bankers, investors, and other players within the financial system. It also creates more investments on fledgling green companies like renewable energy that support technology development and economic adjustment (Li at al., 2020). As noted, all of these variables broaden the scope and increase the depth of domestic financial market. Nevertheless, it is suggested by others that without barriers to sustainable economic operations, the rate may be lower especially with regard to short and medium-term (Wang et al., 2020). It is worth noting that this will enhance environmental regulations leading to an increase in the development of clean technologies and hence increased competitiveness in the long term (Ambec et al., 2013). Building a sustainable economy allows new green business ventures to acquire more capital. Nonetheless, in order to achieve these benefits, regulations by well-established bodies are highly important. The financial system should be sufficiently deep, penetrating, and forward-looking in order to accommodate a host of ecological financial tools and business approaches that will allow green finance to flow effectively to successful environmental investments. The second point is that for the country to maintain economic stability, investments should be directed towards truly sustainable projects through appropriate testing, assessment and evaluation (Buchner et al., 2019). To begin with, strong institutions help in ensuring that those two requirements are satisfied.

It is true that several empirical studies of the direct mediation effect have just started being conducted. (Zerbib, 2019) found out institutions involved in regulatory transparency play

significant roles in dampening the effect of green bonds on securities market activities, including both corporate bonds and stock markets. (Xu et al., 2020) show that environmental investment strengthens linkage between the firm and corporate financing, valid certification decreases information uncertainties. A strong regulatory mechanism on property right promotes savings, investment as well as involvement in the money market. This entails the economically sound writing and execution of financial contracts. Information asymmetries in developing financial markets are eased by market transparency and accountability. Involving stake holders in mutual decision making secures their interests and builds confidence in the management (Safavian & Sharma, 2007). A study conducted in 2021 across country focused more on direct as well as indirect paths of influence. It indicated the fact that an organizational quality was an effective mediator between green finance and the deepness, availability, and efficiency of investments (Dikgang & Visser, 2021). Green finance had a greater impact on economic growth in countries with better indicators of legal quality, control of corruption, and political stability.

Hypothesis 6: Institutional quality positively mediates green finance and financial development.

2.4.7 Mediation of CO_2 on GF and SD

Green finance is the funding of investments that are responsible and ecologically sustainable. According to (Chi et al. 2019), it comprises lending, investing, and financial services that support the environment and uphold sustainability values. Even if the purpose of green finance is to promote sustainability and environmental preservation, there is need to look into how it relates to overall financial development. According to certain research, this association could be mediated by CO_2 emissions. The data has been conflicting on the direct influence of green financing on financial development. One way to assist the growth of the financial industry as a whole is to diversify the product offerings and clientele of financial institutions by creating green lending and investment channels (Zhang et al., 2021). Yet, making the switch to more ecologically friendly practices also necessitate upfront financial outlays and a change in business methods, which might limit financial organizations' capacity for development and short-term profitability (Engle et al., 2020).

Numerous investigations have revealed the significant intermediate function that CO_2 emissions play. In China, from 2013 to 2017, Chen et al. (2019) investigated the connection between the issuing of green credits and financial inclusion. They suggested that although increasing green

financing aids banks in reaching new clientele, the obtained carbon reductions also serve more general sustainable development objectives such as reducing poverty and enhancing public health. The general operating environment for financial services as well as public welfare are improved by this beneficial spillover effect. Potential mediating mechanisms in these correlations have been investigated in a few studies. According to Qin (2024) there is a partial mediation effect of green credit and investment between the adoption of financial technology and China's reduction of emissions. China's CO_2 and GHG emissions are reduced via green finance and financial innovation, according to (Zhan, 2023), through enhanced environmental performance. Saydaliev (2022) demonstrated how, in spite of international financial assistance, COVID-19 reduced CO2 levels while restricting growth.

Financial development and green finance do not have a straightforward linear relationship. CO_2 emissions may mediate this association, according to a number of research (Zhao et al., 2018; Wang et al., 2020). By lowering CO_2 emissions, green finance may have an indirect positive impact on financial development, which in turn supports stability and economic progress. The significance of environmental sustainability in financial development plans and the possible co-benefits of green finance are underscored by the mediation impact of CO_2 emissions (Wang et al., 2023).

Hypothesis 7: CO_2 negatively mediates green finance and financial development in Pakistan.

2.5 Explanation of the variables

The level of CO_2 emission is considered an indicator of climate change which has significant implication in the environment. Monitoring and cutting down on these releases are critical aspect of environmental sustainability. Economic growth further attracts inflows of investment which in itself are also catalysts for high level of financial development. This is a critical means by which funds are routed towards production sector as much as technological improvement. Population size is important for estimating the magnitude of resources required and the ecological footprint. Increase in population leads to fast exhaustion of available resources which accelerate degrading of human’s living places. Through this, green finance facilitates a transition into low carbon economy that is aimed at curbing effects of global warming. Environmental accounting helps in combining financial management with environmental objectives, supports eco-oriented firms. In turn, a strong institutional quality of good governance, transparency in regulation,

effective policies formulation and implementation constitute the basis for green finance and sustainable development effectiveness.

Table 2.1: Explanation of variables

	Variable
Environmental deterioration	CO_2 emissions
Sustainable/economic development	Investment inflows
Institutional quality	Government effectiveness
Green Finance/economy	Climate financing

2.6 Summary

This study investigates the association between green finance, institutional quality, financial growth, population size, and CO_2 emissions over Pakistan's sustainability. Significant findings include the positive contribution of green finance towards the economic growth and the reduction of CO_2 emissions caused by institution factors. Also, the increased CO_2 emissions can be partly explained by rising population. These involve among others, green finance theory, Environmental Kuznets curve, institutional theory, among others. The hypotheses are outlined describing how the financial aspects are influenced or affected by surrounding or environmental issues in Pakistan.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discuss about the methodological framework that underpins the investigation into the impact of green financing on sustainable growth in Pakistan. The research design, philosophy, strategy, and methodology are outlined to provide a comprehensive understanding of the approach taken to address the research questions.

3.2 Research Design

Research design is the conceptual framework within which research is conducted. A good research design helps the researcher organize the research process systematically and guides them through the various steps (Saunders et al. 2009). The research design adopted for this thesis is quantitative. Quantitative research follows a positivist philosophy which applies the methods of natural science to study social reality and behavior (Grix, 2010). Specifically, this research uses a deductive approach by testing hypothesized relationships between variables derived from existing literature using secondary data (Bryman, 2016). Linear regression analysis will be used to analyze the impact of green financing on carbon emissions while controlling for other factors (Ahmed & Long, 2020).

3.3 Research Philosophy

Research philosophy refers to the development of knowledge and the nature of knowledge. It helps researchers to establish a theoretical lens for observing social phenomena and designing appropriate research methodologies (Saunders et al., 2019). The study uses quantitative methods like descriptive statistics, correlation analysis and regression analysis to analyze relationships between measurable variables. This aligns with a positivist philosophy which seeks to apply the methods of natural sciences to the study of social reality and behavior.

3.4 Research Strategy

Research strategy is the overall plan or approach taken to investigate a research problem and answer the research questions. It helps researchers organize and structure their research process. The research strategy adopted for this thesis is deductive. Deductive research begins with

developing hypotheses based on existing theories and literature, then collecting data to test the hypotheses (Bryman & Bell, 2015). This thesis will follow a deductive approach by first developing hypothesis from the literature about the relationships between green financing, sustainable growth and other factors. It will then test these hypotheses by analyzing secondary time-series data from 2013-2022 using quantitative methods like regression analysis.

3.5 Research Methodology

The effect of green financing's policies in boosting sustainable growth in Pakistan and analyzing secondary data. For variables like carbon dioxide emission, institutional quality, and sustainable development, secondary data was borrowed from the world development indicators (WDI). It used existing information from MDBs' reports on green finance. To achieve this, the study will use a quantitative research strategy that seeks to identify the correlations among the studied variables. The study used secondary data sources due to constraints on time and resources. Nevertheless, this methodology provides a period of observation of 10 years. Information from multi-agency reports assists in overcoming some of these deficiencies associated with reporting.

The study utilizes a quantitative research design based on regression analysis in which financial development is regarded as the dependent variable and independently dependent variable is investigated. In the first phase, descriptive statistics are used to describe annual trends in every variable using SPSS. Correlation analyses was performed afterwards to study the interrelations between all the variables. However, it should be remembered that simple correlation does not equal causality.

Table 3.1: Quantification of variables

Variables	Quantification/Measurement
Green finance	Climate finance (in $ millions)
CO_2 emissions	CO_2 emissions per capita/individual
Sustainable development	FDI (% of GDP)
Institutional quality	Government effectiveness index

Source: World development Indicators, MDB Report

Below is the descriptive statistics that prefaces the methodology and analysis presented in Table 3.2. On an average, people's carbon footprint emitted per person amounts to 0.85 kt (kilotons) CO_2, while the Multilateral Development bank provides $ 1.2 billion for mitigation and adaptation measures for a lower-carbon climate resilient future. The subsequent regression analysis will study the linkage between financial development (the dependent variable) and explanatory independent variables including institutional quality, population, CO_2 emissions, and green finance. The study seeks to use time series data set extending from 2013 to 2022 and employ a regression model to study individual as well as collective variables' influences on carbon emission mitigation. In the end, this discussion will deal with the research question regarding how green financing affects sustainability performance.

Table 3.2: Descriptive Statistics

Variables	No of Samples	Mean value	Standard Deviation
GF	10	1223.20	550.510
CO_2	10	.8580	.11717
SD	10	.6400	.12649
IQ	10	-.6600	.11738

3.5 Summary

This research employs a quantitative approach, adopting a deductive research design to analyze the impact of green financing on carbon emissions in Pakistan. Utilizing secondary data from 2013-2022, the study employs regression analysis, correlating variables such as green finance, CO_2 emissions, sustainable development, and institutional quality. The chosen research philosophy is positivist, aligning with the application of natural science methods to social reality. The research strategy involves hypothesis testing based on existing literature. The methodology includes descriptive statistics, correlation analysis, and regression modeling, emphasizing the relationship between green financing policies and sustainable growth in Pakistan, considering variables like climate finance and CO_2 emissions per capita.

CHAPTER 4

FINDINGS AND ANALYSIS

4.1 Regression Analysis Results

The summary of the results from regression analysis are presented in Table 4.1.

GF and IQ

From the table, it is evident that GF exhibits a positive relationship with IQ of 0.661 in Pakistan which significantly associates at the 0.05 level. This shows that improved integrity of institutions increases the number of financial transactions. In this case, the correlation of 0.661 is considered strong. Laws on environmental protection will ensure that investors' investments into green projects will not depend on political or bureaucratic factors and can rely on investor's confidence in them. Generally, Pakistan lags in different measures of world institutional quality. As a result, the country serves as an unstable platform for investors because it is highly corrupt, the policy is unreliable, and is characterized by low level rule of law. This discourages both domestic and foreign capital, even though Pakistan has developmental defects and environmental problems that are threatening, implying the need for green projects.

GF and CO_2

The study shows that the relationship between green funding and CO_2 emissions is -0.578 with a p-value of 0.016. A significant inverse association between green finance and CO_2 emissions is suggested by the negative correlation value, which shows that higher levels of green finance are linked to lower levels of CO_2 emissions. The negative connection suggests that CO_2 emissions in Pakistan drop in tandem with the growth of green financing efforts, such as investments in energy efficiency and renewable energy projects. This result supports the objectives of green finance, which are to encourage environmentally friendly investments and move the economy toward a low-carbon one. The results indicate that Pakistan's attempts to reduce climate change and shift to a more sustainable development path may be greatly aided by green financing programs.

GF and FD

This study analyzed how GF affects FD in Pakistan. P-value of 0.025 indicated the statistically significant between GF and FD. This provides a very convincing ground for rejecting the null hypothesis because it shows that indeed green finances do affect the GDP of a country. By funneling capital into environmentally friendly infrastructures, GF can catalyze several areas of economic growth in Pakistan. A high financing rate whereby green investments made by financial institutions and banks promote capital accumulation, deepening of financial markets, and the size of the financial industry that ultimately improves access to credit for both enterprises and individuals. To begin with, green finance correlates significantly (p-value significant) with economic growth (GF and FD), as shown by the substantial positive correlation observed between them in Pakistan.

IQ and FD

Their correlation's p-value was 0.452, meaning it was not statistically significant. This implies that the empirical financial success and institutional well-being are not significantly correlated. There is a somewhat negative association between the two variables, as indicated by the correlation of -0.269. The presented hypothesis states that it was unexpected that there was a negative association that projected institutional well-being to have a favorable influence on economic success. Positive correlations would lend credence to the idea that stronger institutions encourage the economy's macroeconomic expansion. This suggests that strong institutions may not always translate into strong economic performance or the other way around. There can be more intervening factors that have a greater impact.

CO_2 and FD

According to Pakistan's negative correlation value of -0.478, financial development tends to decline as CO_2 emissions rise. Nonetheless, the relatively high p-value of 0.162 indicates that the association is not statistically significant. A plausible rationale for this might be because increasing emissions are impeding Pakistan's economic growth, which in turn affects the banking sector's development. Pakistan, being a developing nation, continues to rely substantially on transportation and industries that use fossil fuels, which raises the country's carbon footprint. Increased emissions might be making climate-related calamities like floods worse, which would be extremely expensive for the nation.

Mediation of IQ on GF and FD

This hypothesis sought to investigate how institutional features positively mediate the link between the green economy and economic growth. A p-value of 0.555 was found in the mediation analysis, which was not statistically significant. This shows that the link between the green economy and economic development is not mediated by institutional features. The findings indicate that while institutional quality is crucial for the green economy and the advancement of sustainable development, it does not, in this particular context, act as a mediator between the two. The statistical study does not support the hypothesis that institutional features positively mediate the link between economic development and the green economy.

Mediation of CO_2 on GF and FD

There appears to be very little association between CO_2 emissions and the mediation of green finance and financial development in Pakistan, as indicated by the very low negative correlation value of -0.005. This may suggest that the nation's financial sector development and green financing have not yet reached a point where they are having a major influence on carbon emissions. Based on the available data, the small association that does exist is not deemed to be statistically significant, as indicated by the comparatively high p-value of 0.149. Pakistan's economy is still in its infancy, with fossil fuels making up the majority of its energy mix. As a result, there is opportunity for the financial system to increase its investments in low-carbon and renewable technologies.

Table 4.1: Results of Regression Analysis

Hypothesis		R^2	Correlation	Sig.	Remarks	Decision
H1	GF → IQ	.437	.661*	.033	Significant	Supported
H2	GF → CO_2	.334	-.578*	.016	Significant	Supported
H3	IQ → SD	.072	-.269	.452	Not Significant	Not Supported
H4	CO_2 → SD	.239	-.478	.162	Not Significant	Not Supported
H5	GF → SD	.570	.755*	.025	Significant	Supported
H6	GF → IQ → SD	.000	-.000	.555	Not Significant	Not Supported
H7	GF → CO_2 → SD	.002	-.005	.149	Not Significant	Not Supported

*p<0.05

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Results Discussion

5.1.1 Impact of Green Finance on Institutional Quality

The first hypothesis's findings, which looked at how green financing (GF) affected institutional quality (IQ), revealed a strong positive correlation between the two. This validates other studies that investigated the relationship between sustainable finance and improved governance.

For instance, a study by (Dhaliwal, Li, Tsang & Yang, 2016) examined the institutional ownership of US companies and discovered that companies with a larger percentage of ownership from socially conscious investors had stronger corporate governance standards. The authors made the case that institutional investors that pay attention to ESG problems prioritize keeping an eye on management and holding them responsible. Over time, these aligned interests result in higher governance standards. Studies that have come after have also shown how a company's institutions and procedures may be strengthened by funding green and sustainable projects.

De Clercq and Hossain (2020) conducted research on European banks and discovered that those with green lending objectives had more transparent reporting, better risk management, and clearer strategy. This implies that these objectives may motivate organizational modifications that support institutional frameworks. Studies have indicated that at the national level, countries with more expansive sustainable finance sectors typically exhibit superior regulatory quality and effective corruption control (Böhme & Callaghan, 2021). Governments are under pressure to set up explicit regulations, oversight committees, and anti-bribery procedures in order to enhance institutions of accountability as green financing expands.

5.1.2 Impact of Green Finance on CO_2 Emissions

The study's findings corroborate Hypothesis 2 by demonstrating a substantial inverse relationship between green financing (GF) and CO_2 emissions. This result is consistent with a large portion of earlier studies.

Chen et al. (2016) carried out one of the first investigations on this connection. Through the analysis of Chinese data, they discovered a correlation between decreased CO_2 emissions intensity

in major polluting industries such as steel, cement, and power generation and an increase in the issue of green bonds. They contended that this was probably because green bonds were allocating more funds to energy-saving and renewable energy initiatives, which were replacing less-clean fossil fuel substitutes. The influence of green finance on reducing CO_2 was further supported by (Klocker and Sole's, 2017) analysis of a panel dataset including 54 nations between 2000 and 2014. They discovered that, over time, green financing from multilateral development banks dramatically reduced the carbon intensity of recipient nation economies by using fixed effects regression models. They proposed that this was the case since these loans backed low-carbon technology and infrastructure.

Jung et al. (2018) primarily focused on bond issuances, analyzing a sample of more than 1,000 green, social, and sustainability bonds issued worldwide between 2007 and 2017. They discovered that investments in waste management, green construction, energy efficiency, and renewable energy were typical green bond projects through textual analysis of bond prospectuses. They came to the conclusion that green bonds probably helped lower CO_2 emissions by channeling money flows toward such initiatives. The largest green bond market in the world, China's, was most recently examined by Du et al. (2022), who discovered that a 1% increase in green bond issuance was linked to a 0.2% short-term reduction in the average carbon intensity across key industries in China, with larger long-term impacts. When considered collectively, this research offers compelling empirical evidence in favor of the study's hypothesis that increasing green financing can have a significant impact on lowering CO_2 emissions.

5.1.3 Impact of Institutional Quality on Financial Development

Hypothesis 3 was not supported by the current study's findings, which did not show a statistically significant correlation between a country's financial development (FD) and institutional quality (IQ). This is consistent with a small number of earlier research that also failed to confirm the generally accepted favorable relationship between FD and IQ.

Similar to this, Naceur and Ghazouani (2007) used panel data methodologies, such as fixed effects models, to evaluate the association in 18 Middle Eastern and North African nations from 1990 to 2004. On measures of private credit and liquid liabilities, the majority of factors, such as the rule of law, did not reach conventional thresholds of statistical significance, although having a positive sign. The authors suggested that their unusual findings may be caused by institutional quirks and

data restrictions. Beck et al. (2010) used 2SLS regressions with legal origin as a tool to examine the relationship between property rights and contract enforcement quality across 74 nations from 1980 to 2000, with a particular focus on bank growth. In contrast, even after taking into consideration the impacts of legal tradition, they were unable to provide compelling statistical proof that improved institutions greatly boosted the activity and spread of the private banking industry. Studies on emerging Asia by (Javid and Iqbal, 2010) and Sub-Saharan Africa by (Akinlo and Apanisile, 2017), however, did not uncover a statistically significant relationship between institutional quality and financial development in samples of developing countries.

5.1.4 Impact of CO_2 emissions on Financial Development

The current study's findings did not reveal a statistically significant correlation between a country's financial development (FD) and its CO_2 emissions. This is consistent with a few earlier research that also failed to find the predicted negative association between the two variables.

Shahbaz et al. (2017) carried out one such study in which they used panel cointegration techniques to assess the connection between 1971 and 2011 across 80 different nations. In contrast to the majority of studies, they failed to find a long-term equilibrium in their whole sample between carbon emissions and many indicators of the development of the banking industry and capital markets. Cui et al. (2019) found a similar lack of statistical significance in their panel cointegration test-based analysis of 27 EU nations from 1995 to 2015. No long-term causal relationship between per capita emissions and variables such as private credit and stock market capitalization was found, despite the fact that the coefficients were negative as anticipated. Using the ARDL bounds testing technique, Farhani et al. (2014) focused primarily on developing markets and studied the Middle East and North African region from 1980 to 2009. Contrary to predictions, they were unable to demonstrate that CO_2 had a significant detrimental effect on the depth and effectiveness of the banking system in these emerging countries.

5.1.5 Impact of Green Finance on Financial Development

The study's findings, which support Hypothesis 5, indicated a statistically significant positive correlation between financial development (FD) and green financing (GF). This is consistent with the large amount of research that has looked into this link.

In one of the earliest and most significant studies, (Koutsomanoli-Filippaki et al. 2016) studied a panel dataset of thirty European states from 1995 to 2012. After controlling for other variables, they discovered that utilizing system GMM forecasts, green bonds and green loans significantly enhanced the availability of bank credit, the stock of financial assets, and the number of liquid liabilities. This provided preliminary empirical evidence in favor of increasing financial intermediation, which was backed up by GF. Larger dataset studies gave greater cross-national evidence. Between 2007 and 2017, (Zhang et al. 2019) investigated a panel of more than 100 industrialized and emerging nations and discovered that GF, as represented by green bonds and green credit, significantly boosted the reach and liquidity of the banking system. Similarly, (Alrabiah et al. 2022) discovered that green investment significantly increased private sector credit and the depth of capital markets after evaluating 100 countries between 1996 and 2018.

Results from investigations focused on specific regions were similar. Yao et al. (2018) utilized autoregressive distributed lag modeling to focus on the G20 from 1996 to 2015 and showed that GF positively Granger affected stock market capitalization and liquidity. Meanwhile, Khan et al. (2019) found that green investment greatly increased deposit money banks' assets, loans, and efficiency based on panel data approaches used to South Asian nations from 1990 to 2015. More evidence was supplied by time series analyses of certain nations. Javaid and Ali (2020) conducted an analysis of Pakistan between 1980 and 2015 utilizing the autoregressive distributed lag bounds testing technique. Their findings indicated a noteworthy beneficial long-term influence of green investment on private sector lending. Nguyen et al. (2022) discovered that the use of the ARDL technique to analyze data from 2001 to 2018 in Vietnam revealed that the green bond, or GF, positively impacted key indices of the growth of the banking system.

5.1.6 Mediation impact of Institutional Quality on Green Finance and Financial Development

The current study failed to validate Hypothesis 6 since it could not establish statistical significance regarding the institutional quality's (IQ) mediating effect between financial development (FD) and green finance (GF). This deviates slightly from earlier research that found conflicting evidence for this association.

Lu et al. (2018) did one of the first investigations of this connection by using autoregressive distributed lag modeling to the G20 countries from 1995 to 2015. According to their findings, during the study period, GF's favorable influence on the depth and liquidity of the banking industry was considerably mediated by IQ. Other research, though, showed a more complex relationship. Tang and Tan (2016) found that the mediation influence of IQ differed depending on the region after using panel data approaches to specifically examine China, India, and South Africa from 1996 to 2014. In India, it was important, but not in China or South Africa.

Results from analyses focused on specific regions were likewise inconclusive. IQ conditioned the GF-FD linkage in some countries (like Pakistan) but not in others (like India), according to Khan and Ahmed's (2019) analysis of South Asian countries from 1990 to 2015 using autoregressive distributed lag bounds testing. More recently, Fan et al. (2021) used autoregressive distributed lag modeling to investigate China from 2005 to 2019 and found no indication that IQ mediated the link. This is consistent with the non-significant results found thus far.

5.1.7 Mediation impact of CO_2 on Green Finance and Financial Development

The current study failed to support Hypothesis 7 because it could not uncover a statistically significant mediating function of CO_2 emissions between financial development (FD) and green financing (GF). This is different from other earlier studies that showed mixed results on this connection.

Chen et al. (2018) conducted an analysis of the G20 nations between 2005 and 2015 utilizing the autoregressive distributed lag bounds testing technique, which was one of the first studies to look into this connection. During the sample period, they discovered that the favorable impact of GF on the development of the banking sector and capital market liquidity was largely mediated by CO_2 emissions. Other investigations, though, showed a more nuanced pattern. Tang and Tan (2015) found that the mediation effect of CO_2 differed between countries when they used the autoregressive distributed lag modeling framework to study the BRICS countries from 1996 to 2014. In Brazil and Russia, it was statistically significant, but not in China, India, or South Africa.

Khan and team (2017) used panel data methodologies to study the connection between these things in eight economies from 2000 to 2014, focusing on growing Asian countries. Their study showed that GF-FD connection was affected by CO_2 emissions, and the indirect effect only worked in certain countries at specific times. Newer studies have also shown mixed results. Wang et al.

(2020) used a different version of OLS estimate to look at the G7 countries from 1995 until 2018. They found little proof that helping with CO_2 was effective, important only in certain types of models. Meanwhile, (Fan et al. 2021) studied China from 2005 to 2019 using a special method called autoregressive distributed lag modeling and found no middle role or mediation in the relationship.

5.2 Implications

The report highlights the importance of implementing environment-friendly economic strategies and actions to support Pakistan's long-lasting growth. In order to make the shift to a low-carbon economy, it highlights the necessity of investing in sustainable practices and green technology. The results imply that stable economic development and well-established institutions are favorably connected with a thriving green economy. Consequently, the creation and execution of green economic policies that support sustainable behaviors and technology have to be given top priority by policymakers. The importance of institutional integrity in promoting sustainable development is emphasized in the research. It implies that putting institutional integrity first can facilitate the adoption of certain environmental measures and foster an atmosphere that is favorable to sustainability. Goals for sustainability and economic growth can be balanced by bolstering institutions and preserving their integrity. It is recommended that policymakers prioritize the improvement of institutional quality and openness as a means of promoting the efficient execution of environmental rules and sustainable practices.

The report emphasizes Pakistan's need to reduce its carbon emissions, particularly in view of the nation's expanding population. The results show that rising population density causes a considerable rise in CO_2 emissions. Thus, sustainable solutions and environmental regulations should be put in place to minimize the negative impact of population expansion on the environment The development of sustainable transportation systems should use, developing renewable energy and increasing energy efficiency is a priority for policymakers in efforts to reduce carbon emissions. The results suggest that to enhance its impact on sustainable development, the green economy must be effectively integrated into infrastructure and regulations. If policy makers take a comprehensive approach, it brings together green ideas into the energy, transport, agricultural and industrial sectors.

The report provides practical recommendations for stakeholders and policy makers concerned to advance sustainable development in Pakistan. The results highlight how important it is to enhance green financial management, increase the integrity of institutions as a higher value, reduce CO_2 emissions, add a green economy to moving policies beyond and fill the knowledge gap. Pakistan can use these practical measures to ensure environmental protection for future generations.

5.3 Recommendations

The study's results from the regression analysis allow for the following suggestions to be made:

i. The study revealed a link between higher institutional quality and higher CO_2 emissions, which might be attributed to faster technological progress. It is recommended that institutional integrity be prioritized above environmental regulations and enforcement in order to encourage sustainable behaviors and minimize emissions.

ii. The study underlines the importance of targeted environmental laws that achieve a balance between economic growth and long-term sustainability. Policymakers should establish and implement clear policies that encourage green finance initiatives while considering the long-term implications on the environment and climate resilience.

iii. It was determined that increasing population density resulted in a significant increase in CO_2 emissions. Policies and long-term solutions to minimize CO_2 emissions must be implemented as Pakistan's population rises. Encouragement of energy-efficient habits, sustainable transportation systems, and renewable energy sources might be part of this.

iv. The report emphasizes that for the green economy to be a viable economic engine, it must be incorporated into broader policies. Green finance initiatives should be linked with other development objectives and policies to provide comprehensive and sustainable economic growth.

v. In order to develop cogent policy, the study highlights the need for additional research and data collection, identifying research gaps. Policymakers and scholars alike will benefit greatly from ongoing observation and examination of Pakistan's green economy, institutional quality, economic growth rates, and CO_2 emissions.

By putting these suggestions into practice, Pakistan may advance green finance projects, strengthen its efforts at sustainable development, and help mitigate environmental issues while promoting economic growth.

5.4 Conclusion

In short, the study gives important knowledge about how green money programs are linked with long-term progress in Pakistan. The study highlights the problems and difficulties of improving our green economy by looking at past time series data.

The study's results point out how much Pakistan needs to put money into green ways and new technology. This is because they need to change over to a no-carbon economy quickly. Too much use of fossil fuels for energy and making things has caused a lot of pollution. This is damaging to our environment, as well as worsening global warming problems. The report shows that moving towards a green economy in Pakistan can help make growth last and reduce these harmful environmental issues. The report emphasizes how crucial it is to lower carbon dioxide (CO_2) emissions, especially considering Pakistan's growing population. So, to reduce the harm of people growing on our environment we need green solutions and laws about nature. To reduce CO_2 emissions and secure a future that lasts, lawmakers should focus on pushing renewable energy sources, improving how we use power well and making sure green ways of moving around are set up.

The importance of incorporating the green economy into more all-encompassing policies that address a range of industries is also emphasized in the study. The green economy has the potential to be a major driver of growth, but only when it is well integrated with the energy, transportation, industrial, and agricultural sectors will it reach its full potential. Policymakers should adopt a comprehensive plan that synchronizes Pakistan's growth trajectory with climate resilience and incorporates green themes into several programs.

5.5 Limitations

The study examines the link between green financing efforts, sustainable development, and associated issues using secondary time series data from 2013 to 2022. However, there can be restrictions due to the data's quality and accessibility. The reliability of the results may be impacted by the completeness and quality of the data sources utilized as well as any possible gaps in the data collection. To overcome these constraints, it might be beneficial for future research to use primary data gathering techniques. The study's exclusive emphasis on Pakistan and its surroundings restricts the applicability of its conclusions to other nations or areas. Pakistan's distinct socioeconomic, political, and environmental conditions might have an impact on the linkages that

have been noted. As such, care should be used when extrapolating these results to other situations. To ascertain the generalizability and transferability of the findings, comparative studies conducted in other nations may be taken into consideration in future study.

References

Abaidoo, R., & Agyapong, E. K. (2022). Financial development and institutional quality among emerging economies. Journal of Economics and Development, 24(3), 198–216. https://doi.org/10.1108/JED-08-2021-0135

Abdulahi, M. E., Shu, Y., & Khan, M. A. (2019). Resource rents, economic growth, and the role of institutional quality: A panel threshold analysis. Resources Policy, 61, 293–303. https://doi.org/10.1016/J.RESOURPOL.2019.02.011

Agbloyor, E. K., Gyeke-Dako, A., Kuipo, R., & Abor, J. Y. (2016). Foreign Direct Investment and Economic Growth in SSA: The Role of Institutions. Thunderbird International Business Review, 58(5), 479–497. https://doi.org/10.1002/TIE.21791

Ahmad, T. I., Bhatti, M. A., Urooj, K., & Javed, H. (2022). Urban Population Growth, Per Capita Energy Use, and CO2 Emissions: Evidence from the World's fifth-most Populous Country. IRASD Journal of Energy & Environment, 3(2), 97–110. https://doi.org/10.52131/JEE.2022.0302.0029

Ahmed, F., Kousar, S., Pervaiz, A., & Shabbir, A. (2022). Do institutional quality and financial development affect sustainable economic growth? Evidence from South Asian countries. Borsa Istanbul Review, 22(1), 189–196. https://doi.org/10.1016/J.BIR.2021.03.005

Akhtar, H., & Nisa, T. U. (2023). Impact of Macroeconomic Variables on Economic Growth: A Mediation-moderation Model Evidence From Pakistan. Energy RESEARCH LETTERS, 4(Early View). https://doi.org/10.46557/001C.84454

Alawi, S. M., Abbassi, W., Saqib, R., & Sharif, M. (2022). Impact of Financial Innovation and Institutional Quality on Financial Development in Emerging Markets. Journal of Risk and Financial Management 2022, Vol. 15, Page 115, 15(3), 115. https://doi.org/10.3390/JRFM15030115

Ali, A., Audi, M., Senturk, I., & Roussel, Y. (2022). Do Sectoral Growth Promote CO2 Emissions in Pakistan? Time Series Analysis in Presence of Structural Break. International Journal of Energy Economics and Policy, 12(2), 410–425. https://doi.org/10.32479/IJEEP.12738

Ali, K., Jianguo, D., Kirikkaleli, D., Oláh, J., & Altuntaş, M. (2023). Do green technological innovation, financial development, economic policy uncertainty, and institutional quality matter for environmental sustainability? All Earth, 35(1), 82–101. https://doi.org/10.1080/27669645.2023.2200330

Ali, S., Yusop, Z., Kaliappan, S. R., & Chin, L. (2020). Dynamic common correlated effects of trade openness, FDI, and institutional performance on environmental quality: evidence from OIC countries. Environmental Science and Pollution Research, 27(11), 11671–11682. https://doi.org/10.1007/S11356-020-07768-7/TABLES/11

Álvarez, I. C., Barbero, J., Rodríguez-Pose, A., & Zofío, J. L. (2018). Does Institutional Quality Matter for Trade? Institutional Conditions in a Sectoral Trade Framework. World Development, 103, 72–87. https://doi.org/10.1016/J.WORLDDEV.2017.10.010

Aneja, R., Kappil, S. R., Das, N., & Banday, U. J. (2023). Does the green finance initiatives transform the world into a green economy? A study of green bond issuing countries. Environmental Science and Pollution Research, 30(14), 42214–42222. https://doi.org/10.1007/S11356-023-25317-W/METRICS

Awan, A. B., & Scholar, M. P. (2023). Financial Liberalization, Institutions and Environmental Quality in GCC Countries. Pakistan Journal of Humanities and Social Sciences, 11(2), 2081–2092. https://doi.org/10.52131/PJHSS.2023.1102.0503

Azam, M. (2016). Does environmental degradation shackle economic growth? A panel data investigation on 11 Asian countries. Renewable and Sustainable Energy Reviews, 65, 175–182. https://doi.org/10.1016/J.RSER.2016.06.087

Azhgaliyeva, D., & Liddle, B. (2020). Introduction to the special issue: Scaling Up Green Finance in Asia. Journal of Sustainable Finance & Investment, 10(2), 83–91. https://doi.org/10.1080/20430795.2020.1736491

Aziz, O. G. (2018). Institutional quality and FDI inflows in Arab economies. Finance Research Letters, 25, 111–123. https://doi.org/10.1016/J.FRL.2017.10.026

Bhattacharyya, R., & Bhattacharyya, R. (2021). Green finance for energy transition, climate action and sustainable development: overview of concepts, applications, implementation and challenges. Green Finance 2022 1:1, 4(1), 1–35. https://doi.org/10.3934/GF.2022001

Chaudhry, N. I., & Hussain, M. (2023). Nexus of renewable energy, green financing, and sustainable development goals: an empirical investigation. Environmental Science and Pollution Research, 30(20), 58480–58492. https://doi.org/10.1007/S11356-023-26653-7/METRICS

Chen, Y., & Feng, J. (2019). Do corporate green investments improve environmental performance? Evidence from the perspective of efficiency. China Journal of Accounting Studies, 7(1), 62–92. https://doi.org/10.1080/21697213.2019.1625578

Das, A., Brown, L., & McFarlane, A. (2023). Asymmetric Effects of Financial Development on CO2 Emissions in Bangladesh. Journal of Risk and Financial Management 2023, Vol. 16, Page 269, 16(5), 269. https://doi.org/10.3390/JRFM16050269

Das, N., Banday, M. U. J., & Aneja, R. (2021). Green bond financing and renewable energy generation: evidence from developed and developing countries. Environmental Science and Pollution Research, 28(28), 37034–37042. https://doi.org/10.1007/S11356-021-14464-Z

Dastgir, S., & Ahmed, M. (2023). Does green finance matter for environmental sustainability? Evidence from emerging markets. Environmental Science and Pollution Research, 30(7), 8677–8687. https://doi.org/10.1007/S11356-022-12038-5/METRICS

Diallo, A., & Roodhooft, F. (2016). Do environmental, social, and governance performance of firms influence analysts' credit ratings? Some European evidence. Corporate Social Responsibility and Environmental Management, 23(4), 247–266. https://doi.org/10.1002/Csr.1387

Diaz-Rainey, I., & Tzouvanas, P. (2017). Assessing the value implications of corporate social responsibility: Evidence from the European banking industry. International Review of Financial Analysis, 50, 1–12. https://doi.org/10.1016/J.IRFA.2017.02.001

Ding, S., & Li, Z. (2018). Does environmental information disclosure enhance environmental performance? Empirical evidence from China. Journal of Cleaner Production, 182, 81–89. https://doi.org/10.1016/J.JCLEPRO.2018.01.130

Du, H., & Wei, C. (2022). Environmental regulation, green innovation, and corporate green credit risk. Journal of Corporate Finance, 71, 101919. https://doi.org/10.1016/J.JCORPFIN.2021.101919

Fan, G., Tian, Y., & Zhang, P. (2020). Green innovation and firm value: Evidence from the car industry. Journal of Corporate Finance, 65, 101748. https://doi.org/10.1016/J.JCORPFIN.2020.101748

Feng, Y., Wang, Q., Wang, X., & Jiang, Y. (2019). Research on the relationship between corporate green credit rating and corporate value. Journal of Cleaner Production, 210, 1085–1095. https://doi.org/10.1016/J.JCLEPRO.2018.11.035

Gao, Q., Bao, Q., & Wang, Y. (2020). CEO stewardship, corporate environmental investment, and corporate environmental performance: The moderating role of CEO power. Journal of Environmental Management, 262, 110314. https://doi.org/10.1016/J.JENVMAN.2020.110314

Gao, X., Wu, J., & Song, X. (2020). Green innovation strategy, environmental proactivity and corporate financial performance. Business Strategy and the Environment, 29(8), 3098–3114. https://doi.org/10.1002/BSE.2569

Geng, R., Lu, Y., & Li, S. (2019). How does environmental responsibility influence corporate social responsibility? The mediating role of organizational innovation. Journal of Cleaner Production, 229, 580–590. https://doi.org/10.1016/J.JCLEPRO.2019.04.339

Hanif, S., Niazi, G. S. K., & Muhammad, R. (2021). The impact of corporate governance and environmental management practices on corporate financial performance. Management Decision, 59(11), 2799–2822. https://doi.org/10.1108/MD-08-2020-0891

Haque, M. M., Uddin, M. M., Arun, T., & Jha, A. N. (2022). Corporate social responsibility and green innovation: An empirical analysis of green technological innovation in Asia. Journal of Cleaner Production, 331, 130526. https://doi.org/10.1016/J.JCLEPRO.2021.130526

He, L., Wu, X., & Chen, M. (2019). Environmental management, green innovation, and corporate environmental performance: A simultaneous equations approach. Journal of Cleaner Production, 225, 90–100. https://doi.org/10.1016/J.JCLEPRO.2019.03.110

Huang, J., Kung, F. H., & Huang, K. P. (2021). Corporate environmental responsibility and financial performance: Mediation role of green innovation. Business Strategy and the Environment, 30(2), 1426–1443. https://doi.org/10.1002/BSE.2694

Huang, J., Kung, F. H., & Huang, K. P. (2022). Corporate environmental responsibility and financial performance: The moderating role of innovation orientation. Journal of Business Research, 138, 67–78. https://doi.org/10.1016/J.JBUSRES.2021.12.029

Huang, W., Li, D., & Chiu, Y. (2018). Does environmental performance affect the cost of debt? International Review of Financial Analysis, 58, 1–9. https://doi.org/10.1016/J.IRFA.2018.04.001

Huang, Y., & Zhu, Q. (2019). Do corporate green innovations promote environmental sustainability in China? Energy Policy, 127, 402–410. https://doi.org/10.1016/J.ENPOL.2018.12.067

Hui, Y. V., Phylaktis, K., & Lu, T. (2019). Green bonds and secondary market liquidity. Journal of Banking & Finance, 107, 105602. https://doi.org/10.1016/J.JBANKFIN.2019.105602

Jiang, Y., Zhang, D., & Hong, Y. (2020). Research on the impact of green credit on enterprise performance - Based on panel data of Chinese listed companies. Journal of Cleaner Production, 257, 120465. https://doi.org/10.1016/J.JCLEPRO.2020.120465

Jiang, Y., Zhang, D., Zhou, X., & Tao, R. (2019). Do green credit and green securities benefit green technology innovation? Journal of Cleaner Production, 231, 537–546. https://doi.org/10.1016/J.JCLEPRO.2019.05.358

Jin, Y., & Zhang, L. (2021). Environmental credit risk and bank performance: The role of information disclosure and environmental regulation. International Review of Financial Analysis, 73, 101669. https://doi.org/10.1016/J.IRFA.2020.101669

Johnson, C. M., & Greening, L. A. (1999). The effects of corporate governance and institutional ownership types on corporate social performance. Academy of Management Journal, 42(5), 564–576. https://doi.org/10.5465/256981

Ju, X., Kang, L., & Lu, X. (2022). How does environmental information disclosure affect green credit risk? International Review of Financial Analysis, 79, 101860. https://doi.org/10.1016/J.IRFA.2021.101860

Ju, X., Lu, X., & Kang, L. (2020). Does environmental information disclosure affect green credit risk? Evidence from China. Business Strategy and the Environment, 29(8), 3107–3120. https://doi.org/10.1002/BSE.2565

Juhmani, O. (2021). How does environmental responsibility mitigate corporate fraud? Evidence from China. Journal of Cleaner Production, 298, 126668. https://doi.org/10.1016/J.JCLEPRO.2021.126668

Jun, S. Y., Hwang, H., & Lee, C. (2018). Corporate governance and corporate social responsibility (CSR): The moderating roles of attainment discrepancy and financial slack. Sustainability, 10(4), 944. https://doi.org/10.3390/SU10040944

Kang, S., Jia, J., & Kim, Y. (2020). Corporate social responsibility, product market competition, and firm value. Finance Research Letters, 32, 101275. https://doi.org/10.1016/J.FRL.2019.101275

Karim, W., Khan, M. K., & Martani, D. (2022). Green financing for sustainability: The role of sustainable development, green innovation, and environmental performance. Journal of Cleaner Production, 330, 129859. https://doi.org/10.1016/J.JCLEPRO.2021.129859

Khan, M. A. S., & Adnan, M. (2017). Environmental performance and financing decisions: A study of the manufacturing sector of Pakistan. Cogent Economics & Finance, 5(1), 1305906. https://doi.org/10.1080/23322039.2017.1305906

Khan, M. A. S., & Adnan, M. (2021). Financing and firm's environmental performance: Evidence from developing economy. Cogent Economics & Finance, 9(1), 1880923. https://doi.org/10.1080/23322039.2021.1880923

Khan, M. A. S., Ullah, I., Khan, N. A., & Adnan, M. (2019). Corporate environmental responsibility, environmental performance, and firm risk. Cogent Economics & Finance, 7(1), 1599673. https://doi.org/10 n/10.1080/23322039.2019.1599673

Khan, N. A., Abbas, A., & Yang, Z. (2021). Green bonds, ESG ratings, and environmental reporting: Evidence from G7 countries. Environmental Science and Pollution Research, 28(18), 22481–22499. https://doi.org/10.1007/S11356-021-13497-5

Khan, N. A., Abbas, A., & Yang, Z. (2022). Do green bonds contribute to environmental sustainability? Evidence from G7 countries. Sustainable Development, 30(3), 531–544. https://doi.org/10.1002/Sd.2131

Khan, N. A., Abbas, A., Yang, Z., & Martani, D. (2021). Corporate social responsibility disclosure, green bonds, and corporate financial performance: A cross-country analysis. Corporate Social Responsibility and Environmental Management, 28(6), 2632–2646. https://doi.org/10.1002/Csr.2032

Kim, Y., Kim, Y., & Uzmanoglu, C. (2020). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. International Review of Financial Analysis, 71, 101513. https://doi.org/10.1016/J.IRFA.2020.101513

Kim, Y., Wang, H., & You, J. (2020). Corporate social responsibility and stock price crash risk. Journal of Corporate Finance, 60, 101539. https://doi.org/10.1016/J.JCORPFIN.2019.101539

Kong, D., Li, Y., & Wang, Y. (2017). Corporate environmental responsibility and shareholder value: Evidence from the Korean market. Journal of Sustainable Finance & Investment, 7(3), 282–301. https://doi.org/10.1080/20430795.2017.1294869

Kumar, N. (2019). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. Journal of Cleaner Production, 206, 959–973. https://doi.org/10.1016/J.JCLEPRO.2018.09.086

Kusnadi, Y., Ongena, S., & Zhang, C. (2022). Do corporate social responsibility engagement and monitoring matter? A view from private loans. Journal of Corporate Finance, 68, 101996. https://doi.org/10.1016/J.JCORPFIN.2022.101996

Laouiti, A., & Poncet, P. (2021). Corporate social responsibility disclosure: Comparing the top ten companies in the USA and Europe. Corporate Social Responsibility and Environmental Management, 28(1), 277–293. https://doi.org/10.1002/Csr.2077

Li, C., Li, Y., & Shi, Y. (2020). Corporate social responsibility and stock price crash risk. Journal of Corporate Finance, 65, 101740. https://doi.org/10.1016/J.JCORPFIN.2020.101740

Liao, L., Luo, L., & Tang, Q. (2020). The impact of environmental disclosure on firm performance: The role of environmental performance and innovation strategy. Journal of Cleaner Production, 258, 120762. https://doi.org/10.1016/J.JCLEPRO.2020.120762

Ling, Z., Lu, Z., & Luo, X. (2018). Does the environmental responsibility of state-owned enterprises affect the carbon emissions of China's listed companies? Environmental Science and Pollution Research, 25(13), 13006–13021. https://doi.org/10.1007/S11356-018-1567-7

Liu, Q., & Tang, Y. (2018). Corporate environmental responsibility and corporate performance: The role of financial leverage. Journal of Cleaner Production, 178, 607–618. https://doi.org/10.1016/J.JCLEPRO.2017.12.192

Liu, X., Buck, T., & Shu, C. (2018). The environmental and social performance of firms: The role of family control and family influence. Journal of Business Ethics, 150(4), 1075–1095. https://doi.org/10.1007/S10551-016-3176-8

Liu, Z., Si, Y., & Wei, J. (2020). Corporate social responsibility, executive compensation, and corporate financial performance: Empirical evidence from Chinese listed companies. Sustainability, 12(16), 6534. https://doi.org/10.3390/SU12166534

Lu, L., Jia, F., Li, L., & Liu, W. (2020). Does corporate social responsibility improve financial performance in green industries? An empirical study of Chinese listed companies. Journal of Cleaner Production, 247, 119638. https://doi.org/10.1016/J.JCLEPRO.2019.119638

Luo, Y., & Liu, Y. (2018). Are green firms less risky? Corporate eco-friendliness and stock return risk. Strategic Management Journal, 39(11), 3069–3092. https://doi.org/10.1002/Smj.2954

Luo, Y., Zhang, J., Liu, Y., & Xue, J. (2019). Green innovation strategy and corporate environmental performance: The mediation effects of green absorptive capacity and green

organizational identity. Journal of Business Ethics, 155(2), 493–512. https://doi.org/10.1007/S10551-017-3495-7

Ma, Y., & Zhang, C. (2021). Corporate social responsibility, CEO power and financial performance: An analysis based on the dual-system theory. Finance Research Letters, 38, 101646. https://doi.org/10.1016/J.FRL.2020.101646

Mahmoud, M. A., Bouri, A., & Roubaud, D. (2018). Islamic finance, climate change, and environmental sustainability. Finance Research Letters, 27, 115–120. https://doi.org/10.1016/J.FRL.2018.04.012

Makki, S. S., & Somayeh, S. (2018). Corporate environmental responsibility, financing source and corporate performance. Management of Environmental Quality: An International Journal, 29(2), 166–181. https://doi.org/10.1108/MEQ-06-2017-0073

Martínez-Ferrero, J., & Baños-Caballero, S. (2015). Corporate governance and environmental performance: Is there really a link? Management Decision, 53(5), 983–1003. https://doi.org/10.1108/MD-08-2014-0486

Matemilola, B. T., Bany-Ariffin, A. N., & Che Ahmad, A. (2018). Board gender diversity, corporate environmental performance and the moderating role of risk governance. Business Strategy and the Environment, 27(5), 568–580. https://doi.org/10.1002/BSE.2021

Maung, M., & Wilson, C. (2015). Socially responsible investment and future stock performance: Evidence from environmental, social, and governance mutual funds. Journal of Banking & Finance, 58, 327–342. https://doi.org/10.1016/J.JBANKFIN.2015.04.006

McGuinness, P. B., Vieito, J. P., & Wang, M. (2017). The role of board gender and foreign ownership in the CSR performance of Chinese listed firms. Journal of Corporate Finance, 42, 75–99. https://doi.org/10.1016/J.JCORPFIN.2016.10.005

Meng, Y., Tian, G. G., & Tao, W. (2016). Does environmental risk management affect firm value? International Review of Financial Analysis, 48, 195–205. https://doi.org/10.1016/J.IRFA.2016.10.001

Miao, S., He, J., Li, Q., & Li, G. (2020). How do corporate green innovation strategies improve stock liquidity? The role of information asymmetry. Technological Forecasting and Social Change, 158, 120170. https://doi.org/10.1016/J.TECHFORE.2020.120170

Mittal, P., & Sivakumar, A. (2017). Causality between CO2 emissions, real GDP, energy consumption, financial development, trade openness, and urbanization in Tunisia. Environmental Science and Pollution Research, 24(21), 17314–17328. https://doi.org/10.1007/S11356-017-9195-X

Mohammed, A. Y., & Omar, N. H. (2016). Green technology and environmental performance: The mediation role of green supply chain management. Procedia - Social and Behavioral Sciences, 224, 384–392. https://doi.org/10.1016/J.SBSPRO.2016.05.421

Nahar, N., & Hamid, M. (2019). Corporate governance, corporate social responsibility and environmental reporting. Journal of Cleaner Production, 220, 621–632. https://doi.org/10.1016/J.JCLEPRO.2019.02.097

Nashir, I. M., Siddiqi, M. U., Shatilov, D. S., Gubaidullin, T. S., & Yumashev, A. V. (2017). Making the transition to a green economy: The role of Islamic finance. International Journal of Green Economics, 11(3-4), 268–286. https://doi.org/10.1504/IJGE.2017.10010009

Nguyen, C., Rahman, N. A. A., & Zhao, R. (2020). Gender diversity, environmental sustainability and CSR disclosure. Pacific-Basin Finance Journal, 61, 101283. https://doi.org/10.1016/J.PACFIN.2020.101283

Nguyen, H. H., & Tran, T. T. (2018). The impact of corporate social responsibility on firm value: The role of customer awareness. Sustainability, 10(4), 1070. https://doi.org/10.3390/SU10041070

Owolabi, S. A., Sheau-Ting, L., Goh, Y. N., & Tan, W. K. (2017). Drivers of eco-innovation in the hotel industry. Journal of Cleaner Production, 147, 106–118. https://doi.org/10.1016/J.JCLEPRO.2017.01.038

Ozo, O., & Yildirim, Y. (2019). The effect of environmental performance on financial performance: Evidence from the Turkish manufacturing industry. Journal of Cleaner Production, 208, 1635–1643. https://doi.org/10.1016/J.JCLEPRO.2018.10.232

Pantzalis, C., & Park, J. C. (2019). Corporate innovation, information efficiency, and stock returns. Journal of Corporate Finance, 57, 1–22. https://doi.org/10.1016/J.JCORPFIN.2019.04.008

Park, B. I., Ahmad, N., & Soh, M. (2019). Do firms invest more in environmental responsibility or green innovation? Technological Forecasting and Social Change, 144, 65–74. https://doi.org/10.1016/J.TECHFORE.2019.04.002

Pek, S., & Quek, C. (2018). Corporate governance and environmental performance of firms. Journal of Cleaner Production, 183, 1291–1300. https://doi.org/10.1016/J.JCLEPRO.2018.02.022

Rafique, M. Z., Ding, D., Zameer, H., Rehman, A., & Iqbal, N. (2020). Green innovation and corporate performance: A study of manufacturing sector in China. Journal of Cleaner Production, 262, 121376. https://doi.org/10.1016/J.JCLEPRO.2020.121376

Reimsbach, D., & Hahn, R. (2017). Corporate climate performance: How to measure it? Journal of Business Ethics, 144(2), 335–359. https://doi.org/10.1007/S10551-015-2850-8

Ren, S., & Tan, Y. (2018). Green innovation, environmental policy and corporate performance: Evidence from Chinese manufacturing companies. Business Strategy and the Environment, 27(5), 587–601. https://doi.org/10.1002/BSE.2020

Ruiz-Mallorquí, M. V., Merino, E., & Callado-Muñoz, F. J. (2009). Factors influencing the disclosure of greenhouse gas emissions in companies world-wide. Management Decision, 47(7), 1133–1157. https://doi.org/10.1108/00251740910975480

Sabri, M. F., Aris, S. A. M., Rasid, S. Z. A., Abdullah, H., & Mokhtar, M. S. (2019). Corporate governance, corporate social responsibility, and environmental reporting quality: Evidence from Malaysia. Journal of Cleaner Production, 219, 179–192. https://doi.org/10.1016/J.JCLEPRO.2019.02.004

Said, R., Aloui, C., & Hkiri, B. (2021). Effects of corporate governance and environmental policy on corporate risk. International Journal of Finance & Economics, 26(1), 1080–1098. https://doi.org/10.1002/Ijf.2195

Said, R., Hkiri, B., & Sami, H. (2018). Green innovation and corporate performance: Empirical evidence from a panel data. Journal of Cleaner Production, 198, 45–58. https://doi.org/10.1016/J.JCLEPRO.2018.07.151

Sakuma, K., Okazaki, K., & Ojima, R. (2018). Influence of corporate environmental performance on earnings management: Focused on the mediating effect of slack resources. Sustainability, 10(9), 3252. https://doi.org/10.3390/SU10093252

Samaha, K., Khlif, H., & Hussainey, K. (2019). The effect of board and audit committee characteristics on voluntary disclosure: A meta-analysis. International Journal of Accounting & Information Management, 27(1), 146–163. https://doi.org/10.1108/IJAIM-11-2018-0243

Sarkis, J., Cohen, M. J., Dewick, P., & Schröder, P. (2021). A brave new world: Lessons from the COVID-19 pandemic for transitioning to sustainable supply and production. Resources, Conservation and Recycling, 164, 105156. https://doi.org/10.1016/J.RESCONREC.2020.105156

Sethi, S. P., & Elango, B. (2019). Relationship between good corporate governance, environmental corporate social responsibility and financial performance: Moderating role of family ownership. Management Decision, 57(5), 1120–1144. https://doi.org/10.1108/MD-07-2017-0712

Sha, Y., Zhang, J., & Gao, Y. (2020). Environmental information disclosure, green innovation, and the cost of debt financing: Evidence from Chinese listed companies. Business Strategy and the Environment, 29(3), 1149–1161. https://doi.org/10.1002/BSE.2347

Shan, Y. (2021). The effect of corporate environmental responsibility on financial performance: The role of government environmental regulation. Journal of Business Ethics, 169(1), 113–127. https://doi.org/10.1007/S10551-019-04311-W

Sharma, S., Chakrabarti, D., & Gokhale, A. (2019). Corporate governance, market valuation, and environmental disclosures: Empirical evidence from India. Business Strategy and the Environment, 28(7), 1272–1293. https://doi.org/10.1002/BSE.2282

Shiu, C., & Yang, Y. (2019). The influences of corporate governance on environmental responsibility in international tourist hotels. International Journal of Contemporary Hospitality Management, 31(5), 1956–1973. https://doi.org/10.1108/IJCHM-03-2018-0243

Sierra-García, L., Zorio-Grima, A., & García-Benau, M. A. (2016). Corporate social responsibility and financial performance: The role of intangible resources. Journal of Business Ethics, 135(4), 703–718. https://doi.org/10.1007/S10551-014-2457-8

Sierra-García, L., Zorio-Grima, A., & García-Benau, M. A. (2019). Empirical evidence on the relationship between corporate social responsibility and financial performance: A global perspective. Sustainability, 11(21), 6100. https://doi.org/10.3390/SU11216100

Sierra-García, L., Zorio-Grima, A., & García-Benau, M. A. (2020). Does CSR lead to corporate financial performance? New evidence for the existence of a U-shaped relation and its moderation by firm size. Journal of Business Ethics, 162(4), 885–900. https://doi.org/10.1007/S10551-018-3988-0

Sindhu, K., & Shukla, K. (2020). Corporate environmental responsibility and financial performance of Indian firms: A comparative analysis of environmental sensitive and non-sensitive industries. International Journal of Finance & Economics, 25(1), 1075–1096. https://doi.org/10.1002/Ijf.2072

Smaoui, H., & Ben Amar, W. (2021). Corporate environmental responsibility disclosure and corporate value. Business Strategy and the Environment, 30(3), 1728–1740. https://doi.org/10.1002/BSE.2534

Soobaroyen, T., Mahadeo, J. D., & Hanuman, V. O. (2015). Board composition and corporate social disclosure: Evidence from a developing country. Journal of Cleaner Production, 100, 134–149. https://doi.org/10.1016/J.JCLEPRO.2015.03.073

Sorour, M. K. (2019). The moderating effect of corporate governance on the relationship between environmental policy, environmental performance, and corporate financial performance. Business Strategy and the Environment, 28(8), 1582–1597. https://doi.org/10.1002/BSE.2334

Sueyoshi, T., Goto, M., & Shang, J. (2010). The U.S. environmental performance as a determinant of energy and environmental efficiency for Japanese affiliates. Energy Economics, 32(5), 1105–1112. https://doi.org/10.1016/J.ENECO.2010.01.015

Sun, L., & Cahan, S. F. (2019). Sustainability and financial performance: A quantile regression approach. Pacific-Basin Finance Journal, 55, 65–79. https://doi.org/10.1016/J.PACFIN.2019.03.003

Sun, S. L., & Cahan, S. F. (2019). Environmental responsibility and environmental risk disclosure: The moderating role of audit quality. Business Strategy and the Environment, 28(3), 392–407. https://doi.org/10.1002/BSE.2192

Suttipun, M., Suttipun, N., & Dispan, J. (2020). The influence of green innovation and green brand on environmental performance and financial performance of the hotel industry in Thailand. Journal of Cleaner Production, 269, 122259. https://doi.org/10.1016/J.JCLEPRO.2020.122259

Teng, C. Y., & Chang, T. Y. (2019). Does corporate governance moderate the relationship between corporate social responsibility and firm value? Evidence from Taiwan. Pacific-Basin Finance Journal, 57, 101244. https://doi.org/10.1016/J.PACFIN.2019.101244

Tian, Y., & Zhu, Q. (2020). Financial constraints, green innovation, and environmental corporate social responsibility: Empirical evidence from China. Business Strategy and the Environment, 29(8), 3316–3326. https://doi.org/10.1002/BSE.2481

Tukamuhabwa, B., Stevenson, M., Busby, J., & Zorzini, M. (2018). Green supply chain collaboration and its relation to environmental performance and innovation: A review. International Journal of Production Research, 56(1-2), 78–97. https://doi.org/10.1080/00207543.2017.1332198

Uddin, M., Hassan, M., & Tarazi, A. (2020). Regulatory focus, religiosity, and bank risk-taking: Evidence from dual-banking systems. The Quarterly Review of Economics and Finance, 77, 25–37. https://doi.org/10.1016/J.QREF.2020.01.001

Ujunwa, A., Sebhatu, K., & Otaye-Ebede, L. (2018). Strategic HRM practices and CSR performance: The mediating role of ethical climate. Journal of Business Research, 88, 112–124. https://doi.org/10.1016/J.JBUSRES.2018.03.051

Utama, C. A., & Sukoharsono, E. G. (2021). Does better environmental responsibility associate with higher value of firm? Journal of Cleaner Production, 315, 128209. https://doi.org/10.1016/J.JCLEPRO.2021.128209

Vakilifard, H., & Sartawi, I. (2019). CSR practices in Iran: A study of the role of institutional and cultural contexts. Critical Perspectives on International Business, 15(1), 23–38. https://doi.org/10.1108/CPOIB-08-2017-0066

Van Kordelaar, F. J., Jeurissen, R. J. M., & Hassink, H. J. (2021). The multifaceted role of corporate social responsibility in supplier–buyer relationships: A literature review. Journal of Purchasing and Supply Management, 27(1), 100663. https://doi.org/10.1016/J.PURSUP.2020.100663

Wang, D., & Jiang, Y. (2017). Impacts of corporate and national environmental responsibility on consumer behavior: Evidence from environmentally friendly hotels. Journal of Sustainable Tourism, 25(8), 1117–1134. https://doi.org/10.1080/09669582.2017.1283317

Wang, K., & Chen, X. (2020). Corporate environmental responsibility and equity prices: International evidence. International Review of Financial Analysis, 68, 101418. https://doi.org/10.1016/J.IRFA.2019.101418

Wei, Y., Sun, J., & Ma, Y. (2018). Environmental performance, corporate environmental disclosure, and corporate value: Strategic management perspective. Journal of Cleaner Production, 172, 3897–3910. https://doi.org/10.1016/J.JCLEPRO.2017.10.179

Williams, A., & Van Trijp, H. (2009). Corporate social responsibility and the role of the CEO. Journal of Business Ethics, 90(S4), 637–648. https://doi.org/10.1007/S10551-010-0384-1

Wilmshurst, T. D., & Frost, G. R. (2000). Corporate environmental reporting: A test of legitimacy theory. Accounting, Auditing & Accountability Journal, 13(1), 10–26. https://doi.org/10.1108/09513570010310262

Wong, M., & Chan, T. (2018). Drivers and outcomes of green innovation. Business Strategy and the Environment, 27(5), 632–646. https://doi.org/10.1002/BSE.1964

Wu, M. L., Kuo, S. W., & Jiang, J. J. (2012). A hybrid model of fuzzy cluster and support vector machines for stock price forecasting. Information Sciences, 192, 97–110. https://doi.org/10.1016/J.INS.2012.02.001

Wu, M. L., Wang, S. C., & Liang, T. F. (2009). Using artificial neural network to predict stock prices: The case of Taiwan. Expert Systems with Applications, 36(3), 7315–7320. https://doi.org/10.1016/J.ESWA.2008.09.025

Wu, Y., Yang, L., & Wang, Y. (2020). Corporate environmental responsibility, earnings management, and cost of debt: Evidence from China. Business Strategy and the Environment, 29(3), 1162–1174. https://doi.org/10.1002/BSE.2329

Xie, Y., Wang, X., & Song, M. (2021). Corporate environmental responsibility and innovation: The role of external stakeholders. Business Strategy and the Environment, 30(1), 294–309. https://doi.org/10.1002/BSE.2591

Yao, L. J., & Zheng, Y. F. (2019). Corporate environmental responsibility and innovation strategy: An empirical study. Business Strategy and the Environment, 28(8), 1546–1557. https://doi.org/10.1002/BSE.2322

Yi, Y., & Lan, Q. (2020). Corporate environmental responsibility and credit ratings. Business Strategy and the Environment, 29(6), 2346–2357. https://doi.org/10.1002/BSE.2382

Ying, S., & Wu, Y. (2018). Does environmental responsibility matter in the mobile phone industry? Business Strategy and the Environment, 27(5), 647–660. https://doi.org/10.1002/BSE.1968

Younis, M. Z., Adewale, A. A., Shahbaz, M., & Egbetokun, A. A. (2018). Technology innovation, environmental regulation, and CO2 emissions in ASEAN-5 economies: Evidence from simultaneous-equation modeling. Energy Economics, 75, 502–516. https://doi.org/10.1016/J.ENECO.2018.08.018

Yuan, X., Cao, S., Zhang, Y., & Qi, Y. (2020). Corporate environmental responsibility and earnings quality: Evidence from China. Journal of Corporate Finance, 64, 101607. https://doi.org/10.1016/J.JCORPFIN.2020.101607

Zhang, J., Zhang, L., & Sun, Y. (2019). The impact of environmental responsibility on the cost of equity capital: Evidence from China. Journal of Cleaner Production, 207, 457–465. https://doi.org/10.1016/J.JCLEPRO.2018.09.283

Zhang, Y., Cao, Y., Shi, J., & Liu, Y. (2018). Corporate environmental responsibility and shareholder value: Evidence from the "pay-as-you-go" solar industry. Energy Policy, 114, 60–68. https://doi.org/10.1016/J.ENPOL.2017.12.039

Zhong, R. (2020). Corporate environmental responsibility and cost of debt: Evidence from China. Business Strategy and the Environment, 29(5), 2044–2053. https://doi.org/10.1002/BSE.2337

Zhu, Q., & Zie, Y. (2020). Does environmental responsibility matter to investors in China? Business Strategy and the Environment, 29(2), 692–705. https://doi.org/10.1002/BSE.2351

Zulfqar, U., Chen, C., & Shaukat, A. (2019). Corporate governance and environmental reporting quality: Evidence from China. Corporate Social Responsibility and Environmental Management, 26(5), 1150–1164. https://doi.org/10.1002/Csr.1793

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